

Biden Wants to Slash Emissions. Success Would Mean a Very Different America.

Hitting the targets could require a rapid shift to electric vehicles, the expansion of forests nationwide, development of complex new carbon-capture technology and many other changes, researchers said.



By Brad Plumer

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WASHINGTON — President Biden’s new pledge to slash America’s greenhouse gas emissions over the coming decade is long on ambition and short on specifics, but experts say that success would require rapid and sweeping changes to virtually every corner of the nation’s economy, transforming the way Americans drive to work, heat their homes and operate their factories.

In several recent studies, researchers have explored what a future America might look like if it wants to achieve Mr. Biden’s new climate goal: Cutting the nation’s planet-warming emissions at least 50 percent below 2005 levels by the year 2030.

By the end of the decade, those studies suggest, more than half of the new cars and S.U.V.s sold at dealerships would need to be powered by electricity, not gasoline. Nearly all coal-fired power plants would need to be shut down. Forests would need to expand. The number of wind turbines and solar panels dotting the nation’s landscape could quadruple.

It’s achievable in theory, researchers say, but it’s an enormous challenge. To get there, the Biden administration would likely need to put in place a vast array of new federal policies, many of which could face obstacles in Congress or the

courts. And policymakers will have to take care in crafting measures that do not cause serious economic harm, such as widespread job losses or spikes in energy prices, that could trigger blowback.

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“It’s not an easy task,” said Nathan Hultman, the director of the University of Maryland’s Center on Global Sustainability. “We won’t be able to sit back and hope that market forces alone will do the job.”

For now, the United States has a head start. The nation’s greenhouse gas emissions have already fallen roughly 21 percent since 2005, according to estimates by the Rhodium Group, an energy research and consulting firm. Much of that decline came as electric utilities retired hundreds of their dirtiest coal plants and shifted to cheaper and cleaner natural gas, wind and solar power.

But roughly one-third of the reductions to date have come as a result of the coronavirus pandemic, as business activity slumped and Americans drove less. That drop is likely to prove fleeting. “We expect emissions to rebound this year as the economy recovers, so we’re already backtracking a bit,” said Kate Larsen, a director at the Rhodium Group.



President Biden, left, and John Kerry, the presidential envoy for climate, during Thursday's climate summit. Al Drago for The New York Times

The harder part is yet to come. In a recent study, Mr. Hultman and his colleagues modeled a possible road map for achieving at least a 50 percent reduction in emissions by 2030. The changes required under their scenario would be far-reaching:

- By 2030, half the country's electricity would need to come from renewable sources such as wind, solar or hydropower, up from one-fifth today. New natural gas plants would largely be built with technology that can capture and bury carbon dioxide, instead of releasing it into the atmosphere — technology that is still in its infancy. And most or all of the 200 remaining coal plants would need to shut down.
- Two-thirds of new cars and S.U.V.s sold would be battery-powered by decade's end, up from roughly 2 percent today. All new buildings would be heated by electricity rather than natural gas.
- The nation's cement, steel and chemical industries would adopt stringent new energy-efficiency targets. Oil and gas producers would slash emissions of methane, a potent heat-trapping gas, by 60 percent.

- The nation's forests would expand, and farming practices would be reworked, so that they pull 20 percent more carbon dioxide out of the air than they do today.

While that research provides only one potential strategy for how the United States might meet its target, it illustrates the vast scale of the transformation envisioned. “Those are massive changes to electricity and transportation, and even then you can’t just focus on those sectors alone,” said Mr. Hultman. “If we fall short in any one area, the task becomes that much harder.”

Solar panels being installed on a rooftop in Brooklyn last year. Karsten Moran for The New York Times

It's still an open question whether the Biden administration can adopt new policies that will actually achieve all of those goals. The White House has yet to lay out the precise steps it will take to ensure the United States reaches its new climate target, although it has offered some signals.

For instance, Mr. Biden has floated the idea of a clean electricity standard that could require utilities to get all of their electricity from low-carbon sources such as wind, solar, nuclear or even natural gas with carbon capture by 2035. But that policy faces a battle in Congress.

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And while the Biden administration is working on more stringent fuel-economy standards for pollution from cars and light trucks, it has not proposed strict sales targets for electric vehicles, as states like California have urged.

Mr. Biden has also shied away from ideas like a carbon price, which would require polluters to pay for their emissions of carbon dioxide, giving them an incentive to pollute less. Europe and Canada have adopted programs like these, and one recent study by Resources for the Future, a nonpartisan think tank, found that the United States could cut its carbon dioxide emissions 54 percent by 2030 if it put in place a carbon tax that started at \$40 per ton and increased by 5 percent each year.

But some analysts say carbon pricing would be a tough sell for many lawmakers.

“There’s this idea in Europe of the inevitability of carbon pricing, and that this is the way to go,” Samantha Gross, director of the Energy Security and Climate Initiative at the Brookings Institution, said. “I do see that point, and I understand it, but that point is running at least right now into a wall of U.S. politics that are not supportive of carbon pricing.”

Mr. Hultman said that even if the Biden administration can’t enact some of his more ambitious proposals, such as a clean electricity standard, there might be other options available.

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His research found that the United States could potentially make significant progress toward its climate goal by significantly expanding federal tax credits for a variety of clean energy technologies — including electric vehicles, charging stations, wind, solar and carbon capture — an idea that has historically found a more receptive audience in Congress.

The Environmental Protection Agency could also enact new regulations on automakers, coal and gas plants and oil drillers to help fill the gap. While those rules would not require Congress's approval, they could face pushback from a more conservative Supreme Court.

Yet even if many or even all of those policies get enacted, a bigger question remains: Mr. Biden's term ends in 2024. What happens if he is succeeded by a president who disavows his climate target, much as President Trump dismantled President Obama's regulations on greenhouse gas emissions?

“That’s a concern of mine,” said Ms. Gross of Brookings. “Most importantly, I worry that the fear of such reversal and then the endless litigation that comes along with this will dampen the investment signal that the regulation was intended to send.”

Republicans have already sharply criticized Mr. Biden's climate target as damaging for the American economy. “The president’s scheme will cost working families a fortune in higher energy bills,” said Senator John Barrasso, Republican of Wyoming. “It will also hurt America’s international competitiveness.”

Mr. Biden sought to frame the transformation as a vast economic opportunity. “I see line workers laying thousands of miles of transmission lines for a clean, modern, resilient grid,” he said Thursday. “I see the engineers and the construction workers building new carbon capture and green hydrogen plants to forge cleaner steel and cement.”

Coal plants would largely need to retire to reach Biden’s targets. Demolition of a Michigan plant in February. Cory Morse/The Grand Rapids Press, via Associated Press

Ultimately, for Mr. Biden to make his climate goals stick, experts said, he will essentially have to win that argument, showing that it's possible to rapidly scale new clean-energy industries that benefit Americans and create large new constituencies that make his policies politically difficult to unwind.

There is some precedent for that. President Obama expanded tax incentives for wind and solar power during his two terms, which helped drive down the costs of both technologies and fostered large new industries that now employ hundreds of thousands of workers. In December, during the Trump administration, bipartisan majorities in Congress agreed to extend tax credits for technologies like wind and solar power with relatively little fanfare.

And the federal government wouldn't necessarily act alone. States like California and New York are separately pursuing their own aggressive targets for cutting emissions. Cities across the country are enacting stricter building codes and installing electric vehicle charging stations. Large companies like General Motors or Google have made specific promises to shift to electric vehicles and cleaner energy.

While many of these promises are still uncertain — and are more prevalent in Democratic-led states than Republican ones — experts say that a major expansion of these local and business efforts could help propel the United States toward its goal if the federal government falls short.

“If climate action becomes much more widespread at the state or city or business level, then it's much more robustly anchored,” said Mr. Hultman. “Then these climate goals aren't just viewed as a numbers game, but as a societal transformation.”