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6 Reasons Trump Can't (Totally) Derail Progress on Climate

Falling prices for renewables and a growing sustainability movement from the bottom up have changed the global picture.



Wind power is soaring across the U.S., as these turbines in California suggest. PHOTOGRAPH BY GEORGE F. MOBLEY, NATIONAL GEOGRAPHIC CREATIVE

By **Laura Parker**
Craig Welch

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If ever there was a symbolic moment when the past met the future, it arrived as the [Kentucky Coal Mining Museum](#) announced in April it is converting to solar. To save money.

Coming from Harlan County, a place so deeply imbued with mining that coal has been considered its lifeblood for more than a century, the news immediately went viral. Tre' Sexton, owner of Bluegrass Solar, was so stunned by the museum's request, he told [USA Today](#), "it would be like showing up at a bank and they ask you if you'd mind taking some of this money out of the vault."

The numbers on coal-versus-solar are as clear as day. Eighty solar panels on the museum's roof saves almost \$10,000 on the yearly electric bill. The museum's switch is also another sign post, although a profoundly ironic one, that the global transition to a lower-carbon future is well underway—and will not reverse course, no matter how President Donald Trump redesigns Washington's role in fighting climate change.

Less than two years after [195 countries agreed](#) in Paris to curb emissions to avoid a two-degree Celsius rise in temperature, the switch to clean energy is happening far faster than anyone expected, according to a new analysis unveiled this week in Europe. Dramatic change is taking shape in the three countries that need it most—the United States and the expanding economies of China and India. It's even happening in the face of [Trump administration rollbacks](#) of Obama-era climate regulations.

"Our analysis shows China and India are massively overachieving," says [Niklas Höhne](#), a climate expert in The Netherlands, and the founder of [NewClimate Institute](#), a research organization. "The positive effects in China and India are far larger than the negative impacts coming out of the United States."

That doesn't mean that Trump can't make a big impact—especially if he walks away from the Paris accord, as he promised during his campaign. His presence is already being felt. But as the world watches to see if or how far the U.S. steps back from its leadership role, here are some takeaways to keep in mind:

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1. SOLAR AND WIND ARE CHEAPER THAN COAL

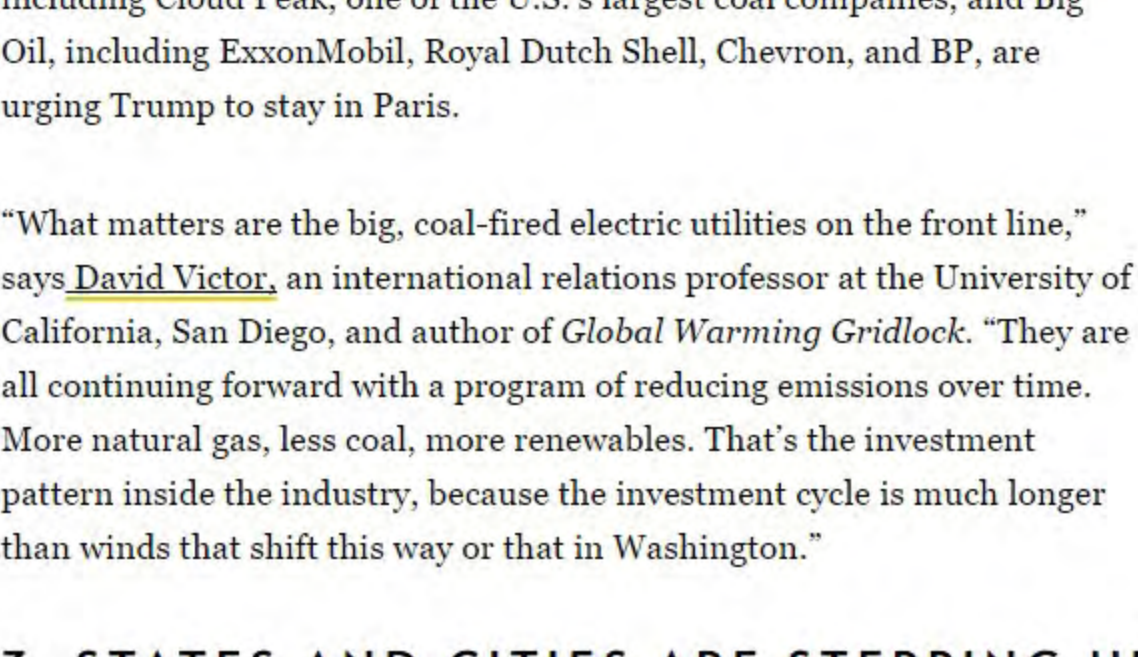
Solar and wind are now so competitive that they are crowding out coal in many countries. In the U.S., electric generation from coal dropped by more than half in the last decade. Utility scale solar, meanwhile, rose 5,000 percent during that same period—increasing by half just from 2015 to 2016. In fact, Trump's first 100 days coincided with

power's [best quarter in eight years](#).

Globally, fossil fuels are still dominant. But new electricity generation from renewables in 2015 for the first time [was greater than the amount of new power generation from coal or oil](#).

The pace is quickening because the transition is now driven by economics—not just politics. While President Trump [promised](#) to put coal miners back to work, more than 250 coal plants, half the number operating in the U.S., already have plans to close or shift to cleaner fuels.

Obama-era regulations didn't do that. In fact, with President Obama's rules to force coal-fired power plants to clean up emissions, the Energy Information Administration calculated that electricity generation from renewables and natural gas would surpass coal by 2028. But even without those rules, [the transition could occur as soon as 2020](#).



COAL, ELECTRICITY AND CLIMATE CHANGE IN INDIA

2. CORPORATE AMERICA IS ON BOARD

Some of the largest U.S. companies have urged Trump to stay in the Paris agreement, including Dupont, the chemical company, and General Motors, which has pledged that [100 percent of the electricity it uses at 350 plants in 59 countries](#) would be powered by renewables by 2050.

Apple and Google are among 19 mostly tech firms that bought a full-page ad in the *New York Times* to argue the case. But the voices that count are leaders in the fossil fuel industry, who have Trump's ear. Many of them, including Cloud Peak, one of the U.S.'s largest coal companies, and Big Oil, including ExxonMobil, Royal Dutch Shell, Chevron, and BP, are urging Trump to stay in Paris.

"What matters are the big, coal-fired electric utilities on the front line," says [David Victor](#), an international relations professor at the University of California, San Diego, and author of *Global Warming Gridlock*. "They are all continuing forward with a program of reducing emissions over time. More natural gas, less coal, more renewables. That's the investment pattern inside the industry, because the investment cycle is much longer than winds that shift this way or that in Washington."

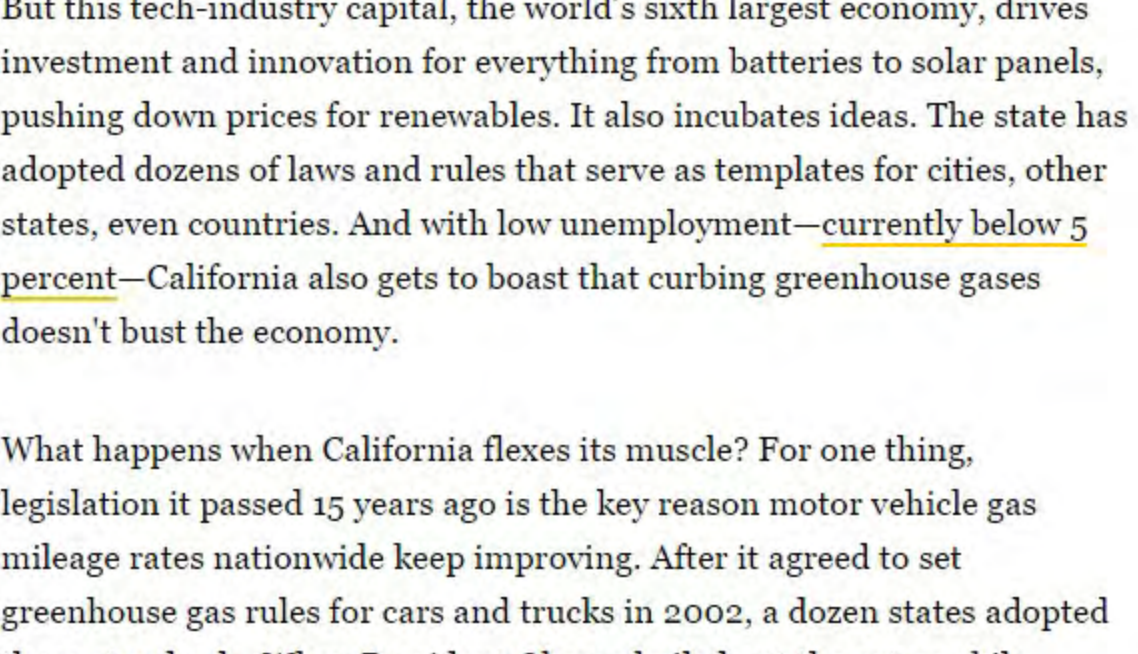
3. STATES AND CITIES ARE STEPPING UP

Meanwhile, states and cities have stepped into the void left by Washington gridlock. Some 29 states now require a percentage of their electricity to come from renewable sources, according to the National Conference of State Legislatures. Among them, Massachusetts, New Hampshire, Minnesota, and New York plan to cut emissions 80 percent by 2050.

California aspires to some of the most ambitious goals—cutting greenhouse gases by 40 percent in the next 13 years. The Golden State wants to lead the nation's push to electrify transportation. It is calling for significant [investment in weatherization](#) and retrofitting buildings to be more energy-efficient. The state is even overlaying climate targets on land-use decisions—incentivizing local and regional agencies to reduce the need for cars.

More than two dozen cities have adopted measures that go even farther. They committed to generating 100 percent of their electricity from renewable energy in the coming decades. That's not just blue-state coastal cities, but also municipalities in the interior, places like [Hanover, New Hampshire](#) and [Moab, Utah](#). Likewise, cities across the country are upgrading water treatment plants, raising flood walls, and rewriting building codes as they adapt to harsher weather conditions and tidal flooding.

"What's going on in state and local governments is really happening on two fronts—emissions reductions and adaptation," says John Holdren, former top science adviser to President Obama. "Both thrusts are absolutely essential."



Large-scale solar installations have made the power cheaper than coal. PHOTOGRAPH BY JAMEY STILLINGS, NATIONAL GEOGRAPHIC CREATIVE

4. IT'S NOT JUST BLUE STATES AND TREE-HUGGERS

Nine of the 10 states that get the largest proportion of their electricity from wind—including Iowa, Kansas, and both Dakotas—are Republican-leaning. Always at or near the top: The GOP stronghold of [Texas](#).

"Republican states are going for wind because the cost is so cheap," says [Mark Jacobson](#), a Stanford University professor and clean energy expert.

In the coal state of Wyoming, Republican [Gov. Matt Mead](#) is ever the pragmatist. He doesn't argue that CO2 is not harmful. He focuses on the future. As the world embraces new rules requiring reductions in carbon dioxide, he wants Wyoming to lead in finding ways to capture emissions and transform them into safe, marketable consumer goods. He hopes that will give coal a longer lifespan.

Wyoming was among the first states to invest in research in so-called carbon-capture and storage. Officials hope a site in Rock Springs could serve as a test case for underground CO2 storage. The legislature also spent millions of dollars to build a test facility in

Gillette. They hope scientists will [experiment on emissions pulled straight from a coal-fired power plant](#) and learn to neutralize the CO2 and turn it into products from carbon fiber to toothpaste.

"I think we've gotten bogged down in this discussion," Mead says. As the nation's leading energy exporter, "I feel we have a responsibility to lead in research and innovation."

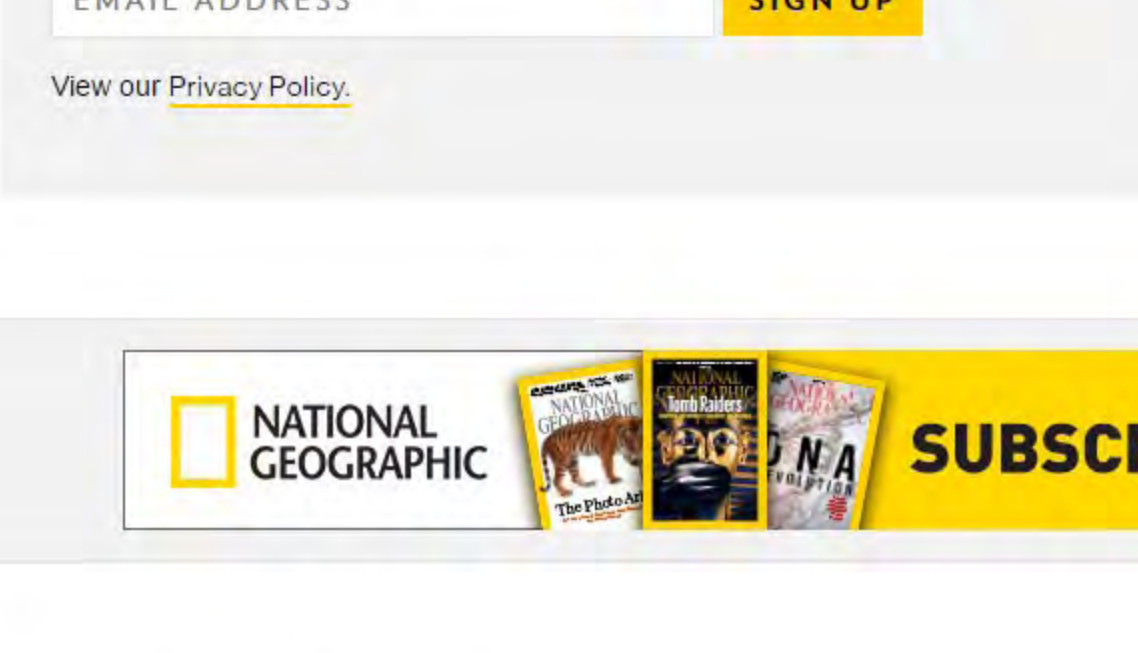
5. THE INFLUENCE CENTER SHIFTS FROM WASHINGTON TO SACRAMENTO

California's 40 million people produce one percent of global emissions. But this tech-industry capital, the world's sixth largest economy, drives investment and innovation for everything from batteries to solar panels, pushing down prices for renewables. It also incubates ideas. The state has adopted dozens of laws and rules that serve as templates for cities, other states, even countries. And with low unemployment—[currently below 5 percent](#)—California also gets to boast that curbing greenhouse gases doesn't bust the economy.

What happens when California flexes its muscle? For one thing, legislation it passed 15 years ago is the key reason motor vehicle gas mileage rates nationwide keep improving. After it agreed to set greenhouse gas rules for cars and trucks in 2002, a dozen states adopted those standards. When President Obama bailed out the automobile industry, he wrangled more mileage concessions, essentially nationalizing California's approach. Later, auto companies accepted one national standard: on average, vehicles across fleets would achieve [54.5 miles per gallon](#) by 2025.

This clout may be a check against some Trump policies. The auto industry [asked Trump](#) and Environmental Protection Agency chief [Scott Pruitt](#) to revisit mileage standards. The White House [has said it would](#). But California officials promise to push back. And car manufacturers don't want two sets of rules—one for California and one for the rest of the nation.

"By the time it's worked out, there will be a new president," says Victor, the University of California, San Diego, professor. "The question for industry, and automakers planning new vehicles, is: Do you want to bet that the change in policy under Trump is permanent? That's the bet that most people are not willing to make."



Coal jobs, traditionally in places like Hardburley, Kentucky, have been eclipsed by renewable energy jobs—but not because of regulation. Global emissions forces have made coal less competitive. PHOTOGRAPH BY JAMES P. BLAIR, NATIONAL GEOGRAPHIC CREATIVE

6. A BRIGHTER GLOBAL PICTURE

Falling prices of renewable energy have dramatically improved the global outlook. Just two years ago in Paris, the world's top two polluters outside the U.S. insisted they'd need lots more coal. That was especially true in India, where millions in rural villages still live without electricity.

Today, entire regions across India are seeking 100 percent renewable power. India's new plans for meeting future energy needs now call for far fewer coal-fired plants. China, too, is shuttering coal facilities. Coal consumption there has dropped three years in a row. In both countries, according to Hohne's team, the changes appear likely to slow emissions growth by 2030 far more than projected during the Paris talks. "This is truly a surprise," Hohne says.

7. BUT, THE U.S. NEEDS TO DO MORE

Progress toward reducing emissions is fraught with peril. Many scientists concede that goals set in Paris aren't strong enough to avoid the worst climate consequences. There's still no guarantee the world will even meet them. For that to happen, many say, much more needs to happen—and faster—in the U.S.

Even if Trump kept all of Obama's plans, the U.S. would fall short of its own target of reducing emissions by 26 to 28 percent below 2005 levels by 2030. Obama's strategy always relied on the U.S. ratcheting emissions down more in coming years. If Trump abandons those plans, the U.S. will almost certainly fall dramatically short—in spite of the efforts of states, cities, and corporations.

"When the Obama administration put out its goal it was very clear that it would be a stretch," says [Kate Larsen](#), who worked on climate policy in the Obama White House, and is now a director at the research organization Rhodium Group. "And that was with the full-force of the federal government behind it."

"I think we need to be honest about where we are and where we need to be without demoralizing people," she continues. "There's no question, this is the direction the country and the world are ultimately moving in. But it's going to be difficult to make up the ground we've lost with the rollback of so many climate policies."

There are other concerns, too. While global progress is being made on electricity generation, reducing fossil fuel use in transportation is harder. Ships, trucking, airplanes, and cars all may need different solutions, and Trump has proposed slashing research at agencies that partner with businesses around the globe. If the motor vehicle capital of the world doesn't make the effort, other countries may give up.

Withdrawing from the world stage on climate could also cede new markets, industries, and leadership on everything from international trade to geopolitics to China. That could be costly in ways the Trump administration has not anticipated.

"The U.S. played the central role in designing Paris and plans it a flexible system of diplomacy. Paris is not designed to tell countries what to do," says Victor. "If we walk away, we walk away from the system best designed for America."

Laura Parker

Laura Parker is a staff writer who specializes in covering climate change and marine environments.

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