

Germany's Failed Climate Goals

A Wake-Up Call for Governments Everywhere

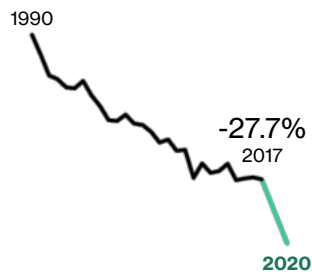
Cooling towers at the lignite coal-fired power plant in Janschwalde, Germany. Photographer: Krisztian Bocsi/Bloomberg

By William Wilkes, Hayley Warren and Brian Parkin
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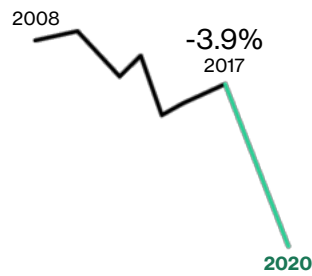
Germany, the nation that did more than any other to unleash the modern renewable-energy industry, is likely to fall short of its goals for reducing harmful carbon-dioxide emissions even after spending over 500 billion euros (\$580 billion) by 2025 to overhaul its energy system.

Germany Set to Miss 2020 Climate Goals

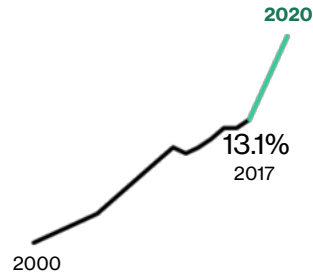
Reduce greenhouse gas emissions by 40%



Reduce primary energy consumption by 20%



Increase share of renewables in energy consumption to 20%



Sources: German Environment Agency, AG Energiebilanzen e.V.

Chancellor Angela Merkel's government is grappling with the implications of failing to sufficiently raise the renewable share. Those may include extending the life of the most polluting fossil-fuel plants and scaling back future climate pledges under the landmark Paris Agreement, negotiated by more than 190 countries in 2015.

A shortfall in Germany is an ominous signal for other nations struggling to reach their own targets. Emboldened by its prowess in engineering and a consensus across all political parties in favoring green energy, Germany was the first major economy to make a big shift in its energy mix toward low-carbon sources.

Germany's emissions miss should act as a "wake-up" call to all countries, said Gail Whiteman, professor of environment sustainability at the U.K.'s Lancaster University. "It does not necessarily mean that China or India or even the U.S.A. can't cut their emissions. The key point is that we need a new kind of climate leadership, both at the nation-state level and across all other actors including companies and mayors."

Falling short on greenhouse-gas goals has implications for the planet. Scientists have linked the heatwave in the Northern Hemisphere this season to climate change. Higher temperatures shut down power plants across Europe, ignited forest fires in California and shrank glaciers atop Sweden's highest mountain.

That's worried scientists, who fear they may have underestimated the impact of rising carbon emissions. "The human fingerprint on rising temperatures was clear in the heatwave this year," said Michael Mann, a professor of atmospheric science at Penn State University.

"Stalled weather systems caused by a weakening and changing jet stream are probably playing with the unprecedented weather extremes we're seeing around the world, with human-caused climate change playing a likely role here," Mann said.

A heatwave and lack of rainfall is pummeling crops across Europe as far as the Black Sea. Photographer: Akos Stiller/Bloomberg

Germany stepped up as a leader on climate change at the start of the century, pioneering a system of subsidies for wind and solar farms that sparked a global boom in manufacturing the technologies.

Merkel, who as environment minister in the 1990s sketched some of the first international climate deals organized by the United Nations, in 2007 pledged to slash emissions by 40 percent by 2020 compared to 1990 levels. She backed that up with more than 100 measures in order to meet that goal. The reductions Germany achieved didn't have a big impact on the picture for global emissions because of an increase in emissions from developing nations.

Mission Impossible?

World needs to cut emissions faster to dodge 2 degree warming

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Global Change Assessment Models including Reference-No Policy scenario, Paris-Continued and Paris-Increased ambition
Source: World Resources Institute

“At the time they set their goals, they were very ambitious,” recalled Patricia Espinosa, the lead United Nations envoy on climate change. “It was a political statement that the chancellor was trying to make. What happened was that the industry—particularly the car industry—didn’t come along. Technically they can do it. Economically they can do it. But it’s political.”

Even without hitting the targets, Germany’s energy agenda is having a big impact on the mix of fuels used to generate electricity. Renewables are close to replacing coal as the primary source, and natural gas use is declining. The real problem is that Germany is also trying to phase out nuclear reactors, a response to the 2011 Fukushima Daiichi meltdown in Japan. And with the 2020 goals looking like a stretch, there’s increasing concern that tighter goals the country is planning for 2030 will be completely out of reach.

“The challenge looks really difficult,” said Andreas Loeschel, head of the government commission monitoring Germany’s energy transition. “There was too much confidence that renewables would do the trick. It’s about getting dirty energy out of the mix.”

Wind And Solar Boom

Renewables are becoming an increasing share in Germany’s electricity generation...

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Gross electricity generation
Source: AG Energiebilanzen e.V.

Shutting down nuclear plants is leaving Germany short of generation plants that can work on the breezeless dark days in winter when wind farms and solar plants won't provide much to the grid—and demand is at its peak. Another problem: When it's windy and bright, the grid is so flooded with power that prices in the wholesale market sometimes drop below zero.

The result is a puzzle for politicians. The Bundestag enacted legislation to make sure climate targets are hit, including stringent rules governing energy use, a new building code to make buildings carbon neutral and a utility bill charge that would subsidize investment in green energy.

But grid managers need to keep the lights on. To do that, some big generators like RWE AG are anticipating the government may have to allow some coal plants to remain working longer than ministers would like.

An RWE AG operated lignite mine stands beyond the Innogy SE wind farm in Bedburg, Germany. Photographer: Martin Leissl/Bloomberg

And even after all that investment, Germany's green revolution remains at an early stage. The power-generation industry is the biggest source of pollution, as the chart below shows.

Energy Dominates

More than a third of Germany's greenhouse gas emissions come from the energy sector

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Short-term forecasts for 2017. Percentages may not total 100 percent due to rounding.
Source: German Environment Agency

Outside the power industry, other parts of the economy have yet to face the overhaul that utilities have. For example, transport consumes 30 percent of Germany's power, but only 4 percent of its use comes from renewables. Households are another big draw on the grid, and most of their power comes from fossil fuels.

Small Green Footprint

Clean energy is still a small part of the power consumed from German utilities

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Final energy consumption. 2016 provisional data
Source: AG Energiebilanzen e.V.

Despite higher energy bills, public opinion has remained supportive of the energy transition. Polls conducted by the Institute for Advanced Sustainability Studies in Potsdam found in its annual survey for 2017 that 88 percent of voters back the strategy to cut emissions.

Those numbers are apt to shift when politicians resolve the debate about how their targets match reality. Either they will have to abandon the goals and live with more pollution than they've promised, or they will have to force through painful and expensive measures that further limit emissions.

Other nations are looking at how Germany acts if only because many other big polluters have a bigger problem in making reductions. Germany's economy is dominated by services that require less energy and produce less carbon than places tilted toward industry and manufacturing. China, which is the biggest source of greenhouse gas emissions, has a larger share of its economy tied to factories and therefore will find it harder to make reductions.

The Energy Problem

Energy intensive economies will struggle to lower greenhouse gas emissions

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Sources: CIA World Factbook (2017 estimates), World Resources Institute

If Germany can't succeed after all its efforts, it would be a signal the world must adopt more costly strategies to rein in emissions—like capturing carbon pollution directly from the smokestacks of factories and utilities.

“Germany’s miss has bigger implications,” said Myles Allen, a climate change expert at Imperial College London. “The only thing that matters now is what we’re going to do on carbon capture. Without it, we won’t meet climate goals.”

Editor: Reed Landberg
Photo Editor: Gina Turner

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