

US Coal Retirement Rate Needs to Increase by 66% to Keep 1.5°C Within Reach

THE UNITED STATES IS NOT ON TRACK TO MEET THE CLEAR DEMANDS OF CLIMATE SCIENCE TO PHASE OUT COAL IN DEVELOPED COUNTRIES BY 2030

Commitments Under the Paris Agreement

The United States and nearly every nation adopted the landmark Paris Agreement in 2015. Less than two years later, then-president Trump announced his plan to withdraw the United States from the accord – a step that became official in November 2020. President Biden campaigned on achieving a 100% clean, carbon-free power sector by 2035, investing \$2 trillion in clean energy and infrastructure, and ensuring 40% of new clean energy investments go to disadvantaged communities. Following Biden's

inauguration, the US officially rejoined the Paris Agreement in February 2021. In April, Biden announced a new [Nationally Determined Contribution](#) (NDC) for the Paris Agreement that commits the US to cutting greenhouse gas emissions 50-52% below 2005 levels by 2030. In order to meet this commitment, the administration needs to pursue an aggressive regulatory agenda and Congress needs to pass its most ambitious climate plans.

The Clear Demands of Climate Science

According to the UN's Intergovernmental Panel on Climate Change, coal use needs to fall by 80% by 2030 and essentially reach net zero by 2040 to keep global warming below 1.5 degrees Celsius, in line with the Paris Agreement. To meet this goal, modeling by the International Energy Agency finds coal power use should be phased out by 2030 in the OECD, including the US. According to Global Energy

Monitor's [Global Coal Plant Tracker](#) and government phase out commitments, Germany's 2030 phase out announcement increased the OECD coal power capacity committed to retire by 2030 to an estimated 41% of OECD coal capacity. The US's inclusion would increase the number up to 71% of OECD coal capacity on track for a 2030 phaseout.

The US's Coal-Fired Power Plant Fleet

At 233 gigawatts (GW), the US has the largest coal fleet of operating coal power capacity in the OECD, currently amounting to 45% of the OECD's 510 GW coal power fleet. To meet its climate goals, the US

must grapple with its "aging fleet of clunkers," as described by Sierra Club's Beyond Coal Campaign. The majority of the US's coal plants are more than 30 years old, with less than 3% of the coal plants

younger than 9 years old. Most of the country's coal capacity was built between 1950 and 1990, with a small additional wave of units commissioned between 2005 and 2015. The national coal capacity peaked at approximately 340 GW in 2011 and has been declining since. Many coal-fired power plants

have closed due to their declining economics resulting from the decreasing costs of alternatives and implementation of environmental regulations. Coal plant utilization rates have also significantly decreased due to their increasing lack of competitiveness in today's energy markets.

Accelerated Coal Retirements are Needed

Despite the record pace of retirements, the US remains both the OECD country with the largest operating coal fleet at 233 GW, as well as the largest projected coal power capacity in 2030. According to the Global Coal Plant Tracker, the US has retired an average of 15 GW of coal power per year since 2015. This rate needs to increase 66% to 25 GW annually for all coal-fired units to close by 2030. Although 106

GW of coal are currently scheduled to retire, nearly a quarter of that capacity is expected to retire later than 2030, while an additional 127 GW lack a planned retirement date. Achieving the country's climate goals necessitates both ensuring that all coal plants are scheduled to retire and accelerating the scheduled retirements.

Proposed Legislation Unlikely to Lead to 2030 Phaseout

According to studies by [Rhodium Group](#), the [National Bureau of Economic Research](#), [Energy Innovation](#), and others, US coal capacity is on track to continue decreasing, but the US will not get close to a full coal power phaseout by 2030 under business-as-usual and pending legislation. Biden's current proposed [Build Back Better Framework](#) primarily addresses climate emissions in the power sector through tax credits and incentives for renewables. A central component of Biden's initial agenda, the [Clean Energy Performance Program](#) (CEPP), was dropped from pending legislation in response to opposition from Senator Manchin, a centrist Democrat from West Virginia with personal financial ties to the coal industry. The CEPP could have pushed retirement rates to the next level, but without the CEPP, the Build Back Better Framework is expected to have a limited impact on coal retirements.

Although the Build Back Better bill is essential and may put extra economic pressure on coal-fired power plants already struggling to compete, it does not formalize or ensure any expedited timelines for phasing out coal-fired power. In addition, environmental groups had criticized draft provisions that could make coal-fired power plants eligible for extra tax breaks if they install carbon-capture systems, an incentive Sierra Club [estimated](#) could result in a quarter of the nation's coal-fleet delaying retirement. The administration must ensure any legislation does not provide unnecessary lifelines to uneconomic coal plants. Passing a historic bill this year would mark an important turning point in the federal government's approach to climate change, but Biden will need to adopt additional measures for the US coal fleet to be fully retired by 2030.

Leveraging and Expanding Existing Regulations

Despite the setbacks for accelerating coal plant retirements through legislation, the Biden administration has opportunities through the

Environmental Protection Agency to implement existing – and establish new – clean air and water safeguards to protect communities. By requiring coal

plant owners to limit their emissions through pollution controls and other measures, various programs indirectly affect the economics of power plant fuel use and operation rates as well as plant investment and retirement decisions. Utilities currently face uncertain coal plant costs related to various rules, including regulation of waste under the Coal Combustion Residuals (CCR) Rule and Effluent Limitations Guidelines; meeting regional haze rule requirements; periodic revisions to the National Ambient Air Quality Standards (NAAQS); and implementation and review of the Cross State Air Pollution Rule. Aggressive enforcement and implementation will increase and accelerate coal plant retirements.

In addition, instead of reinstating the Obama-era Clean Power Plan – which was stayed by the US Supreme Court in 2016 and revived by a lower court

this year – the administration is planning new regulation of greenhouse gas emissions under the Clean Air Act. The conservative-dominated Supreme Court recently [agreed to hear](#) a case about the agency's long-standing authority to limit climate pollution from power plants, which may present challenges to Biden's decarbonization efforts. At the same time, even though the ruling [expected](#) by summer 2022 may be unfavorable, it could provide the agency with more certainty and galvanize a new wave of local policies and climate activism. Other measures, such as actions by the Federal Energy Regulatory Commission, will also play a [pivotal role](#) in enabling a clean energy transition. If Biden uses all the tools at his disposal, air, water, and waste standards could rein in coal-based pollution, and federal action and investments could prepare the country's physical, technological, and industrial landscape for a future without coal.

The Role of Local Policies and Advocacy

Climate leaders continue to emerge at local and state levels. For example, certain [states](#) have set high clean or renewable portfolio requirements with deadlines ranging between 2030 and 2050. Stakeholders must come together to ensure states continue to aggressively pursue policies to reduce pollution and phaseout coal power, such as local versions of Biden's Clean Energy Performance Program. In addition, [researchers and academics](#) have confirmed that advocacy has played a decisive role in coal plant retirements. For example, Sierra Club's Beyond Coal campaign pressures utilities, officials, and agencies

to close coal-fired units, often through targeted lawsuits and engagement at state public utility commissions – efforts strengthened by local, grassroots opposition to coal plants. Lastly, [polling](#) has found that voters nationwide – including in the battleground states that were pivotal to electing Biden and obtaining a Democratic Senate majority – support the White House and Congress moving the country to a 100% clean energy electricity grid by 2035. These dynamics offer hope that the end of US coal is possible.

Background on Global Energy Monitor

[Global Energy Monitor](#) is a nonprofit research organization developing information on fossil fuel projects worldwide. Through its [Global Coal Plant Tracker \(GCPT\) project](#), Global Energy Monitor has provided biannual updates on coal-fired generating capacity since 2015. GCPT data is used by the International Energy Agency (IEA), the OECD

Environment Directorate, UN Environment Programme, U.S. Treasury Department, and World Bank. GCPT data is licensed by Bloomberg LP and UBS Evidence Lab, and is used by the Economist Intelligence Unit and Bloomberg New Energy Finance.

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