

Can the world quit coal?

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Published: November 14, 2025 8:40am EDT



A fisherman looks at the Suralaya coal-fired power plant in Cilegon, Indonesia, in 2023.

Ronald Siagian/AFP via Getty Images

As world leaders and thousands of researchers, activists and lobbyists meet in Brazil at the 30th annual United Nations climate conference, there is plenty of frustration that the world isn't making progress on climate change fast enough.

Globally, greenhouse gas emissions and global temperatures continue to rise. In the U.S., the Trump administration, which didn't send an official delegation to the climate talks, is rolling back environmental and energy regulations and pressuring other countries to boost their use of fossil fuels – the leading driver of climate change.

Coal use is also rising, particularly in India and China. And debates rage about justice and the future for coal-dependent communities as coal burning and coal mining end.

But underneath the bad news is a set of complex, contradictory and sometimes hopeful developments.

The problem with coal

Coal is the dirtiest source of fossil fuel energy and a major contributor of greenhouse gas emissions, making it bad not just for the climate but also for human health. That makes it a good target for cutting global emissions.

A swift drop in coal use is the main reason U.S. greenhouse gas emissions fell in recent years as natural gas and renewable energy became cheaper.

Today, nearly a third of all countries worldwide have pledged to phase out their unabated coal-burning power plants in the coming years, including several countries you might not expect. Germany, Spain, Malaysia, the Czech Republic – all have substantial coal reserves and coal use today, yet they are among the more than 60 countries that have joined the Powering Past Coal Alliance and set phase-out deadlines between 2025 and 2040.

Several governments in the European Union and Latin America are now coal phase-out leaders, and EU greenhouse gas emissions continue to fall.

Progress, and challenges ahead

So, where do things stand for phasing out coal burning globally? The picture is mixed. For example:

- The accelerating deployment of renewable energy, energy storage, electric vehicles and energy efficiency globally offer hope that global emissions are on their way to peaking. More than 90% of the new electricity capacity installed worldwide in 2024 came from clean energy sources. However, energy demand is also growing quickly, so new renewable power does not always replace older fossil fuel plants or prevent new ones, including coal.
- China now burns more coal than the rest of the world combined, and it continues to build new coal plants. But China is also a driving force in the dramatic growth in solar and wind energy investments and electricity generation inside China and around the world. As the industry leader in renewable energy technology, it has a strong economic interest in solar and wind power's success around the world.
- While climate policies that can reduce coal use are being subject to backlash politics and policy rollbacks in the U.S. and several European democracies, many other governments around the world continue to enact and implement cleaner energy and emissions reduction policies.

Phasing out coal isn't easy, or happening as quickly as studies show is needed to slow climate change.

To meet the 2015 Paris Agreement's goals of limiting global warming to well under 2 degrees Celsius (3.6 Fahrenheit) compared to pre-industrial times, research shows that the world will need to rapidly reduce nearly all fossil fuel burning and associated emissions – and it is not close to being on track.

Ensuring a just transition for coal communities

Many countries with coal mining operations worry about the transition for coal-dependent communities as mines shut down and jobs disappear.

No one wants a repeat of then-Prime Minister Margaret Thatcher's destruction of British coal communities in the 1980s in her effort to break the mineworkers union. Mines rapidly closed, and many coal communities and regions were left languishing in economic and social decline for decades.



Two men collect coal for cooking outside the Komati Power Station, where they used to work, in 2024, in Komati, South Africa. Both lost their jobs when Eskom closed the power plant in 2022 under international pressure to cut emissions.

Per-Anders Pettersson/Getty Images

But as more countries phase out coal, they offer examples of how to ensure coal-dependent workers, communities, regions and entire countries benefit from a just transition to a coal-free system.

At local and national levels, research shows that careful planning, grid updates and reliable financing schemes, worker retraining, small-business development and public funding of coal worker pensions and community and infrastructure investments can help set coal communities on a path for prosperity.

A fossil fuel nonproliferation treaty?

At the global climate talks, several groups, including the Powering Past Coal Alliance and an affiliated Coal Transition Commission, have been pushing for a fossil fuel nonproliferation treaty. It would legally bind governments to a ban on new fossil fuel expansion and eventually eliminate fossil fuel use.

The world has affordable renewable energy technologies with which to replace coal-fired electricity generation – solar and wind are cheaper than fossil fuels in most places. There are still challenges with the transition, but also clear ways forward. Removing political and regulatory obstacles to building renewable energy generation and transmission lines, boosting production of renewable energy equipment, and helping low-income countries manage the upfront cost with more affordable financing can help expand those technologies more widely around the world.

Shifting to renewable energy also has added benefits: It's much less harmful to the health of those who live and work nearby than mining and burning coal is.

So can the world quit coal? Yes, I believe we can. Or, as Brazilians say, "Sim, nós podemos."

Stacy D. VanDeveer does not work for, consult, own shares in or receive funding from any company or organization that would benefit from this article, and has disclosed no relevant affiliations beyond their academic appointment.

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