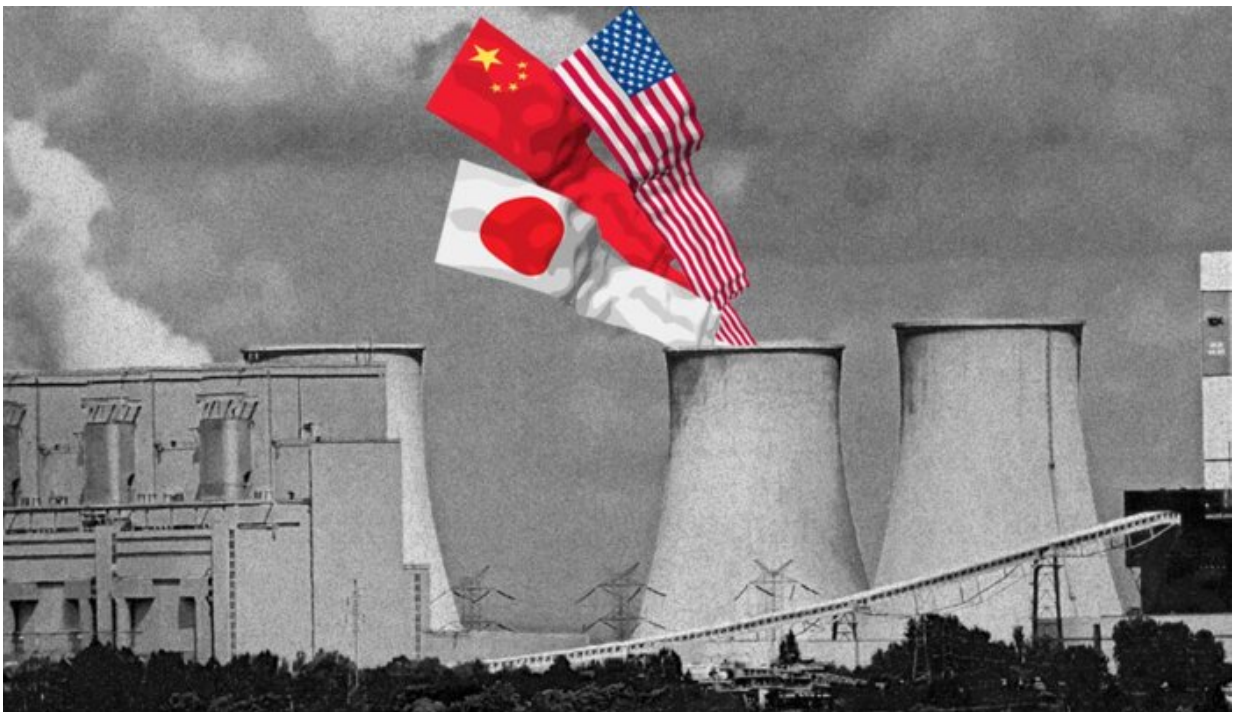


Like China, Japan and the US continue to finance overseas fossil fuel power technologies

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A previous study led by Princeton University researchers found China to be the largest public financier of overseas power plants, particularly coal plants. Now, in a follow-up analysis, they report that Japan and the United States follow closely behind, supporting mostly gas and coal power overseas. Credit: Egan Jimenez, Princeton University

Stepping away from carbon-intensive power systems and investing in renewable technologies is critical to decarbonizing the global power sector and reducing global climate change. But the three countries dominating overseas bilateral finance in the power generation sector—China, Japan, and the United States—continue to fund fossil fuel power generation.

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In accordance with the Paris Climate Agreement, the global economy needs to rapidly forgo its carbon dependence and approach net-zero carbon emissions by 2050. National targets, like China's dedication to domestic carbon neutrality by 2060 and Japanese and U.S. carbon neutrality goals by 2050, are helping guide the world away from carbon-intensive technologies.

However, China has not yet formulated any policy to restrict overseas finance for fossil [fuel](#) technologies. Although the U.S. and Japan have agreed to end public finance for overseas coal plants, they have no policies restricting public finance for overseas gas plants or private finance for coal, gas, or other types of fossil fuel plants. Instead, these countries continue to fund fossil fuel reliance in developing countries through bilateral finance.

Both bilateral and multilateral financing play a significant role in the power infrastructure development of developing countries. Bilateral funding occurs between a single donor country and a single recipient country, whereas multilateral funding occurs among several.

Since the 2010s, studies have found that most multilateral development institutions have shifted their financing away from non-[renewable energy](#) sources and toward more environmentally sustainable projects. However, few studies have been conducted on bilateral financing and its specific impact on global decarbonization efforts.

The researchers analyzed Japanese and U.S. datasets from 2000 to 2018, tracking bilateral finance from each country's national development finance institutions and the foreign direct investment trends. The data, gathered from press releases and annual reports, was then combined with information previously collected on China.

They found all three countries funded significantly more fossil fuel power generation than renewable energy in developing countries such as Indonesia, India, Vietnam, and the United Arab Emirates. Chinese finance favored coal and hydroelectric power plants, whereas Japanese and U.S. [finance](#) were dedicated to natural gas and coal. Contributions to non-hydro renewable technologies were less than 15% of each country's contributions to total overseas capacity growth, despite these countries' own "green" domestic energy policies.

"Such fossil fuel infrastructure financing impedes the low carbon energy transition and needs to stop," said Xu Chen, lead author of the study and postgraduate research associate at Princeton University's Center for Policy Research on Energy and the Environment.

Bilateral financing of fossil fuel infrastructure is a long-term carbon lock-in investment. Fossil fuel power generation infrastructure "locks in" large CO₂ emissions for several decades, making it more challenging to break away from non-[renewable energy sources](#). While some of the financing data the researchers analyzed dates to two decades ago, the vast majority of the associated CO₂ emissions will occur in the future.

However, costs of [renewable technologies](#) such as solar and wind power are rapidly decreasing. Soon, operating new and existing fossil fuel plants will become more expensive and less profitable than the more environmentally sustainable alternatives.

"It is critical that countries restrict overseas financing of fossil fuel power generation" said Denise L. Mauzerall, corresponding author and professor of environmental engineering and international affairs at the Princeton School of Public and International Affairs and the School of Engineering and Applied Science. "The world cannot afford the carbon emissions that will result from new fossil fuel power plants and less developed countries cannot afford to decommission fossil plants shortly after they are built. Although many coal plants are on a retirement trajectory, this is not true for natural gas and financing of natural gas is increasing. Financing of fossil fuel plants must be redirected toward renewable energy for the world to avoid catastrophic levels of climate change."

The paper, "Financing carbon lock-in in developing countries: Bilateral financing for power generation technologies from China, Japan, and the United States," was first published in the academic journal *Applied Energy* on July 14, 2021. Chen and Mauzerall's co-authors include Kevin P. Gallagher of Boston University.

More information: Xu Chen et al, Financing carbon lock-in in developing countries: Bilateral financing for power generation technologies from China, Japan, and the United States, *Applied Energy* (2021). [DOI: 10.1016/j.apenergy.2021.117318](https://doi.org/10.1016/j.apenergy.2021.117318)

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