GLOBAL CHINA
ASSESSING CHINA'S GROWING ROLE IN THE WORLD

POLICY BRIEF | FEBRUARY 2023

POWER PLAY: HOW THE US BENEFITS IF CHINA GREENS THE GLOBAL SOUTH

JEFFREY BALL

Executive summary

As the relationship between the United States and China deteriorates, the battle between the two powers for supremacy in low-carbon industries is leading the slide. From batteries to solar panels to rare-earth metals used in wind turbines, technologies that over the past decade have cratered in cost and surged in scale – thanks to innovation supported by both Washington and Beijing – are targets in yet another trans-Pacific trade fight.

But investing in innovative green machines at home is only one way to affect the climate, and setting protectionist industrial policy is only one way to boost geopolitical power. At least as important to the planet is the money the United States and China spend on financing infrastructure in emerging markets and developing economies (EMDEs) — infrastructure that will lock in high or low carbon-emission pathways for decades. Never has it been more crucial that the two countries, even as they vie for supremacy in low-carbon innovation, support each other's efforts to decarbonize their respective infrastructure finance flows.

China bankrolls more infrastructure in EMDEs than any other country. But much of that infrastructure has been dirty. According to a Boston University database, Chinese companies and so-called policy banks – large government-affiliated institutions – have financed 648 power plants in 92 countries.[1] Of those plants' collective power-generation capacity, more than 50% burn fossil fuel, and 34% burn the dirtiest sort of fossil fuel: coal. But China, facing criticism and sensing shifting economics, has pledged to change that. In November 2021, Chinese President Xi Jinping declared that his country "will step up support for other developing countries in developing green and low-carbon energy, and will not build new coal-fired power projects abroad."[2] Today, more than a year later, China must make good on that pledge through deep, structural changes to its political economy; otherwise, changes in its outbound investment will not take hold.

China's task is daunting, threatening some of the biggest companies in China and thus in the world. It is even more intimidating because it looms at a time of perilous animosity between Washington and Beijing, evidenced by military brinkmanship over Taiwan, tit-for-tat trade barriers on products ranging from computer chips to solar panels, and super-

power shadowboxing over Russia's war in Ukraine. Yet China's decarbonization of its foreign infrastructure finance is existentially important — for the planet, the Chinese economy, and U.S. citizens and firms. Contrary to the zero-sum view toward China that constitutes conventional wisdom in Washington, the winning strategy for the United States is not merely to try to eclipse China as an international financier of green infrastructure. The United States is trying to do that, notably through the Partnership for Global Infrastructure and Investment, a plan the administration of U.S. President Joe Biden and its G-7 allies announced last June to boost infrastructure investment in EMDEs, in large part to fight climate change. That effort was conceived broadly as a geopolitical counter to the Belt and Road Initiative (BRI), China's decade-old infrastructure- and market-building campaign across the Global South, and to the BRI's newer sibling, China's Global Development Initiative (GDI).[3] To be sure, a greening of U.S. and G-7 infrastructure investment abroad is needed and welcome. But it is insufficient. The smart strategy for the United States, even as it decarbonizes its own outbound infrastructure finance, is to encourage maximal greening of China's massive infrastructure investment abroad — and to leverage that Chinese spending to create new opportunities for export-focused U.S. firms in a decarbonizing world.

The climate of infrastructure

For much of the past quarter century, China contributed to climate change mostly through high emissions within its borders. The domestic power plants, factories, and vehicles that drove both its economy and the world's also made China the world's top greenhouse-gas emitter. Today, as growth slows in China and surges in emerging markets and developing economies in Southeast Asia, Latin America, and Africa, China's chief climate impact is outward, through the infrastructure it finances abroad. Towering examples include the BRI, which XI rolled out in 2013 but which came under increasing global criticism for its contributions both to climate change and to the debt of myriad poorer nations, and the GDI, the new infrastructure-spending program that Xi announced in September 2021 but whose details remain opaque.

Whether the power plants, transportation systems, and other big projects being installed in EMDEs lock in high-carbon or low-carbon consumption patterns will largely determine whether the world stanches climate change or is consumed by it. The International Energy Agency estimates that, on average, cutting emissions in EMDEs costs about half of what it does in advanced economies, because the emissions-cutting opportunities there tend to be greater.[4] That is partly because the energy systems in EMDEs tend to be more coal-heavy and thus carbon-intensive, providing a bigger bang for every emission-reduction buck. It is also because those economies are growing quickly, providing politically and economically easier opportunities to inject cleaner infrastructure into the mix.

Profit also is at stake. Increasingly, global investors are betting that cleaner infrastructure will deliver higher longer-term returns. Over the past three years, the world's biggest financiers of emerging-economy infrastructure — notably the governments of China, South Korea, Japan, the United States, and many countries of the European Union, as well as leading corporations there — have pledged to slash their carbon emissions to "net zero" by the middle of the century. As part of this pivot, they have pledged to shift their international infrastructure financing onto a lower-carbon path. Increasing numbers of governments and corporations are, in particular, pledging to stop funding and building in EMDEs projects that produce and burn coal, the most carbon-intensive fossil fuel.

Leveraging Chinese capital

The United States, as a matter of economic self-interest, should support the transformation of China's political economy to enable Beijing to follow through on its pledges to decarbonize its foreign infrastructure finance. Five findings underlie this argument.

- The carbon intensity of the infrastructure that Chinese entities finance in emerging economies appears likelier to shape the trajectory of climate change than any other policy or economic initiative at play in the world today. China's environmental impact has shifted from what China does within its borders to what Chinese money finances abroad. So, shifting that financing to lower-carbon rather than higher-carbon infrastructure is crucial for the planet.

- China's leaders are realizing that they have little choice but to attempt this deep transformation. One strong indication of this emerging view is that, in the months leading up to Xi's November 2021 pledge not to fund new coal-fired power plants in other countries, criticism of China's carbon-intensive foreign infrastructure finance came not just from abroad, and not just from domestic environmental activists, but also from organizations within China that have the official backing of relevant parts of the Chinese government. They have noted that China risks severe economic damage, in the form of a devaluation of the country's international infrastructure investments, if it fails to materially decarbonize them. China also risks a global backlash in the form of tariffs and other penalties enacted by countries seeking to decarbonize their own foreign infrastructure finance.

- Xi's pledge not to "build new" coal-fired power plants abroad is essential but insufficient. Importantly, Beijing has followed up the pledge with action. In January 2022, two of China's ministries published guidelines urging Chinese companies investing in overseas infrastructure projects to apply not merely environmental standards that prevail in the host country, which previously was China's practice, but rather environmental policies promulgated by international bodies.[5] In March 2022, several Chinese government entities, including the powerful National Development and Reform Commission, published a call for "a full stop to new coal power projects overseas, and cautious progress on those already under construction."[6]

  Still, Beijing's moves do not go far enough. The call for Chinese firms to follow international standards in overseas infrastructure development is only an appeal, not a requirement. And even assuming China's prohibition on funding for overseas coal-fired power plants applies broadly, China could and should do far more to promote decarbonization in emerging markets than merely ceasing to finance coal there. Such steps could include boosting financing for renewables and reducing funding for natural-gas-fired power plants that lack working systems that capture the plants' carbon-dioxide emissions. Amid a shift away from coal, such conventional gas-fired plants are responsible for a rapidly increasing percentage of carbon emissions. Research that my Stanford University students and I published in 2021, partly based on World Bank data, found that the projected lifetime carbon emissions for the natural-gas-fired power plants financed from 2018 through 2020 in EMDEs will emit fully 80% as much carbon dioxide as will those newly financed plants powered by coal.[7] Even assuming that coal consumption wanes, finding economically workable ways to minimize the carbon emissions from power plants built to burn natural gas stands as a monumental climate challenge.

- Decarbonizing China's foreign infrastructure investment requires a systemic change in China's manufacturing-oriented political economy — a change in which, as a share of China's economy, domestic manufacturing of lower-carbon products rises while manufacturing of higher-carbon products falls. One example is the transition from gasoline-powered vehicles to electric ones;

another is the transition from coal-fired power plants to solar and wind farms. Over time, these and other transitions would likely convince China's fossil-fuel supporters that low-carbon endeavors abroad can be more profitable than high-carbon ones. Such changes to China's political economy would be wrenching and likely would take many years to play out, but recent events suggest they are growing more feasible.

- The greening of China's foreign infrastructure investment would benefit not only China and the planet's atmosphere, but also the United States. It would reduce the portion of the world's carbon-reduction burden that fell onto the United States and would clarify specific ways that U.S. firms could profit from the decarbonization of EMDEs. The challenge for the United States is to leverage its comparative strengths to carve out a lucrative slice of a growing market for low-carbon infrastructure in EMDEs — a market in which China undoubtedly will continue to play a major role.

Two Chinas

To deliver on its increasingly green rhetoric, China will have to make stark choices that could offend powerful domestic constituencies. That dilemma reflects today's two increasingly different Chinas. One China is reforming the country's domestic economy along lines that are increasingly low-carbon. This China has become the world's biggest developer, manufacturer, and seller of a range of technologies and products that will be fundamental to decarbonization, including solar panels, wind turbines, ultra-high-voltage electricity-transmission wires, batteries, and electric vehicles — as well as a gamut of subordinate wares necessary to make those products function.

The other China is enduringly carbon-intensive. At its center is a massive, legacy fossil-fuel sector that finds itself squeezed by an increasing environmental focus within China. According to the International Energy Agency, of the 11 million people employed in China's energy industry in 2020, the majority worked in fossil fuels, though exact numbers are not available.[8] Coal employment has been falling, renewable energy employment has been rising, and both those trends are expected to continue, suggesting an important economic shift. As a result, China has been looking abroad, particularly to EMDEs, for growth. A massive, multitiered system of state support for the high-carbon status quo reaches into essentially every crevice of the Chinese economy.[9] There are three foundational policy reasons why China's foreign infrastructure financing focuses on fossil fuels, particularly coal: long-standing subsidies for the fossil fuel sector; a recent and ongoing domestic crackdown on coal-fired power within China, which has encouraged China's coal sector to look abroad for new markets; and China's longtime resistance to subjecting its foreign infrastructure finance to stringent environmental controls.

This structure is a mounting financial liability for China. Several EMDEs in which China has invested in coal-fired power plants have declared recently that they no longer want those facilities.[10] More broadly, investors across the world are souring on high-carbon assets. As government incentives shift from fossil fuels to renewable energy and as the cost of lower-carbon alternatives plummets, these investors are concluding that carbon-intensive projects are increasingly likely, on financial metrics alone, to disappoint. But unraveling this system will involve either antagonizing key constituencies, such as the major Chinese corporations that build coal-fired power plants abroad and the extensive network of Chinese firms that supply them, or implementing complicated and potentially expensive strategies to help these constituencies transition to a lower-carbon economy.

Greening Chinese capital

The Chinese government, Chinese companies, and Chinese financing institutions could take tangible steps to lower the carbon intensity of China's infrastructure investments abroad. The steps fall into

three categories: policy reforms within China that would intensify financial incentives for Chinese companies and Chinese lenders to focus their international operations on lower-carbon endeavors; tougher rules from China governing the carbon intensity of China's outbound infrastructure investments; and Chinese aid that would help recipient countries promote low-carbon infrastructure within their borders. Washington has paid little attention to these matters of Chinese policy. But they are crucial determinants of the carbon footprint of Chinese money and thus are core U.S. strategic and economic interests.

POLICY REFORMS WITHIN CHINA

Electricity market reform

The design of China's domestic energy market has, in effect, subsidized the development of high-carbon infrastructure. Research has identified state control of energy markets as "a key determinant of the political economy of energy policy, as state-owned utilities seem to be particularly vulnerable to special interests," thus impeding change.[11] The contours of the country's domestic market shape those of its foreign investments. Liberalizing China's domestic energy market would force reforms by China's dominant state-owned energy companies and would aid the growth of new players. Both those developments would increase incentives for Chinese investors to focus on lower-carbon endeavors when they invest in infrastructure in other nations. China must deliver on its long-standing promises to open its energy market.

Aid to coal-dependent regions

Perhaps the biggest barrier to decarbonizing China's foreign infrastructure investments is the damage the shift would do to the economies of the Chinese regions, and to the bottom lines of the Chinese companies, that depend on high-carbon activities. Essentially every major global economy — the United States, Germany, the United Kingdom, and South Korea, among others — is figuring out how to help its coal-dependent sector and regions achieve what is dubbed a "just transition" to a lower-carbon future. China stands out because of the scale of the problem that it faces.

Two policies above all are important to facilitate a shift away from coal in China's outbound foreign infrastructure investment. One is to winnow away state subsidies for those firms, because those subsidies unfairly — and, from an environmental perspective, illogically — help those companies fend off broader market trends that favor cleaner forms of energy. Another necessary policy is to provide government aid to workers employed in waning coal-dependent industries.[12]

Financial innovation to cut capital costs

More-innovative finance for low-carbon infrastructure is an imperative in emerging economies for three key reasons. The need for new infrastructure in these countries is massive; the idiosyncrasies of low-carbon infrastructure, particularly in energy, make it especially capital intensive; and EMDEs tend to have limited domestic resources for financing — limited both in the quantity of capital and in the creativity of mechanisms to efficiently deploy it. China must undertake domestic financing reforms to free up lower-cost capital for deployment abroad.

One of these reforms should aim to reduce the cost of capital in general. Chinese banks traditionally charge private borrowers higher interest rates than they charge state-owned borrowers. Because private firms tend to be active in renewable energy and state-owned firms tend to dominate higher-carbon industries, this policy has meant higher interest rates for renewable projects. It should end. Additionally, Chinese banks should offer infrastructure developers more "nonrecourse debt," which helps a new market entrant by shielding (from lender seizure) assets that the borrower holds outside the project if the borrower defaults on its debt.

Another reform should involve financial innovations to incentivize borrowing by Chinese firms specifically for low-carbon endeavors. The People's Bank of China (PBOC), the country's central bank, has begun assessing the greenness of a Chinese bank's loan portfolio to help determine the rate at which the PBOC will provide money to that bank. But there are myriad other steps China could take, including reducing interest rates for borrowers that use debt to finance low-carbon projects abroad.

TOUGHER RULES ON CHINA'S OUTBOUND FINANCE

Mandates to disclose the carbon footprints of foreign infrastructure investments

The first step in reducing the carbon intensity of China's foreign infrastructure investments is to clarify the baseline by collecting better data on those investments' current carbon intensities. Chinese authorities have been compelling companies to disclose more clearly the environmental impacts of their domestic Chinese investments. They have begun requiring that Chinese companies measure and disclose their environmental and carbon risks in annual reports. And, as noted above, the PBOC has begun assessing the environmental performance of a Chinese bank's loan portfolio as part of its determination of the rate at which it will lend to that bank.

Rules that compel Chinese firms to disclose the environmental effects of their foreign-infrastructure investments are overdue. Non-Chinese international financiers — notably major multilateral development banks — long have required environmental impact assessments that meet global standards for prospective projects before those institutions make final investment decisions.[13] China should follow suit.

Mandates to decarbonize foreign infrastructure investments

The next step in decarbonizing China's outbound infrastructure investments is to promulgate policies that induce that decarbonization. A consensus in China is emerging around that need. Promising concepts include a "traffic-light" system that categorizes proposed outbound investment projects into red, yellow, and green, based on their environmental footprints; and an exclusion list that stipulates types of foreign infrastructure projects in which the government tells Chinese entities not to invest. Another promising idea is a government policy to bar Chinese investment in fossil-fuel projects that cannot capture and safely store their carbon emissions.[14]

New guidelines on what is green

Ensuring the effectiveness of such steps will require greater clarity about what constitutes an environmentally acceptable investment. China is hardly alone in lacking sufficiently detailed definitions of "green." But the problem is particularly glaring in China because of the size of China's environmentally relevant investments.

POLICY AND FINANCING HELP FOR HOST COUNTRIES

De-risking low-carbon finance

The price of electricity from renewable sources is becoming increasingly competitive with that from coal and other fossil fuels when measured on the basis of its "levelized cost" — the amount of money that must be charged to cover the cost of building and operating the facilities to produce it. But, from the perspective of an energy regulator preoccupied with near-term budgets, installing renewable energy equipment can seem too expensive and risky. That is particularly true in EMDEs, which tend to have higher capital costs than industrialized nations do. For example, studies have found the weighted average cost of capital for energy projects to be higher than 10% in Indonesia and Vietnam.[15] International financiers, including in the United States, can do much to help host countries de-risk these low-carbon investments;[16] China is particularly well positioned to provide this help. Given China's capital, its government influence over its banking sector, and its banks' strong existing ties to financing infrastructure throughout EMDEs, China could expand the packages it offers host countries for the financing and construction of renewables projects in much the same way it has done for coal projects.

China also could forgive debts owed by recipient countries if, in turn, they agreed to make low-carbon investments. This step is different from measures aimed specifically at de-risking renewables investments but is related to China's power to promote low-carbon overseas infrastructure through its finance policies. This policy could prove particularly effective given the constraints on China's national budgets in the wake of the COVID-19-induced

economic downturn. So-called "climate-for-debt swaps" are gaining increased attention as potential tools of international economic policy.[17]

Promoting power-market reform

Just as accelerating China's power-market reform at home would likely mitigate opposition to decarbonizing China's overseas infrastructure financing, aiding power-market reform in the countries in which China finances infrastructure could significantly accelerate those countries' energy transitions.[18]

Prior research has shown, for example, why Vietnam's state-controlled energy market, "dominated by state-owned enterprises and vested interests, favors large-scale coal investments and weakens renewable energy regulations."[19] This is yet another example of an important decarbonization step that Beijing could simultaneously pursue at home and abroad; in both cases, it would result in long-term benefits for China's domestic industry.

Helping displaced coal workers

China could provide funding to EMDEs to help them transition workers in coal and other high-carbon sectors to jobs in low-carbon industries. Such assistance also might come less directly, either through knowledge-sharing or through the financing packages that Chinese consortia offer international recipients creating low-carbon infrastructure projects. Indeed, one could imagine certain coal-reliant regions of China working closely with similar regions in EMDEs to develop innovative systems of support and retraining.[20]

Whither Washington

The notion that Chinese success in greening its outbound investment is in the interests of the United States flies in the face of the frothy anti-China rhetoric that bathes Washington. To be sure, concern about China's increasingly bellicose geopolitics, its human rights abuses, its crackdown on dissent, and its brass-knuckled moves to dominate strategically key industries are justified.

But those concerns do not obviate planetary and economic facts. If China continues to bankroll high-carbon infrastructure across EMDEs, the fight against climate change will, regardless of what the United States or the rest of the world does, be lost. And Chinese firms see money to be made by financing and constructing lower-carbon infrastructure in the Global South as clearly as U.S. firms do.

The United States has a compelling profit motive in supporting the greening of Chinese outbound infrastructure finance. Now more than ever, with the U.S. government spending trillions of taxpayer dollars on new infrastructure programs, including those designed to expand U.S. green-technology industries, the United States needs robust global markets for those wares. Over the past decade, many of those markets have been served far more enthusiastically by Beijing than by Washington. If China uses its influence to nudge markets onto lower-carbon paths, those markets will be more likely to buy low-carbon technologies not only from China but also from a newly engaged United States.

U.S. policy recommendations

Both China and the United States say they want to reduce global greenhouse gas emissions and prevent the worst impacts of climate change. The key is to ensure that their geopolitical competition doesn't obstruct this common goal.

- U.S. politicians are wise to accelerate their own attempts to green outbound infrastructure finance. The Partnership for Global Infrastructure and Investment, an expansion of a 2021 plan dubbed the Build Back Better World initiative, seeks to "mobilize" $600 billion in infrastructure investments in low- and middle-income countries.[21] According to the partnership, most of that sum will come from the private sector, and low-carbon infrastructure will be a primary focus. But even if that push succeeds — and at this point it remains nascent — greening the juggernaut that

is Chinese outbound infrastructure finance will be at least as important to protecting the planet and to providing more economic opportunities to U.S. firms in an expanding low-carbon global economy. The market for greener projects and products will be huge, with plenty of space for both countries to operate. And greener Chinese investments mean a cooler climate for all, since EMDEs are the primary area of growth for global energy demand.

- The Inflation Reduction Act, passed in August 2022, is a clear signal that the United States is ratcheting up industrial policy, including government incentives, to help its firms compete in a decarbonizing global market. It should do so with the clear-eyed expectation that China will remain a top, competent competitor in the race to make money by financing low-carbon infrastructure in EMDEs. U.S. industry, working with Washington, should identify and pursue strategies in which it has real — or at least compellingly potential — comparative advantage.[22]

- The United States and its global partners should structure economic diplomacy in a way that pushes Beijing to shift its foreign infrastructure finance onto a meaningfully lower-carbon path. This will require a coordinated series of moves. An important one is harmonizing the imposition of so-called carbon border-adjustment mechanisms so that EMDEs that rely heavily on Chinese infrastructure investment can still access export markets even as they, and their Chinese financiers, face pressure to reduce the carbon intensity of that infrastructure investment.

  The European Union approved the outline of a carbon border-adjustment mechanism in December 2022. The transitional period is to start this year, and the full mechanism is to come into force in 2026.[23] The danger, as evidenced by the EU move, is that certain importing regions will move forward with such measures while others, such as the United States, will not. If this happens, it will likely result in a global regulatory patchwork that merely shifts high-carbon export flows to areas not covered by such policies. To avoid this outcome, major importing regions, including the United States, should coordinate on the gradual ratcheting up of such measures across jurisdictions. That could accomplish two related goals: First, it could pressure exporting EMDEs that rely heavily on Chinese infrastructure investment to push China to provide financing for lower-carbon assets. Second, it could give those EMDEs confidence that they will continue to find global buyers for the steadily-lower-carbon products they make.

- The United States should use its influence at multilateral development banks and at global standard-setting bodies toward two ends: to encourage China to proceed with domestic reforms that will hasten the decarbonization of its outbound infrastructure finance, and ensure that Chinese claims of green finance are held to the same rules of transparency and rigor as the claims from other countries.

- The United States has an opportunity to implement several of these steps through new initiatives called Just Energy Transition Partnerships (JETPs). These are multi-billion-dollar programs on which Washington has embarked with other donor governments and financing institutions to help steer infrastructure development onto a lower-carbon path in such key EMDEs as South Africa,[24] Indonesia,[25] and Vietnam.[26] If implemented well, the JETPs could, by example, further encourage China to green its own outbound infrastructure investment. The JETPs embody a fundamental change in the perspective and structure of international climate finance – a newly close cooperation between donor and recipient government, an increased role for private financiers, and a determination by all parties to look strategically across an EMDE economy to focus investment on a sector particularly likely to yield significant decarbonization. Maximizing the climate impact of JETP funds will require calibrating the money to the messiness of the political economies of the EMDEs in which the funds are being spent. The implementation of the initial JETPs is showing how fractious a process that can be. But, like the greening of China's outbound

infrastructure investment, it will be crucial to ensuring that the massive projects that will shape the trajectory of global carbon emissions cause them not merely to stop rising but, finally and forever, to plummet.

References

1 Cecilia Springer, "Understanding China's Global Power: 2022 Update," (Boston, MA: Boston University, October 2022), https://www.bu.edu/gdp/2022/10/19/understanding-chinas-global-power-2022-update/#:~:text=A%20new%20policy%20brief%20summarizes,entire%20country%20of%20Spain%20or.

2 Somini Sengupta and Rick Gladstone, "China Pledges to Stop Building Coal-Burning Power Plants Abroad," *The New York Times*, September 21, 2021, https://www.nytimes.com/2021/09/21/climate/china-power-plants-coal.html.

3 "Fact Sheet: President Biden and G7 Leaders Formally Launch the Partnership for Global Infrastructure and Investment," The White House, June 26, 2022, https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/26/fact-sheet-president-biden-and-g7-leaders-formally-launch-the-partnership-for-global-infrastructure-and-investment/.

4 "Financing clean energy transitions in emerging and developing economies," (Paris: International Energy Agency, June 2021), https://www.iea.org/reports/financing-clean-energy-transitions-in-emerging-and-developing-economies.

5 Christoph Nedopil, Dimitri De Boer, and Fan Danting, "Understanding China's latest guidelines for greening the Belt and Road," China Dialogue, February 15, 2022, https://chinadialogue.net/en/business/understanding-chinas-latest-guidelines-for-greening-the-belt-and-road/.

6 Han Chen and Wei Shen, "China's no new coal power overseas pledge, one year on," China Dialogue, September 22, 2022, https://chinadialogue.net/en/energy/chinas-no-new-coal-power-overseas-pledge-one-year-on/.

7 Jeffrey Ball, Angela Ortega Pastor, David Liou, and Emily Dickey, "Hot money: Illuminating the financing of high-carbon infrastructure in the developing world," *iScience 24*, no. 11 (November 2021): 103358, https://www.sciencedirect.com/science/article/pii/S2589004221013274.

8 "An energy sector roadmap to carbon neutrality in China," (Paris: International Energy Agency, September, 2021), https://www.iea.org/reports/an-energy-sector-roadmap-to-carbon-neutrality-in-china.

9 Jurgen Michael Thomas Sauer, Laura Diaz Anadon, Julian Kirchherr, Judith Plummer Braeckman, and Vera Schulhof, "Chinese and multilateral development finance in the power sector," *Global Environmental Change* 75 (July 2022): 102553, https://www.sciencedirect.com/science/article/pii/S0959378022000917?via%3Dihub.

10 "Coal in Net Zero Transitions: Strategies for rapid, secure and people-centred change," (Paris: International Energy Agency, November 2022), 9, https://www.iea.org/reports/coal-in-net-zero-transitions.

11 Jan C. Steckel and Michael Jakob, "The political economy of coal: Lessons learnt from 15 country case studies," *World Development Perspectives* 24 (December 2021): 100368, https://www.sciencedirect.com/science/article/abs/pii/S2452292921000849?fr=RR-2&ref=pdf_download&rr=71fe6c175c75981f.

12 Gang He, Jiang Lin, Ying Zhang, Wenhua Zhang, Guilherme Larangeira, Chao Zhang, Wei Peng, Manzhi Liu, and Fuqiang Yang, "Enabling a Rapid and Just Transition away from Coal in China," *One Earth 3*, no. 2 (August 2020): 187-94, https://www.sciencedirect.com/science/article/pii/S2590332220303560?ref=pdf_download&fr=RR-2&rr=71fa19b5af6a6434.

13 Christoph Nedopil, "Green Development Guidance for BRI Projects Baseline Study Report," (Beijing: BRI International Green Development Coalition, December 2020), https://greenfdc.org/green-bri-development-guidance-puts-coal-in-negative-list/.

14 Liyang Zhu, Yuan Zhang, Hoaming Li, Xi Liang, Dabo Guan, Li Wang, Mengfei Jiang, and Sam Cooke, "Scopes for Establishing a Climate Investment and Finance Standards System in China: Interim Report for Consultation," (Edinburgh: The University of Edinburgh, May 2020), https://www.research.ed.ac.uk/en/publications/scopes-for-establishing-a-climate-investment-and-finance-standard.

15 Jan C. Steckel and Michael Jakob, "The political economy of coal."

16 Ibid.

17 June Choi and Weiting Li, "The Potential for Scaling Climate Finance in China," (Washington, DC: Climate Policy Initiative, February 2021), https://www.climatepolicyinitiative.org/publication/the-potential-for-scaling-climate-finance-in-china/.

18 Jan C. Steckel and Michael Jakob, "The political economy of coal."

19 Ira Irina Dorband, Michael Jakob, and Jan Christoph Steckel, "Unraveling the political economy of coal: Insights from Vietnam," *Energy Policy* 147 (December 2020), https://www.sciencedirect.com/science/article/abs/pii/S0301421520305772?fr=RR-2&ref=pdf_download&rr=71fec7019ba66446.

20 Gang He, Jiang Lin, Ying Zhang, Wenhua Zhang, Guilherme Larangeira, Chao Zhang, Wei Peng, Manzhi Liu, and Fuqiang Yang, "Enabling a Rapid and Just Transition away from Coal in China."

21 "Fact Sheet: President Biden and G7 Leaders Formally Launch the Partnership for Global Infrastructure and Investment."

22 Jeffrey Ball, Dan Reicher, Xiaojing Sun, and Caitlin Pollock, "The New Solar System: China's Evolving Solar Industry and Its Implications for Competitive Solar Power in the United States and the World," (Stanford, CA: Stanford Law School, March 2017), https://law.stanford.edu/publications/the-new-solar-system/.

23 "The EU Carbon Border Adjustment Mechanism (CBAM)," Deloitte, January 30, 2023, https://www2.deloitte.com/mt/en/pages/tax/articles/alerts/2023/mt-alert-tax-23-02-EU-Carbon-Border-Adjustment-Mechanism-CBAM.html.

24 "Joint Statement: International Just Energy Transition Partnership," U.S. Embassy and Consulates in South Africa, November 3, 2021, https://za.usembassy.gov/joint-statement-international-just-energy-transition-partnership/.

25 "Indonesia and International Partners Secure Groundbreaking Climate Targets and Associated Financing," The White House, November 15, 2022, https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/15/indonesia-and-international-partners-secure-groundbreaking-climate-targets-and-associated-financing/.

26 "International agreement to support Vietnam's ambitious climate and energy goals," U.S. Embassy and Consulate in Vietnam, December 15, 2022, https://vn.usembassy.gov/international-agreement-to-support-vietnams-ambitious-climate-and-energy-goals/.

About the author

Jeffrey Ball is a Brookings nonresident senior fellow, a lecturer at Stanford Law School, and the scholar-in-residence at Stanford's Steyer-Taylor Center for Energy Policy and Finance. More about his work is at jeffreyball.net.

Acknowledgements

The author would like to thank Samantha Gross and Louison Sall for discussions related to this paper, Lori Merritt for editing, and Rachel Slattery for layout.

Disclaimer