



Task Force 4
Refuelling Growth: Clean Energy
and Green Transitions



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GREEN TRANSITIONS IN THE ERA OF GREEN SUBSIDIES: ENSURING NO COUNTRY IS LEFT BEHIND

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Abstract






A paradigm shift is occurring in climate policy. Instead of solely relying on sticks to penalise carbon emissions, national governments have turned to carrots to expand clean energy technologies. Efforts like the US's Inflation Reduction Act and India's production-linked incentives highlight the increasing comfort with using subsidies to simultaneously address the climate crisis and meet economic and geopolitical objectives. These incentives are expected to reduce the cost of nascent clean energy technologies to hasten the transition away from fossil fuels. However, without global cooperation and coordination, these subsidies risk a race to the bottom where (1) clean energy investment and technological capacity will accumulate in high-income countries able to provide the most subsidies, and (2) countries will respond by enacting further barriers like export bans or tariffs to inhibit the flow of

clean energy finance and technology. These tensions threaten to jeopardise the energy transition, especially for developing countries with the greatest need for climate finance and technical assistance. Consequently, lower-cost clean energy may not only fail to reach developing countries but replicate existing global inequities in industrial and technological capacity.


The G20 provides a more flexible platform to pilot solutions to this challenge. To address this challenge, the G20 should establish a trade, development, and climate working group and the ACCELERATE (Advancing Clean Energy, Collaboration, and Trade for Economic Recovery and Transformation) platform to share technical information and finance clean energy. Each effort will have unique roles for both developed and developing countries, as a step towards medium- and long-term solutions.



The Challenge



1




A paradigm shift is occurring in climate policy. Previously, countries used the sticks approach to reduce emissions. These tools include legally-binding emissions targets, regulation, and penalties, and various prices on carbon to hasten climate action. Agreements such as the Kyoto Protocol reflect this “subtraction” approach. The top-down treaty made distinctions between developing and developed countries, setting emissions targets, and legally bound the latter group of signatory countries to those targets. However since Kyoto, which did not include the US and China, the world has failed to curb greenhouse gas emissions in appreciable amounts to reduce global temperature increases. Now countries are shifting to carrots to reduce their emissions, primarily in the form of subsidies for lower carbon technologies to displace fossil fuels. The Paris Agreement signified the beginning of this shift, with bottom-up nationally determined contributions (NDCs) for climate action. Under the Paris Agreement’s bottom-up NDCs, countries chose domestically feasible climate strategies that increasingly incorporated this “addition” mindset. Importantly, India, the US, and others

have leveraged this subsidy-based approach to achieve other economic goals, including creating jobs and building manufacturing.

The US’s Inflation Reduction Act (IRA) is the latest, largest example of national governments’ increasing comfort with carrots like green subsidies and industrial policy. Green subsidies have gone from benign domestic policies aimed at encouraging the energy transition on the margins to tools that have significant international trade ramifications. For many countries, crafting durable, ambitious climate policy will likely require a mix of subsidies, tariffs, and regulations that current trade rules disallow. Countries, including close allies, view each other as competitors in the growing global market for emissions-reducing technologies. The IRA’s protectionist provisions have strained the US’s relationships with its closest partners and allies. The trade friction between the US and the European Union (EU), Japan, and South Korea about the IRA may only be the opening salvo in a decade marked by green trade tensions.

Some countries are already following suit, turning to green industrial



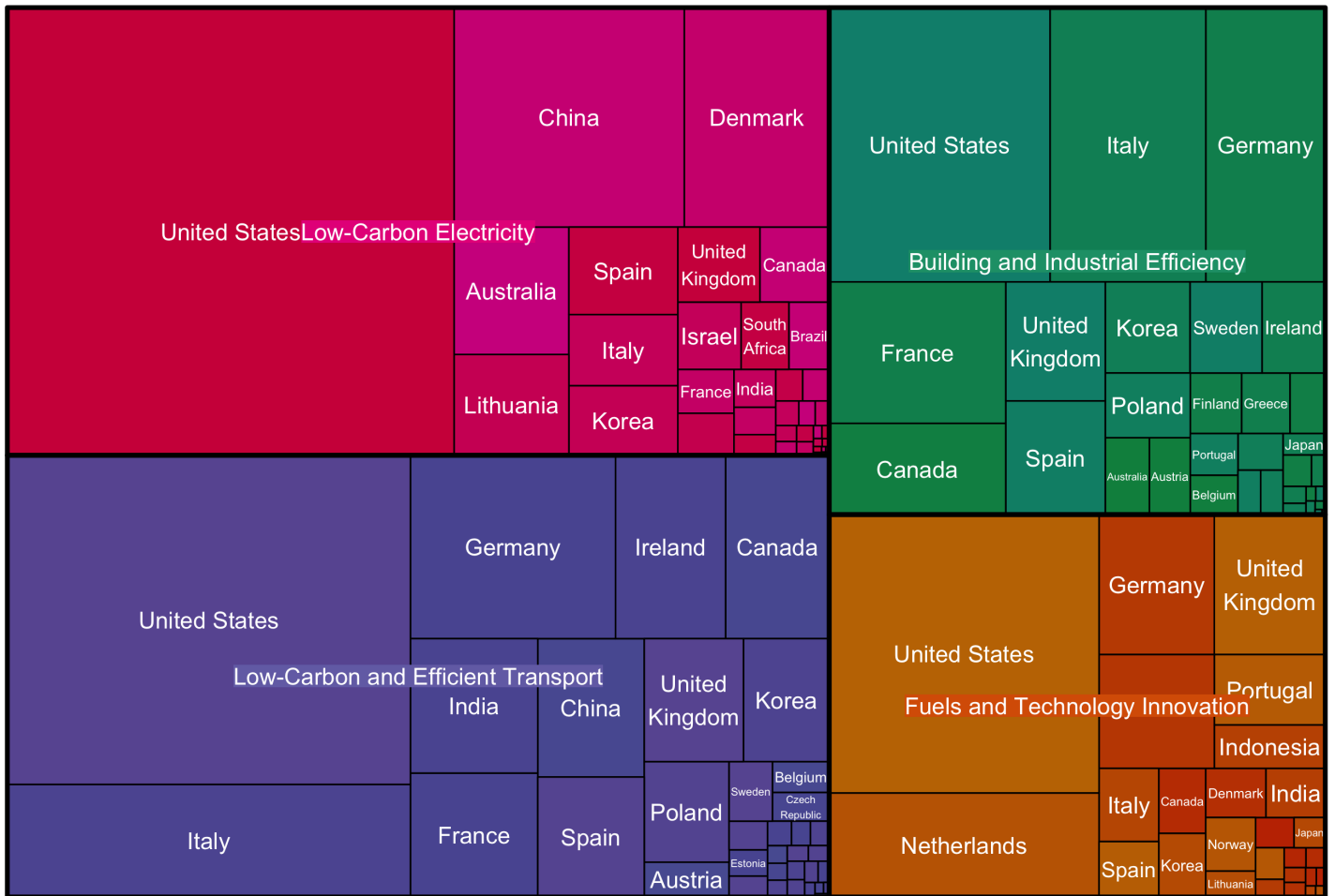
policy to simultaneously address the climate crisis and meet economic and geopolitical objectives. For example, the EU and Canada have announced their own packages of clean energy subsidies and incentives. The current tension among developed countries may pale in comparison to how green industrial policies could exacerbate divides between the developed and developing world. To be sure, green subsidies are expected to reduce the cost of nascent clean energy technologies, but these benefits will be slow to reach developing countries especially compared to the accelerating climate crisis. Sourcing requirements and domestic manufacturing targets help make climate action politically durable but discourage international cooperation without follow-on policies. This concern is compounded given developing countries' call for increased climate finance, including for loss and damage due to climate change, which gained momentum at COP27.

The G20's work on climate is becoming increasingly necessary as the international climate agenda becomes competitive rather than cooperative. Absent cooperation, wealthy

countries able to provide the most green subsidies will accumulate clean energy investment and technological capacity. OECD countries outspend non-OECD countries in clean energy by factors of 5-20,000, with the US dominating, and India and China being notable exceptions among emerging economies (see Figure 1). Developing countries without the fiscal latitude to compete may enact trade barriers like tariffs on clean energy imports or export bans on raw materials to spur clean energy value chains. A worst-case scenario is reciprocal disputes at the World Trade Organization (WTO) and a trade war that will fragment global clean energy value chains and slow climate action. If the momentum toward protectionism continues, G20 countries could drift into fragmented markets that favour to domestic producers, making global decarbonisation more difficult. These tensions threaten to jeopardise the energy transition, especially for developing countries with the largest expected emissions increases and the greatest need for climate finance and technical assistance. They will also replicate existing global inequities in industrial and technological capacity.



Figure 1: Clean energy spending by national governments



Note: Rich countries dominate government spending on clean energy subsidies and support. Includes annual and multiyear support currently enacted. Area of boxes are proportional to spending.


Source: International Energy Agency



The G20's Role




2



The G20 occupies a unique role in the multilateral climate context. The forum's members include 19 of the world's 20 largest greenhouse gas emitters. The G20 convenes both developed and developing economies, major oil and gas producers and consumers, and major financiers of clean global clean energy innovation and deployment. The Clean Energy Ministerial, which convenes the world's largest and leading countries and stakeholders to accelerate the clean energy transition, also runs parallel to G20 convenings.

However, past G20 convenings have typically sidestepped the difficult task of forging consensus on climate action—especially compared to the G7, which has crafted agreements on phasing out fossil fuel subsidies and overseas fossil fuel finance, and proposed a club for industrial decarbonisation. Consensus among a larger, more diverse set of parties is more difficult, especially considering the differing views among developed and developing countries on phasing down emissions.

The WTO governs international trade rules among both G20 and non-G20 members countries, but the institution has been slow in responding to the climate crisis. The lack of a comprehensive Environmental Goods Agreement has kept tariffs on clean energy and environmental technologies relatively high. Further, the WTO's principle of non-discrimination, which requires countries to treat imported goods and services no less favourable than domestic equivalents, discourages spending on emerging technologies that might not commercialise without government subsidies. According to the International Energy Agency (IEA), roughly half of the technologies necessary to achieve net-zero emissions by 2050 are not yet in the market. Governments likely will not make such large and risky investments without the opportunity to favour homegrown firms and create domestic jobs.



Recommendations to the G20



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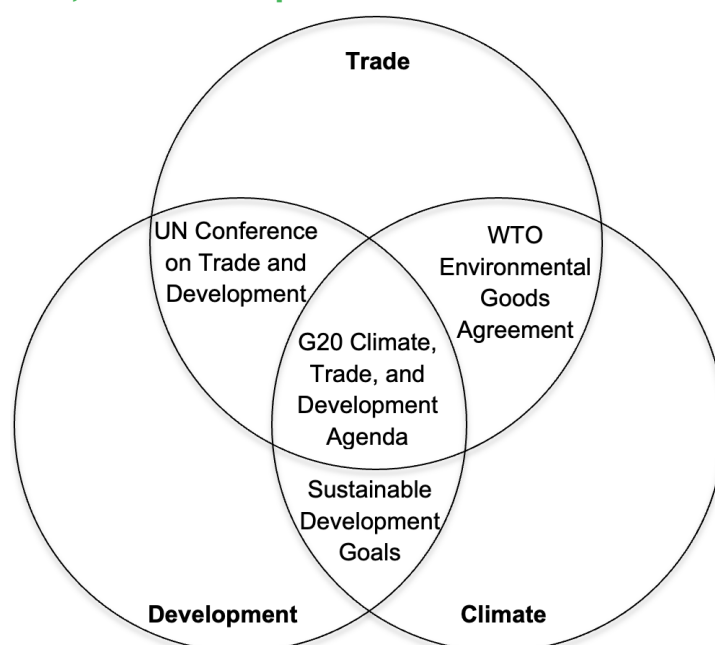
Climate, Trade, and Development Working Group

Until sufficient momentum for WTO reform arrives, the G20 can play a strong, more agile role toward this end with a climate, trade, and development working group that directs concessional financing and technology assistance toward developing countries, which will drive emissions growth in the coming decades.

Specifically, the G20 should seek to negotiate a comprehensive ‘rules of the road’ for climate-focused industrial policy. This will be necessary to avoid

devolving into a vicious cycle of protectionist measures that raise the collective cost of decarbonisation and diffusion of clean technologies. It should fashion a standing G20 climate, trade, and development working group that consistently convenes from presidency to presidency with the goal of aligning trade, climate, and development policies among the world’s largest emitters at the table. This effort will build upon current international efforts to simultaneously address trade, development, and climate by developing an agenda that sits at the intersection of all three areas (see Figure 2).

Figure 2: International efforts simultaneously addressing climate, trade, and development



Source: Authors' compilation


Other bilateral and plurilateral forums, including the US-EU Trade and Technical Council, the EU-India Trade and Technology Council, and Indo-Pacific Economic Forum have attempted to tackle one or two of these overlapping issues but not all three in tandem, and often lack the institutional capacity, political standing, or the right configuration of countries to affect meaningful change.¹

ministerial-level communiqué that commits members and outlines a ‘green box’ of allowable trade tools to promote domestic clean energy manufacturing, deployment, and innovation and a ‘red box’ of discouraged ‘trade remedies.’ The communiqué will further commit developed countries to pair their green industrial policies with increased support for climate finance and technology assistance to in developing countries (see Table 1).

The G20 climate, trade, and development working group should develop a

Table 1: Proposed roles for developed and developing countries within the G20 Trade, Development, and Climate Agenda

Trade Policy	Developed Countries	Developing Countries
Green Subsidies	<p>The US and other developed countries agree to limit domestic sourcing provisions for green subsidies to emerging, innovative clean technologies that require public support to commercialise.</p> <p>Developed countries pledge to increase concessional finance and technology assistance to developing countries in the same sectors that they domestically support with green subsidies.</p>	<p>Developing countries pledge not to limit or place exceedingly costly tariffs on imports of clean energy technologies from developed countries.</p> <p>Developing countries agree to abide by a green peace clause, under which all countries refrain from pursuing cases at the WTO against one another.</p>
Carbon Border Tariffs	<p>The EU and other countries that impose carbon border adjustment mechanisms (CBAM) agree to mobilise equivalent flows of concessional finance toward the most impacted countries and mitigate other effects of the tariff.</p>	<p>Developing countries to work with the EU and other ‘CBAM countries’ to avoid ‘carbon leakage’ and work toward decarbonizing industrial exports.</p>
Supply Chain Coordination	<p>Developed countries pledge to help developing countries move up the value chain in emerging clean energy technology supply chains given burgeoning global demand in coming decades.</p>	<p>Developing countries pledge to not impose export controls on critical raw materials, including critical minerals.</p>



This agenda, if agreeable to all parties, would head off much of the tension that has been emerging at the intersection of trade, climate, and development. Further, it would put G20 countries on the path toward putting domestic investments in developed countries like the IRA to work in developing countries. Moreover, this would complement existing bilateral platforms for clean energy technical assistance and innovation cooperation like the US-India Strategic Clean Energy Partnership, which focuses on multiple sectors like energy storage, renewable energy, and hydrogen.²

Analytical Support from the International Energy Agency

To support this effort, the G20 should partner with the IEA, which has expanded beyond its traditional energy security mandate to provide authoritative analysis on decarbonisation. Moving forward, technical know-how on how to scale innovative technologies while managing potential supply chain disruption will be essential to global decarbonisation. The IEA can expand upon its technology to produce in-depth, segment-by-segment supply chain roadmaps for sectors such as steel and cement that detail areas of

cooperation among G20 countries given stated policies and announced pledges. Further, with the IEA's potential role hosting the secretariat of the G7 Climate Club, the G20 can work with the IEA to facilitate the creation and expansion of 'climate clubs' on various climate and trade topics beyond the ambition of the G20-wide working group communiqué.³ For example, a subset of G20 countries could opt to work through tensions over the EU carbon border adjustment mechanisms, which will require Europe to impose tariffs on the US, India, and China, among many other countries. The US, Japan, and the EU could also seek to include Indonesia in the emerging 'critical mineral club' that has begun to emerge amid concerns related to the IRA's sourcing provisions.⁴

ACCELERATE Platform

To catalyse additional investment to complement trade flows, the G20 could launch an innovation-sharing, trade initiative, styled as ACCELERATE (Advancing Clean Energy, Collaboration, and Trade for Economic Recovery and Transformation), at an upcoming COP meeting. The ACCELERATE platform will be an initiative among G20 countries to collectively increase technology



assistance and overseas finance for the demonstration of net-zero-enabling technologies. The platform will be both a way to share information and direct and pool finance toward developing countries.

Under ACCELERATE, development finance agencies such as the US International Development Finance Corporation and the Japan Bank for International Cooperation can fund ultra-low emissions steel and cement projects in the developing world, including providing technical assistance, technology transfer, low-cost finance, and guaranteed market access to exports.

Doing so will meet the ultimate goal of bringing down emissions globally, particularly for high-emitting industries, and assist developing countries in


continuing to industrialise while meeting climate goals. ACCELERATE can plan projects based on the roadmaps that the IEA provides. Further, ACCELERATE can also provide the platform for ministerial exchanges among trade, energy, and economy ministers, and other appropriate stakeholders, to advance cooperative agendas at the intersection of climate, innovation, and trade. This platform can build upon the First Movers Coalition and Industrial Deep Decarbonisation Initiative hosted by the United Nations (UN) Industrial Development Organization under the Clean Energy Ministerial to mobilise additional finance and align trade and development policies with existing public and private procurement efforts.⁵



Conclusion: The need for medium- and long-term strategies



4



The recommendations outlined for the G20 are a starting point to address the short-term challenges from the global green subsidy race. Therefore, the G20 must pair the strategies outlined with medium and long-term solutions that channel both sufficient clean energy finance and associated technology to developing countries. Underlying these solutions must be sufficient interactive bidirectional innovation collaboration between developed and developing countries, instead of a model of passive, unidirectional technology transfer from developed to developing.⁶ The former is associated with greater climate and clean technology innovation in developing countries.⁷ This innovation is likely to produce durable clean energy technological capability and associated markets.

In the medium- and long-term, it is clear wealthier countries need coherent strategies with their green subsidies to facilitate clean energy technology deployment in developing countries.⁸ Depending on existing UN Framework Convention on Climate

Change (UNFCCC) processes for technology transfer like the Climate Technology Centre and Network is unlikely to succeed, and neither will depending on the private sector alone.⁹ However, what to consider and how to structure these policies are less clear. As a future step, technology finance and deployment in developing countries can be a part of developed country NDCs much like they are for many developing country NDCs.¹⁰

For developing countries, policies that encourage foreign direct investment (FDI) are critical to enabling clean energy technology. Examples include regulatory certainty, protection of intellectual property rights, and reduction of trade tariffs.¹¹ However, FDI policies alone are not enough to grow clean energy supply chains in developing countries. Other factors such as human, physical, and institutional capabilities also influence this growth.¹² Consequently, local context matters, there is no one-size fits all, and green industrial policy in developing countries is difficult.¹³ What the G20 offers in this case is a nimble, plurilateral platform to pilot solutions. Because the group regularly convenes,




at both the leader and ministerial level, a relatively small group of both developed and developing countries that are responsible for most global economic activity and greenhouse gas emissions, it that can consider unique contexts for

each country while providing sufficient global scale. Efforts started in the G20 could then scale to the broader UNFCCC with more countries.

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Endnotes

1. United Nations, “Kyoto Protocol to the United Nations Framework Convention on Climate Change,” 1998, <https://unfccc.int/resource/docs/convkp/kpeng.pdf>.
2. United Nations, “Paris Agreement,” 2015, https://unfccc.int/sites/default/files/english_paris_agreement.pdf.
3. “Inflation Reduction Act of 2022,” Pub. L. No. 117- 169 (08/16/2022) (n.d.), <https://www.congress.gov/bill/117th-congress/house-bill/5376/text>; John Bistline, Neil R Mehrotra, and Catherine Wolfram, “Economic Implications of the Climate Provisions of the Inflation Reduction Act,” March 31, 2023, https://www.brookings.edu/wp-content/uploads/2023/03/BPEA_Spring2023_Bistline-et-al_unembargoedUpdated.pdf.
4. David Kleimann et al., “How Europe Should Answer the US Inflation Reduction Act” (Brussels: Bruegel, 2023); Shoko Oda and Eric Martin, “US, Japan Strike Deal on Supply of Minerals for EV Batteries,” *Bloomberg*, March 28, 2023, <https://www.bloomberg.com/news/articles/2023-03-28/us-and-japan-to-agree-pact-on-critical-mineral-supply-chains>; Jin Min-Ji, “Korea to Continue Negotiations with U.S. over IRA,” *Korea JoongAng Daily*, April 5, 2023, <https://koreajoongangdaily.joins.com/2023/04/05/business/economy/korea-ira-finance-ministry/20230405161757244.html>.
5. European Commission, “A Green Deal Industrial Plan for the Net-Zero Age” (European Commission, February 1, 2023), https://ec.europa.eu/commission/presscorner/detail/en/ip_23_510; Steve Scherer and Nia Williams, “Canada Offers C\$35 Bln Green Tax Credits but Still Trails Generous US Incentives,” *Reuters*, March 29, 2023, sec. Sustainable Business, <https://www.reuters.com/business/sustainable-business/canada-offers-c35-bln-green-tax-credits-still-trails-generous-us-incentives-2023-03-29/>.
6. International Energy Agency, “Government Energy Spending Tracker: Policy Database,” December 9, 2022, <https://www.iea.org/data-and-statistics/data-tools/government-energy-spending-tracker-policy-database>.
7. International Energy Agency, “Government Energy Spending Tracker: Policy Database”
8. World Resources Institute, “CAIT Climate Data Explorer,” 2019, <http://cait.wri.org/>.
9. “Clean Energy Ministerial,” 2023, <https://www.cleanenergyministerial.org/>.
10. International Energy Agency et al., “Joint Report by IEA, OPEC, OECD and World Bank on Fossil-Fuel and Other Energy Subsidies: An Update of the G20 Pittsburgh and Toronto Commitments,” 2011; “G7 Climate, Energy and Environment Ministers’ Communiqué,” May 27, 2022, https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Europa___International/g7_climate_energy_environment_ministers_communique_bf.pdf; “G7 Statement on Climate Club,” June 28, 2022, <https://www.g7germany.de/resource/blob/974430/2057926/2a7cd9f10213a481924492942dd660a1/2022-06-28-g7-climate-club-data.pdf>.

- 
11. William Alan Reinsch, Emily Benson, and Catherine Puga, “Environmental Goods Agreement: A New Frontier or an Old Stalemate?,” CSIS, October 28, 2021, <https://www.csis.org/analysis/environmental-goods-agreement-new-frontier-or-old-stalemate>.
 12. International Energy Agency, “Net Zero by 2050 - A Roadmap for the Global Energy Sector” (Paris, 2021), <https://www.iea.org/reports/net-zero-by-2050>.
 13. The White House, “FACT SHEET: In Asia, President Biden and a Dozen Indo-Pacific Partners Launch the Indo-Pacific Economic Framework for Prosperity,” The White House, May 23, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/23/fact-sheet-in-asia-president-biden-and-a-dozen-indo-pacific-partners-launch-the-indo-pacific-economic-framework-for-prosperity/>; “EU-India: New Trade and Technology Council,” Text, European Commission - European Commission, accessed April 6, 2023, https://ec.europa.eu/commission/presscorner/detail/en/ip_23_596; “U.S.-E.U. Trade and Technology Council (TTC),” United States Trade Representative, accessed April 6, 2023, <http://ustr.gov/useuttc>.
 14. U.S. Department of Energy, “U.S.-India Strategic Clean Energy Partnership Ministerial Joint Statement,” Energy.gov, accessed April 6, 2023, <https://www.energy.gov/ia/articles/us-india-strategic-clean-energy-partnership-ministerial-joint-statement>.
 15. “G7 Statement on Climate Club.”
 16. “Minerals Security Partnership,” IEA, 2022, <https://www.iea.org/policies/16066-minerals-security-partnership>; Owen Minott and Helen Nguyen, “IRA EV Tax Credits: Requirements for Domestic Manufacturing | Bipartisan Policy Center,” accessed April 6, 2023, <https://bipartisanpolicy.org/blog/ira-ev-tax-credits/>.
 17. “First Movers Coalition,” 2023, <https://www.weforum.org/first-movers-coalition>; “Industrial Deep Decarbonisation Initiative | UNIDO,” accessed April 6, 2023, <https://www.unido.org/IDDI>.
 18. Nimisha Pandey, Heleen Coninck, and Ambuj D Sagar, “Beyond Technology Transfer: Innovation Cooperation to Advance Sustainable Development in Developing Countries,” *WIREs Energy and Environment* 11, no. 2 (March 2022), <https://doi.org/10.1002/wene.422>; Miria Pigato et al., *Technology Transfer and Innovation for Low-Carbon Development* (The World Bank, 2020), <https://doi.org/10.1596/978-1-4648-1500-3>.
 19. Kyle S. Herman, “Beyond the UNFCCC North-South Divide: How Newly Industrializing Countries Collaborate to Innovate in Climate Technologies,” *Journal of Environmental Management* 309 (May 2022): 114425, <https://doi.org/10.1016/j.jenvman.2021.114425>.
 20. Silvia Weko and Andreas Goldthau, “Bridging the Low-Carbon Technology Gap? Assessing Energy Initiatives for the Global South,” *Energy Policy* 169 (October 2022): 113192, <https://doi.org/10.1016/j.enpol.2022.113192>; Heleen de Coninck and Ambuj Sagar, “Making Sense of Policy for Climate Technology Development and Transfer,” *Climate Policy* 15, no. 1 (January 2, 2015): 1–11, <https://doi.org/10.1080/14693062.2014.953909>.
 21. Weko and Goldthau, “Bridging the Low-Carbon Technology Gap?”
 22. Pigato et al., *Technology Transfer and Innovation for Low-Carbon Development*; Weko and Goldthau, “Bridging the Low-Carbon Technology Gap?”

- 
23. Pigato et al., *Technology Transfer and Innovation for Low-Carbon Development*; Ann Harrison, Leslie Martin, and Shanthi Nataraj, “Green Industrial Policy in Emerging Markets,” *Annual Review of Resource Economics* 9 (November 10, 2017), <https://doi.org/10.1146/annurev-resource-100516-053445>.
 24. Pigato et al., *Technology Transfer and Innovation for Low-Carbon Development*.
 25. Pandey, Coninck, and Sagar, “Beyond Technology Transfer”; Harrison, Martin, and Nataraj, “Green Industrial Policy in Emerging Markets.”



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