

**CLIMATE
LEADERSHIP
COUNCIL**

**CENTER FOR
CLIMATE &
TRADE**

PRIORITIZING AMERICAN INTERESTS

**A NEW STRATEGY FOR
GLOBAL DECARBONIZATION**

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ABOUT



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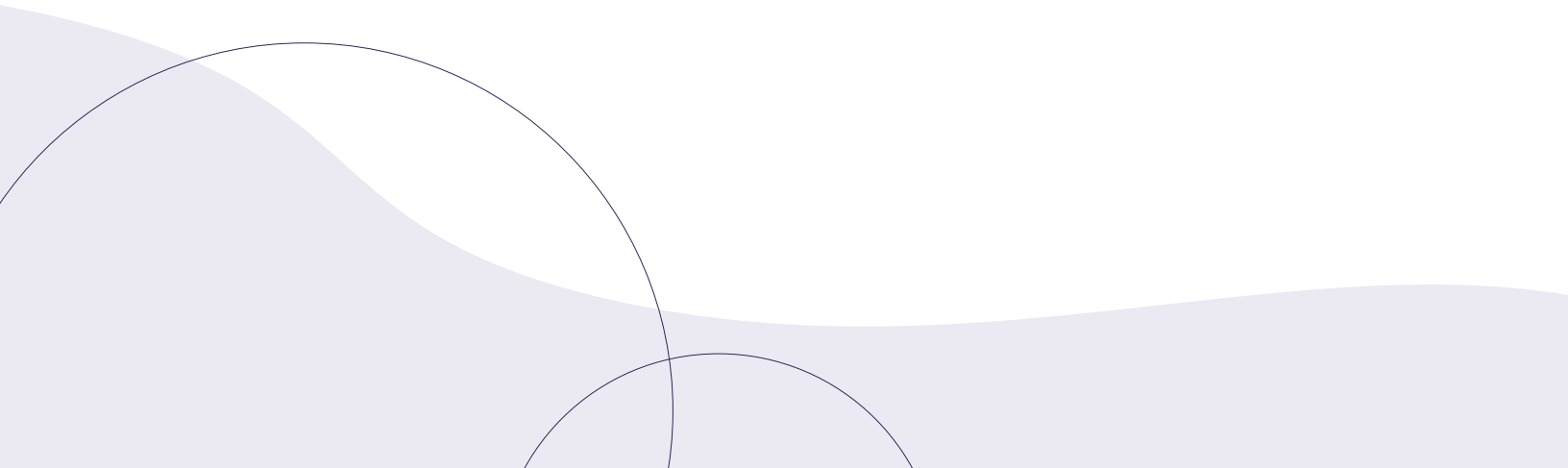
The Climate Leadership Council (the Council) is a nonprofit think tank dedicated to championing the most effective, fair, and lasting climate solutions. The Council produces groundbreaking research, educates policymakers, and works with a broad set of stakeholders to advance a common goal: meaningfully reduce global emissions while strengthening our economy. It is also home to the Center for Climate & Trade, which explores and advances policies that leverage trade relationships and the global market economy towards greater international cooperation and climate ambition.

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EXECUTIVE SUMMARY

The U.S. has meaningfully reduced greenhouse gas emissions over the last twenty years and most Americans express interest in climate action. To the casual observer, it might seem as though we are well on our way to lasting climate progress. A more sober assessment reveals an unfortunate reality: the greatest challenges lie ahead.

The U.S. has meaningfully reduced greenhouse gas emissions over the last twenty years... but global emissions are on track to be higher by midcentury than they are today.

Most Americans support climate action... but it tends to rank far lower on their priority lists than issues like the economy and national security.

Our political gridlock on this issue is ceding a \$215 trillion market opportunity to our competitors.

To succeed in the next era, policymakers must adopt an intentionally pro-U.S. climate approach that recognizes both the global emissions landscape and concerns facing Americans. Climate progress has too often been viewed as independent of or in conflict with other national priorities. This approach ignores the reality that the U.S. has the world's largest and most innovative economy, the richest capital markets, the most influential consumer base, and is a sought-after economic ally around the world. It is not only possible to advance our broader interests while reducing global emissions—it is necessary.

A better approach to global climate change starts with advancing U.S. interests in four key areas:



AMERICAN COMPETITIVENESS



ECONOMIC GROWTH



RESOURCE SECURITY



GEOPOLITICAL INFLUENCE

A policy strategy focused on these national priorities will elevate the U.S., our industries, and workers—and bend the curve on global emissions in the process.



AMERICAN COMPETITIVENESS: INTRODUCE ACCOUNTABILITY IN THE GLOBAL ECONOMY

As global manufacturing expands, two critical challenges emerge: carbon-intensive production and market distortions from excess capacity. Non-market actors like China use government policy to prop up and expand industries that use low-cost, outdated practices. At the same time, U.S. manufacturers have developed and invested in manufacturing methods that allow the U.S. to make the same goods with significantly lower emissions. Robust global market signals are necessary to hold emitters accountable, reward clean firms, and discourage foreign governments from distorting the market.



ECONOMIC GROWTH: EXPORT MORE U.S. MADE GOODS

There is an estimated \$130 trillion in global market potential for clean energy technologies through 2050, though the U.S. accounts for just 6% of global exports in those technologies today. With public and private investment spurring rapid growth in American manufacturing of clean energy technologies, U.S. manufacturers are positioned to produce the goods, services, and experience to serve both the domestic market and the growing international market. For innovative U.S. firms to capture a share of this global opportunity, policymakers must rethink strategies for promoting domestic manufacturing to better compete internationally.



RESOURCE SECURITY: SECURE CRITICAL SUPPLY CHAINS

Expanding domestic clean energy manufacturing requires reliable supplies of critical minerals like lithium, cobalt, and rare earth elements. Global demand for these minerals is expected to double by 2030 and the U.S. remains import-dependent for most of its mineral needs. Major minerals producers like China have already used export controls to shrink mineral supplies on the global market. While domestic investments in mining and processing will help, the U.S. must develop more ambitious strategies to develop these resources at home and expedite their development abroad.



GEOPOLITICAL INFLUENCE: ACCELERATE LOW CARBON INFRASTRUCTURE IN THE DEVELOPING WORLD

Developing countries are rapidly building energy and industrial infrastructure. So far, China has dominated this market opportunity, leveraging its Belt and Road Initiative to secure energy and natural resources essential to its industrial strategy and build out carbon intensive infrastructure. To effectively compete and build commercial and geopolitical ties with emerging markets, the U.S. must adopt a more aggressive international investment approach designed to harness the power of private capital to close the investment gap with China.

This strategy leverages American strengths like innovative, low-carbon manufacturing; unmatched capital reserves; a prosperous and attractive consumer economy; and strong diplomatic relationships. It encourages us to develop closer ties with our partners and better compete with rivals that exhibit environmental apathy, economic aggression, and geopolitical hostility.

Investing in American interests is the key to driving down global emissions.

INTRODUCTION

THE GREATEST CHALLENGE AND THE GREATEST OPPORTUNITY

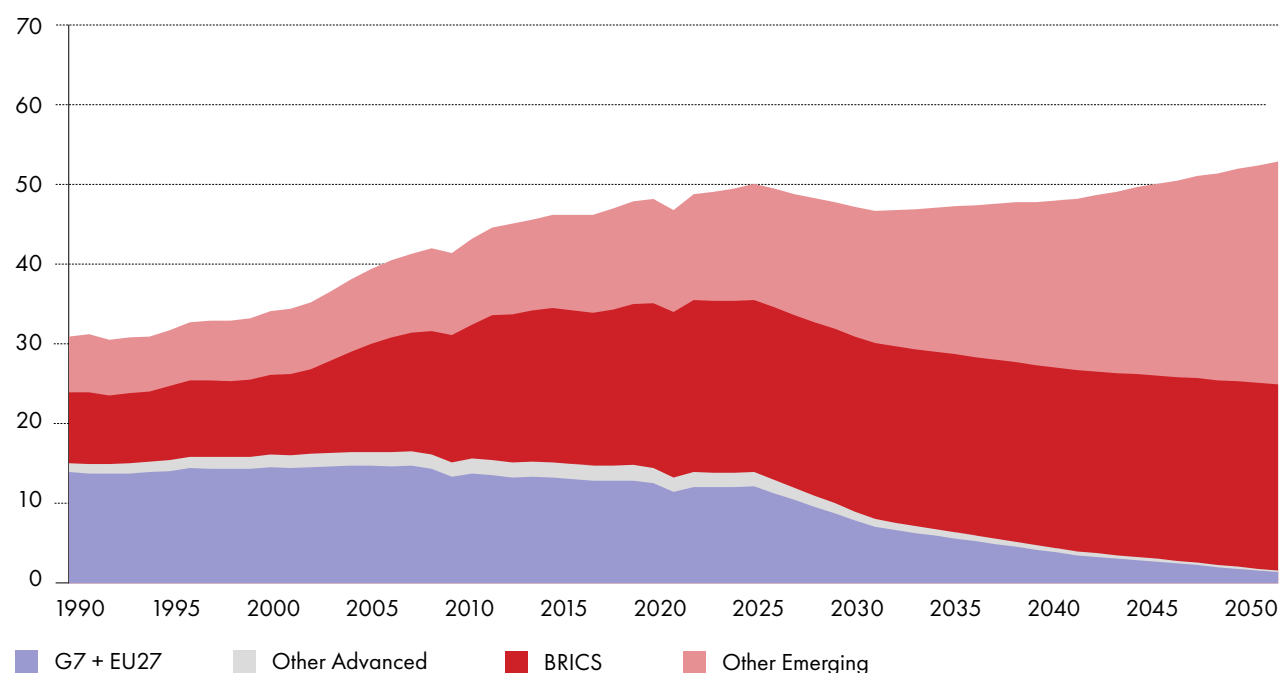
Climate progress has too often been viewed as independent of or in conflict with other national priorities. This has failed to address two important contrasts: first, as domestic emissions fall, global emissions continue to rise. Second, while Americans have an appetite for climate action, for most it falls far behind other priorities like the economy and national security. A more viable U.S. approach to global climate change would address these imbalances by advancing American competitiveness, economic growth, resource security, and geopolitical influence.

To be sure, the U.S. has its work cut out for it. Emissions projections based on current policies have us falling well short of the nation's stated goal of 50% reduction by 2030, with recent estimates indicating only a 32% reduction.¹ But

in the context of global decarbonization, lowering U.S. emissions is the easy part. By far, the biggest challenge is addressing the growing share of emissions from developing countries, which are set to double by midcentury.²

If the Global South (loosely defined as Africa, Latin America, the Caribbean, Asia, and Oceania) continued its economic advancement on its current technology and emissions intensity trajectory, the greenhouse gas (GHG) emissions increases from those countries would more than offset even the most optimistic emission reduction projections of the developed world. In other words, even if U.S., G7 partners, and other advanced economies achieve net-zero emissions by 2050 but the Global South continues along its current path, we would enter mid-century with global GHG emissions higher than they are today.³

Figure 1. Mid-century emissions if advanced economies decarbonize but other countries continue along their current trajectory



Source: Climate Watch historical emissions data, World Data Lab World Emissions Clock, author calculations⁴

Further, even if China, India, and other BRIC countries meet their promises under the Paris Accord, global emissions would still only be 8% lower than they are today. Nearly all the emissions growth in the next 25 years will come from other emerging nations. This is not to suggest that the U.S.—the world’s largest historic emitter—does not have a responsibility to decarbonize its economy, it does. Further, we should not expect the world’s poorest countries to prioritize climate mitigation at the expense of building

the necessary infrastructure, education, and healthcare systems to lift their people out of poverty. Over 2 billion people globally do not have access to safe drinking water, hundreds of millions of children worldwide are not attending school, and millions of people die each year from preventable diseases. But we must recognize that the energy and infrastructure choices developing countries will make to facilitate economic development will have profound impacts on global emissions for the remainder of this century.

THE U.S. SHOULD LEAD

The U.S. has an enormous opportunity and responsibility to support the development and decarbonization of the Global South. We are the world’s biggest and most innovative economy capable of developing and scaling the technologies needed for global decarbonization. We have, by far, the world’s richest and most dynamic capital markets capable of rapidly accelerating low-carbon deployment in the Global South. We’re the most important consumer market in the world, capable of compelling foreign industries to adhere to our respect for human rights, working conditions, and environmental stewardship. And global decarbonization is an enormous market opportunity, with more than \$215 trillion of investments needed over the next two and a half decades.⁵

Despite all this, we’re a small player in clean energy exports, struggle to meaningfully unlock capital to support international infrastructure development, have outsourced much of our basic manufacturing, import higher emitting products from overseas, and watch our competitors—China, in particular—expand their influence in strategically important regions around the globe. The net results are higher global emissions, trillions in lost economic opportunity for U.S. businesses and workers, and a weaker geopolitical hand.

A combination of factors led us to where we are today. U.S. policy choices make it too hard to develop, build,

and expand energy and industrial infrastructure. Our environmental efforts have prioritized domestic reductions over using American policy to drive net global emissions reductions. Our focus on forging international consensus has at times allowed free riders to undermine global efforts. Our foreign investments come with too many rules, checklists, and restrictions. Our trade policy has valued the cheap at the expense of U.S. manufacturing jobs, the global climate, and, at times, our deeply held national values. Is it any wonder that it has been difficult to weave together a durable constituency in the U.S. to support climate?

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WE'RE LOSING THE RACE

Meanwhile, China is rapidly expanding its clean energy capacity. They're strategically subsidizing the climate technologies they know the world will demand, seeking to flood the global market with Chinese-made products, drive global competitors out of business, and monopolize supply for their economic and geopolitical benefit.

China's focus on the clean energy supply chain may feel like a win for climate—cheaper technologies from an economy that can scale quickly to support rapid global decarbonization. But long-term, we will fail if cheap Chinese goods undermine global competition and crush future innovation in new, better solutions. Further, what is cheap today is not guaranteed to be cheap, or even available, tomorrow if one provider has no competitors. We've already seen China restrict exports in markets where they own the vast majority of the supply.⁶

China is winning the race to supply the world's climate technology needs. Their first motivation is not lowering global emissions; their motivation is maximizing economic power and geopolitical leverage. But Chinese policy isn't distracted by debate over whether the future should be climate constrained—as it still is in Washington. They know it already is, and they're singularly focused on winning in this new paradigm.

A SHIFT IN MENTALITY

The U.S. needs a clear vision and comprehensive policy strategy to address climate change that unapologetically serves our national interest. This strategy is rooted in embracing the reality that, in most cases, when global demand is met by U.S. supply, the net impact will be domestic economic growth; more geopolitical power; an international marketplace more consistent with American rule of law, human rights, and free markets; and lower global emissions.

This analysis identifies four priorities and recommendations to policymakers that will reduce global emissions and unabashedly serve U.S. interests. Here's what we need to do.

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PRIORITIZING THE NATIONAL INTEREST TO ADDRESS CLIMATE CHANGE

Adequately addressing climate change in a manner that maximizes benefits to the U.S. economy and worker and improves American geopolitical standing must be centered around four key priorities to help get the global economy on-track.

INTRODUCE ACCOUNTABILITY IN THE GLOBAL ECONOMY

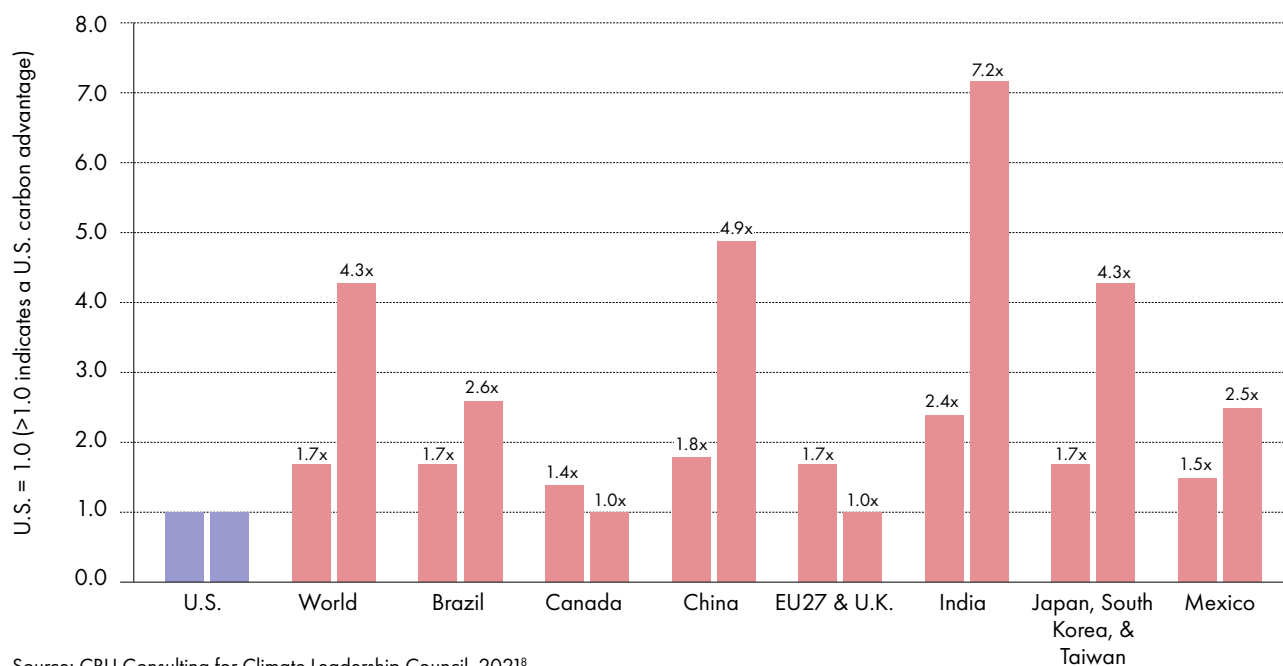
The energy transition will require unprecedented amounts of clean energy technologies and enabling energy and industrial infrastructure that requires enormous volumes of basic commodities like steel, aluminum, cement, and other materials. Developing countries are scaling up their manufacturing capacity for these goods to support basic infrastructure, industrialization, and the energy transition. As demand and manufacturing expand, the market for basic commodities is being shaped by two issues: carbon-intensive manufacturing and excess capacity.

First, emissions from the manufacture of basic commodities are typically described as “hard to abate,” because production

tends to be energy-intensive or require chemical processes that release greenhouse gas emissions. The manufacture of steel, aluminum, and cement contribute 14-19% of total global greenhouse gas emissions annually.⁷ Expanded manufacturing presents a critical challenge: manufacturing these commodities without driving a significant increase in global greenhouse gas emissions. Governments and manufacturers worldwide are driving investment into decarbonizing these processes. Already we see important differences in the greenhouse gas intensity of manufacturing across economies. For example, the U.S. makes steel with just 25-60% of the emissions of the world average.

Figure 2. Relative Carbon Intensity of Steel Manufacturing by Market Segment

Flats (left bars) & Longs (right bars)



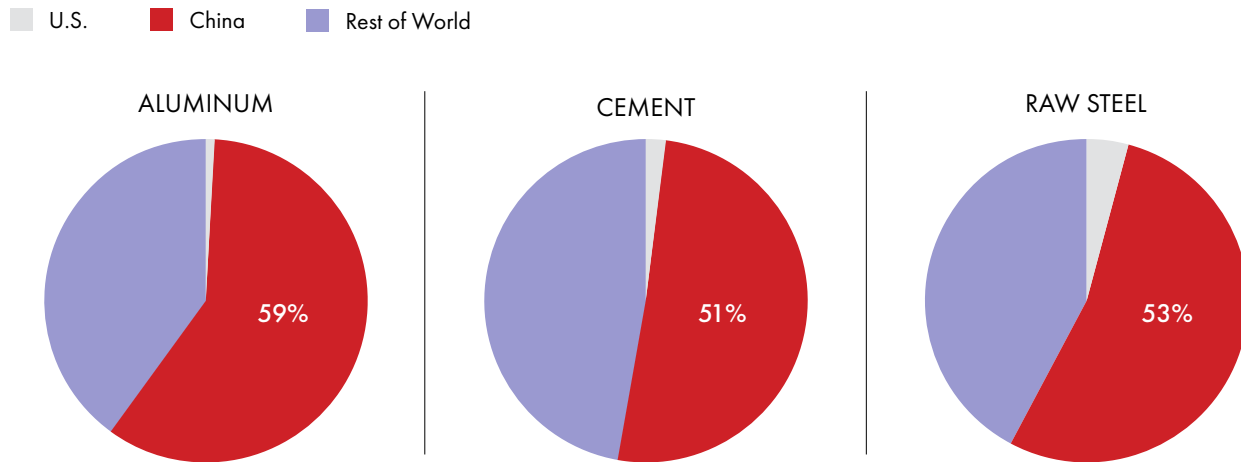
Source: CRU Consulting for Climate Leadership Council, 2021⁸

Ensuring that manufacturers adopt lower-carbon pathways, especially as global manufacturing expands, is vital to achieving global greenhouse gas targets. Governments around the world are considering ways to assess fees on imports, like the European Union’s Carbon Border Adjustment Mechanism and similar proposals in the U.S. and abroad.⁹

The second challenge is the excess emissions and market distortions caused by large amounts of overcapacity in the international marketplace. Over the last two decades, China has captured more than half the global market for steel, cement, and aluminum. To accomplish this global dominance, China relies on low-cost, high-emissions

manufacturing pathways and uses subsidies, cheap and forced labor, price manipulation, and other non-market practices to bolster its competitive position.¹⁰ Chinese manufacture of basic commodities requires 60-200% more emissions than the U.S. economy.¹¹ Its market saturation with low-cost goods complicates the ability of market-based firms to make necessary capital-intensive investment in decarbonization or to launch new manufacturing capabilities in emerging markets. Further, competitive pressures reduce investment in innovation by the private sector and delay future breakthroughs.

Figure 3. China’s Outsized Share of Commodity Manufacturing



Source: US Geological Survey, 2024¹²

The result: the carbon loophole—a measurement of emissions produced in the manufacture of internationally traded goods—has ballooned to 8 Gt/yr over the last 25 years as the U.S., EU, and other wealthy economies offshored manufacturing only to import products with higher carbon intensities.¹³ Emissions-intensive excess capacity threatens the global climate and the fabric of a dynamic, competitive global marketplace while presenting steep barriers to entry for new innovative firms at a time when economic growth and the energy transition demand increasing amounts of basic materials. To meet the growing needs for basic commodities in a climate constrained world, we need robust global market signals that introduce accountability for emitters and non-market practices everywhere.

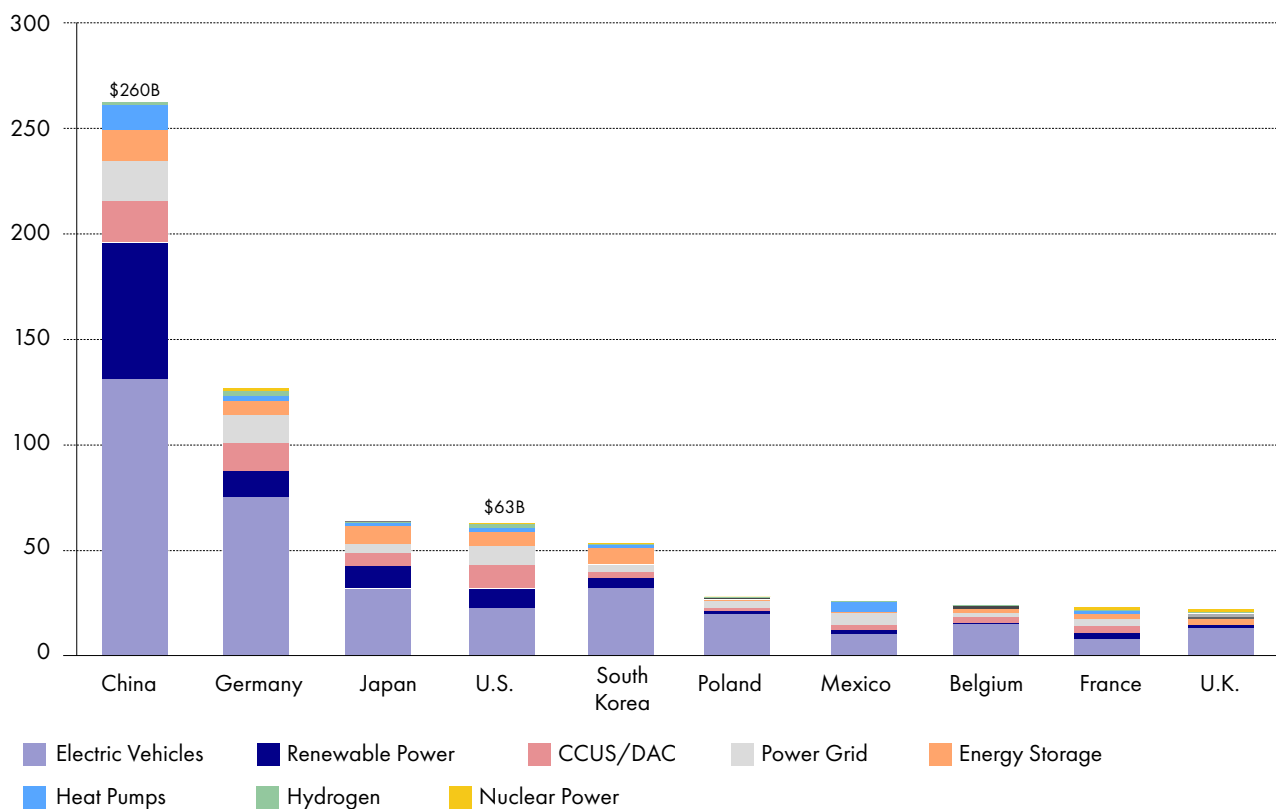
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EXPORT MORE U.S. MADE GOODS

In the race to serve the rapidly growing international market for low-carbon technologies, the U.S. lags behind. Examining eight decarbonization technology sectors across zero-carbon energy sources, electrified transportation, and carbon capture, Council analysis shows that the U.S. accounts for 6% of global exports.¹⁴ In contrast, China is, by

far, the dominant player holding more than a quarter of the global market for these exports.¹⁵ A combination of factors led to this deficit, chief among them a tepid U.S. response to a long-standing strategic plan by the Chinese government to secure near monopolies of clean energy technology manufacturing and critical supply chains.

Figure 4. Top 10 exporters of decarbonization technologies, 2023 (USD billions)



Source: OEC, Freed and Hughes-Cromwick, author calculations¹⁶

Given the large differences in the carbon intensity of manufacturing across countries, China's domination of these clean energy technology markets has substantial climate costs as well. Chinese manufacturing is powered by an electricity sector that is 63% coal and more than 50% more carbon-intensive than U.S. electricity.¹⁷ And coal is locked in for decades; with an average age of 13 years, the Chinese coal fleet has more than 35 years of useful life remaining.¹⁸

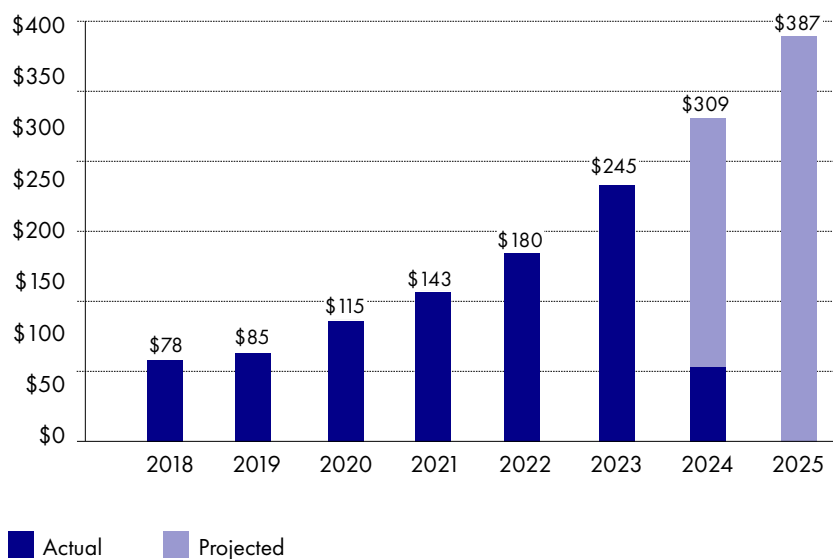
That high carbon intensity in the electricity sector translates to higher carbon intensity for manufacturing clean energy technologies. Solar panels and electric vehicles are prime examples. U.S.-made thin film solar panels generate 90% less greenhouse gas emissions than the silicon-based modules that China specializes in.¹⁹ U.S. electric vehicle manufacture results in 20% fewer emissions than Chinese manufacture, and the U.S. advantage is expected to grow.²⁰

As China floods the global market, supplying 55% of solar modules and 41% of electric vehicles and battery cells,²¹ production emissions for these products are 2X to 10X higher than if U.S. manufacturers were producing those same goods. But under the current trading regime, U.S. manufacturers are not well positioned to meaningfully compete in these industry segments on the global stage.

The good news is that on the path to full global market maturity for clean energy technologies, we are still in the relatively early days. Estimates indicate that across the eight technology pathways the Council examined, there is upwards of \$130 trillion in projected global market opportunity still to be seized through 2050.²² Further, U.S. clean technology manufacturing capacity is quickly ramping up. Spurred by a combination of expanded federal funding and private investment induced by the Infrastructure Investment and Jobs Act, the CHIPS and Science Act, and the Inflation Reduction Act, domestic investment in clean energy technology manufacturing, generation, and installation is accelerating. In just the first quarter of 2024, American clean energy investment hit \$71B, nearly matching total annual investment in 2018.²³ U.S. manufacturers are positioned to produce the goods, services, and experience necessary to serve not just the domestic market, but to capture a significantly larger piece of global demand as well.

Even with the recent policy incentives, innovative, lower-carbon American manufacturers face strong headwinds to participating in foreign markets. China has become the dominant force in clean energy supply chains through

Figure 5. U.S. investment in clean energy, transportation, electrification, and carbon management, 2018-2025 (projected) (USD billions)



Source: Rhodium Group/MIT-CEEPR Clean Investment Monitor data with Council projections

concerted and comprehensive government strategy. Though U.S. policymakers will not embrace the same tactics, American policy choices should be designed to help domestic firms overcome unfair limits to their growth, including stiff competition due to overcapacity from non-market producers and governments, poor intellectual property protection, and in developing countries, limited market readiness.²⁴

The President's Export Council,²⁵ the Trade Promotion Coordinating Committee,²⁶ and members of Congress²⁷ have all issued recent recommendations to emphasize U.S. exports. Disparate programs support the identification of overseas opportunities for U.S. firms, matchmaking between project needs and U.S. goods and services, the financing of exports and business

activity to increase exports, and compliance with local regulations. The U.S. also participates in international initiatives that can support U.S. exports of low-carbon technologies, including the G7 Partnership for Global Infrastructure and Investment and the Multilateral Development Banks.

These initiatives are a good start but insufficient to the task. In the face of non-market competition, unfair trade practices, and geopolitical rivalries, the U.S. must reconceive its approach to domestic manufacturing and export promotion to adequately position U.S. firms to compete for and win meaningful clean energy market share in the years and decades to come.

SECURE CRITICAL SUPPLY CHAINS

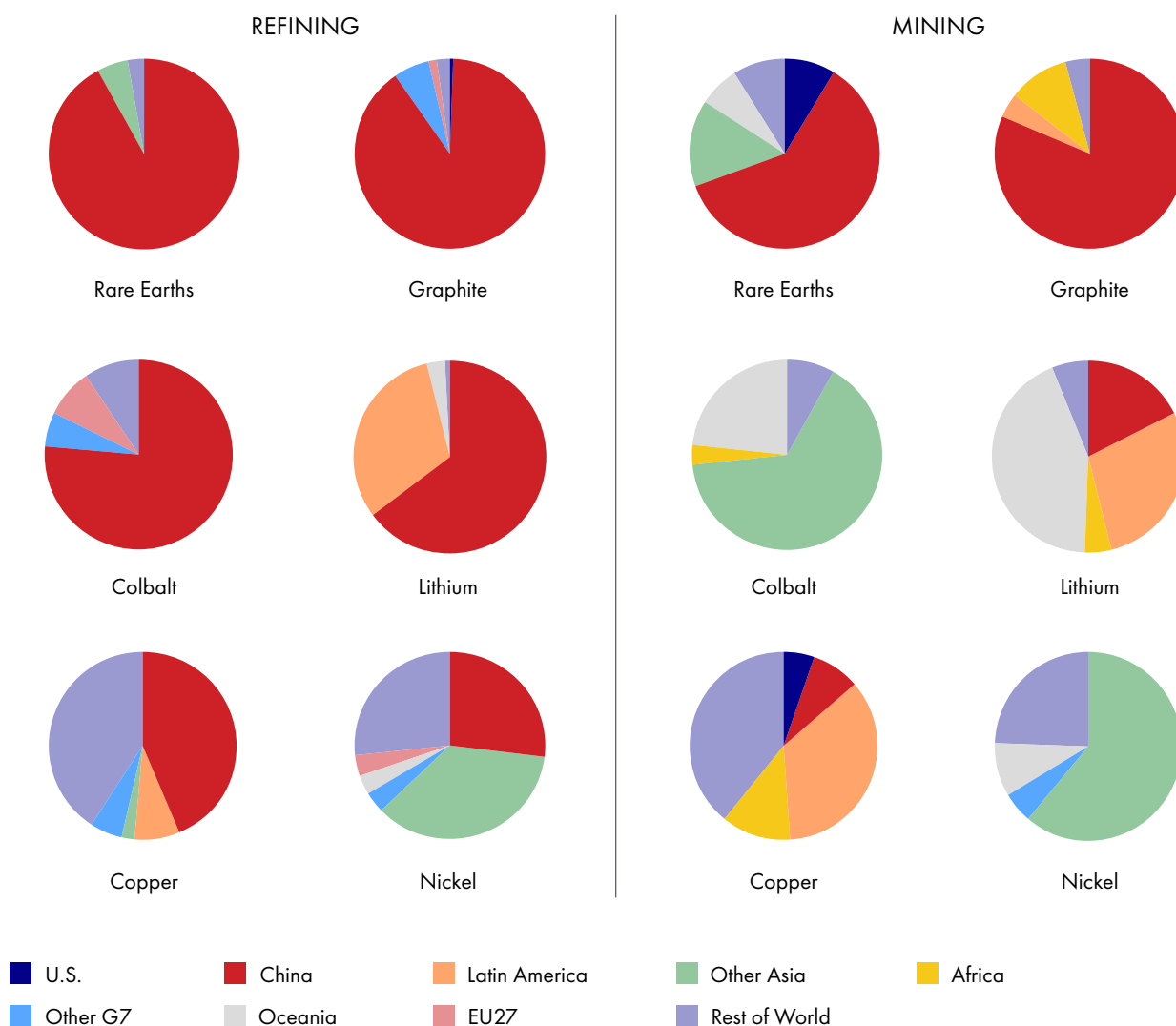
Scaling up clean energy manufacturing potential in the U.S. market will require secure, resilient, affordable access to supplies of critical minerals to support the production of batteries (lithium, graphite, and cobalt), renewable power technologies (copper), and advanced electric motors (rare earth elements and nickel). Global mineral demand is expected to double by 2030 and as much as quadruple by 2040.²⁸

With very few exceptions the U.S. is not a major producer nor refiner of the critical and rare earth minerals necessary

to support clean energy manufacturing. In fact, the United States is more than 50% import dependent for 41 of 50 critical mineral categories²⁹ and 100% import reliant on 14 critical minerals.³⁰ The challenge of importing adequate supply is exacerbated by the heavy concentration of production and refining in very few countries—and often in politically unstable regions or those with adverse interest to the U.S. More than 60% of lithium, graphite, cobalt, rare earth elements, and nickel is mined in just one or two countries.³¹

Figure 6. Share of minerals refining and mining by country or region, 2023

Share of supply for energy transition minerals (%)



Source: IEA Critical Minerals Dataset

Refining is even more concentrated. China is unmatched, holding 85% of global critical mineral processing capacity.³² For battery-grade graphite, for example, China mines more than 80% and refines nearly 100% of global production.³³ The risks for U.S. manufacturers of this hyper-concentration are playing out now: in December 2023, the CCP announced export controls on graphite, effectively signaling that supplies for international manufacturers could be shut off at any time.³⁴

The good news is that U.S. investments in domestic mining, processing, and manufacturing will alleviate some pressure on U.S. supply chains. For example, the U.S. is building a homegrown supply chain for synthetic graphite which could minimize import dependence on Chinese natural graphite. The U.S. Geological Survey is presently investing \$320 million to map 800 areas with potentially recoverable critical mineral resources on U.S. soil.³⁵ Also encouraging, robust reserves for virtually all critical minerals exist in democratic countries like Argentina, Bolivia, Indonesia, and South Africa.³⁶ That said, even assuming an ambitious growth curve in the development of those resources, due to the time

it takes to permit, finance and bring online mining projects, much of the reserves in the U.S. and partner democracies are likely to still be untapped through 2030.

The U.S. has launched discussions with partners around targeted approaches to supply chain security. These include the world's first critical minerals agreement with Japan and the Minerals Security Partnership with 13 other countries and the EU. While these agreements have not yet yielded meaningful changes in U.S. access to new international sources of important commodities, the pursuit of international collaboration through trade agreements is promising.

Yet incremental domestic investments, narrow trade deals with other major consumer countries, and notional commitments to work with international partners aren't enough. The U.S. has an economic and geopolitical imperative to realize adequate, diverse, and secure long-term supply chains for critical commodities. This requires ambitious new efforts to develop mineral resources at home and expedite their development abroad. But we'll need the political will and new tools to do so.

ACCELERATE LOW CARBON INFRASTRUCTURE IN THE DEVELOPING WORLD

Developing countries are building out energy and industrial infrastructure to support economic opportunity and job creation. Their needs are vast. Consider that electricity infrastructure in Africa, where currently 600 million people lack access,³⁷ will have to expand roughly 600% over the next 25 years.³⁸ The global challenge is staggering. Satisfying decarbonization needs across the global energy system will require annual investments of \$1.6T in zero-carbon electric generation, \$1.8T in electrified transport, \$800B in electric grid and storage infrastructure, and \$500 billion to develop and deploy carbon capture.³⁹ The question becomes: who will serve this market?

To-date, the answer is overwhelmingly China. In just a decade, China invested an estimated \$1 trillion on its Belt and Road Initiative (BRI),⁴⁰ with over half of all BRI spending on

predominantly carbon intensive energy and transportation infrastructure.⁴¹ China sees these BRI investments in two ways. First, as a strategic enterprise to secure energy and natural resources that it requires for its ambitious industrial policy. Second, as a commercial enterprise. China offers large amounts of capital at terms close to market rates, with deep involvement of state-owned commercial banks, and an aggressive stance that maximizes risky, high-reward investments in emerging, often unstable markets.⁴²

Yet the U.S. seeks to combat this strategic investment using its international development and foreign assistance apparatus. These programs are not chartered nor budgeted to adequately address the scale of the challenge and opportunity. And they fail to prioritize investments that would best serve American firms—by promoting the uptake of American technologies or facilitating access to critical minerals and other strategic materials.

The U.S. development apparatus is designed primarily to prioritize poverty reduction, support vulnerable populations,

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The U.S. must do what it does best: motivate private capital.

and accelerate development in emerging markets—worthy and important objectives. But international investment programs that serve other national priorities will be more durable and robust. Further, programs across the \$60 billion foreign assistance budget carry significant restrictions.⁴³ The abundance of requirements, controls, necessary reviews, and contingencies associated with U.S. assistance spawns a derisive and common criticism: China comes with a checkbook; the U.S. comes with a checklist.

In the face of non-market competition, unfair trade practices, and geopolitical rivalries, it is essential that the U.S. reconceive of its foreign investment programs as a toolkit that serves the national interest. Strategic investment in the economies of emerging and developing markets is consistent with U.S. economic and geopolitical priorities. Doing so would yield for the U.S. more market power, domestic job creation, strong international partnerships, and geopolitical heft.

Still, devoting every development dollar to a U.S.-aligned agenda will satisfy just a fraction of a percent of the trillions of dollars of investment necessary to decarbonize the global marketplace by 2050. The U.S. cannot commit public capital at the scale of the BRI. Only private markets can provide the trillions of dollars in investments that will be needed each year to close the investment gap. Alongside rededicating our foreign assistance programs to serve both partner country needs and the national interest, the U.S. must do what it does best: motivate private capital.

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POSITIONING U.S. POLICY TO LEAD

A comprehensive approach to domestic policy, global investment, and trade strategy will position the U.S. to lead—and win—the global transition to a more prosperous, lower carbon future.

UNLEASH AMERICAN MANUFACTURING

U.S. firms winning more global market share in the economy of the future begins with scaling up the American manufacturing resurgence. This will include ensuring affordable, reliable, and low-carbon energy, material, and mineral supplies. The domestic policy environment must:

- Improve and expedite permitting processes to accelerate construction of energy and mineral infrastructure.
- Promote domestic manufacturing in low-carbon technologies and their supply chains, including basic materials.
- Prioritize certainty and predictability in establishing incentives.

DERISK AND DIRECT PRIVATE CAPITAL TOWARD THE GLOBAL CHALLENGE

To truly compete, the U.S. needs to adopt a more aggressive global investment strategy and focus on leveraging increased public investments to mobilize the enormous reservoirs of untapped private capital. The U.S. global investment strategy must:

- Support investment in energy and industrial infrastructure that can leverage U.S.-made technologies and accelerate lower-carbon economic growth in emerging markets.
- Orient U.S. foreign investment, export, and trade policies toward addressing specific roadblocks that investors identify, like a clear project pipeline and liquidity support.
- Help foreign governments leverage their own public resources into larger private investment.

CREATE GLOBAL ACCOUNTABILITY

Policymakers have the necessary tools to promote a fairer playing field for American manufacturers and leverage access to our economy to compel lower emissions abroad. To create greater global accountability U.S. policy must:

- Establish carbon import fees to support low-carbon domestic investments and insulate cleaner U.S. firms from unfair competition (tied to low-cost, often non-market, carbon-intensive manufacturing abroad).
- Build on existing proposals from the U.S. Congress and Biden and Trump administrations that would level the playing field for U.S. firms.⁴⁴
- Leverage leadership positions at international forums to encourage compatible and complimentary accountability policies from like-minded countries to orient more of the global economy toward higher environmental performance.

DEEPEN INTERNATIONAL PARTNERSHIPS

The U.S. must establish itself as a leader in creative solutions to address climate change while building more opportunities for U.S. firms and their workers and seizing a stronger geopolitical position. These approaches will be further strengthened if the U.S. establishes greater cooperation with like-minded countries. U.S. international engagement must seek to:

- Enter agreements to improve supply chain security for minerals and other goods.
- Form arrangements to encourage greater international adoption of carbon import fees consistent with a U.S. approach.
- Leverage public investments to encourage greater cooperation and maximize opportunity for U.S.-made technologies.

CONCLUSION

Climate change is among the most important challenges of our time and we—the U.S. and the international community—must address it at the scale and speed it demands. Our progress has been limited by American policy that oftentimes views climate progress as independent of or in conflict with other national priorities. Especially as we also search for solutions to confront our international rivals who exhibit environmental apathy, economic aggression, and geopolitical hostility, these priorities can and must be addressed in concert. Increasingly, climate progress is best served by unapologetically pursuing other American priorities as well.

A new strategy is needed for reinvesting and reinvigorating American manufacturing, unabashedly pursuing U.S. geopolitical interests, and simultaneously bending the curve on global emissions. Policymakers have a chance to leverage existing American advantages to shape and win the economy of the future. To do so, they must think boldly and embrace a path that believes and invests in American solutions.

ENDNOTES

- 1 Catrina Rorke and Scott Nystrom, *Revisiting Carbon Pricing in a New Landscape*, Climate Leadership Council, February 29, 2024, <https://clcouncil.org/Revisiting%20Carbon%20Pricing%20in%20a%20New%20Landscape.pdf>.
- 2 Emissions projections from World Emissions Clock, World Data Lab, 2023, <https://worldemissions.io/>.
- 3 World Data Lab, 2023.
- 4 Authors relied on all greenhouse gas emissions excluding land use, land use change, and forestry sources. Authors projected national and global emissions by merging projections of per-capita emissions with projected population changes. Authors interpolated a small “gap” between historical emissions and projected emissions. Historical emissions data from the Potsdam Institute for Climate Impact Research as compiled by Climate Watch, World Resources Institute, 2022, <https://www.climatewatchdata.org/ghg-emissions>. Projected per capita emissions projections from World Emissions Clock, World Data Lab, 2024, <https://worldemissions.io/>. Projected national and global populations from United Nations Department of Economic and Social Affairs Population Division, 2024, <https://population.un.org/wpp/Download/Standard/MostUsed/>.
- 5 David Hostert, et al., *New Energy Outlook 2024*, Bloomberg NEF, May 21, 2024, <https://about.bnef.com/new-energy-outlook/> (Hereafter, “Hostert et al., 2024”).
- 6 For example, China restricted the exports of gallium and germanium in August 2023. These minerals are vital to the manufacture of advanced semiconductors and China has a “dominant role as a major producer and supplier of both” minerals. See Matthew Blackwood and Catherine DeFillippo, “Germanium and Gallium: U.S. Trade and Chinese Export Controls, U.S. International Trade Commission, Executive Briefings on Trade, March 2024, https://www.usitc.gov/publications/332/executive_briefings/ebot_germanium_and_gallium.pdf.
- 7 Data that identify the emissions from specific industrial sources are difficult to track down. This range reflects data from a variety of sources, including: “Climate change and the production of iron and steel,” *World Steel Association*, 2021, <https://worldsteel.org/wp-content/uploads/Climate-change-production-of-iron-and-steel-2021.pdf>, Summerbell et. al, “Potential reduction of carbon emissions by performance improvement: A cement industry case study,” *Journal of Cleaner Production*, June 27, 2016, <https://www.sciencedirect.com/science/article/pii/S0959652616308423?via%3Dihub>; Farfan et. al, “Trends in the global cement industry and opportunities for long-term sustainable CCU potential for Power-to-X,” *Journal of Cleaner Production*, January 29, 2019, <https://www.sciencedirect.com/science/article/abs/pii/S0959652619302185?via%3Dihub>; “Aluminium for Climate: Exploring pathways to decarbonize the aluminium industry,” *World Economic Forum*, November 2020, https://www3.weforum.org/docs/WEF_Aluminium_for_Climate_2020.pdf.
- 8 CRU for Climate Leadership Council, *Leveraging a Carbon Advantage: Impacts of a Border Carbon Adjustment and Carbon Fee on the U.S. Steel Industry*, Climate Leadership Council, May 25, 2021, <https://clcouncil.org/reports/leveraging-a-carbon-advantage.pdf?v1>.
- 9 Holly Rooper, “Emissions Growth in the Developing World,” Climate Leadership Council, blogpost, June 20, 2024, <https://clcouncil.org/blog/emissions-growth-in-the-developing-world/>.
- 10 For an exploration of how hard it is to identify and track the full suite of subsidies and incentives the government of China extends to manufacturers, see the most recent WTO Trade Policy Review of the Chinese economy. World Trade Organization Secretariat’s Trade Policy Review Body, *Trade Policy Review: China*, World Trade Organization, June 12, 2024, https://www.wto.org/english/tratop_e/tpr_e/s458_e.pdf.
- 11 As demonstrated by data in Catrina Rorke and Greg Bertelsen, *America’s Carbon Advantage*, Climate Leadership Council, September 12, 2020, <https://clcouncil.org/media/2024/04/americas-carbon-advantage.pdf>.
- 12 The U.S. Geological Survey maintains annual mineral commodity summaries. See *Mineral Commodity Summary: Iron and Steel*, USGS, 2024, <https://pubs.usgs.gov/periodicals/mcs2023/mcs2023-iron-steel.pdf>; *Mineral Commodity Summary: Aluminum*, USGS 2024, <https://pubs.usgs.gov/periodicals/mcs2024/mcs2024-aluminum.pdf>; and *Mineral Commodity Summary: Cement*, USGS 2024, <https://pubs.usgs.gov/periodicals/mcs2024/mcs2024-cement.pdf>.
- 13 Catrina Rorke and Greg Bertelsen, *Key Findings: Embodied Carbon in Trade*, Climate Leadership Council, November 2022, https://clcouncil.org/media/2022/11/Embodied-Carbon-in-Trade_Findings_v4.pdf.

14 Using trade data from the Observatory of Economic Complexity and sectors described by Boston Consulting Group, the authors identified all trade and the U.S. share of exports in 2022 for 8 key decarbonization technology categories. The categories include renewable power (solar photovoltaics, (HTS 2804.61-2804.69, 3818.00, 8501.80, 8541.42-8541.43, 8541.90, 9013.80), wind (HTS 7308.20, 8412.90, 8501.64, 8502.31, 8503.00), and geothermal (8402.90, 8404.20, 8406.81-8406.90, 8413.82, 8419.50, 8501.62)), nuclear power (HTS 2844.2, 8401.10-8401.40, 8402.2), power grid (HTS 7408.11, 8504.21-8504.34, 8504.90, 8532.10, 8535.10-8535.90, 8537.20, 8538.90, 8546.00, 9028.30-9028.90), energy storage (HTS 2841.69, 2841.90, 2842.90, 2853.90, 3824.99, 8507.50, 8507.90, 8545.19), electric vehicles (HTS 8501.32, 8507.10-8507.30, 8507.60-8507.80, 8703.40-8703.80), hydrogen (HTS 2804.10, 2814.00, 8543.30, 9027.10), CCUS/DAC (HTS 3802.10, 3824.99, 8414.59, 8414.80, 9026.10), and heat pumps (HTS 8415.10, 8415.90, 8418.61). This analysis relies on 6-digit classifications under the Harmonized Tariff System; some of these categories may inadvertently capture trade in goods not used for zero-carbon energy generation or decarbonization but that share trade classifications with goods that are. Trade data from Observatory of Economic Complexity (OEC), AJG Simoes and CA Hidalgo, “The Economic Complexity Observatory: An Analytical Tool for Understanding the Dynamics of Economic Development,” Workshops at the Twenty-Fifth AAAI Conference on Artificial Intelligence, 2011, <https://oec.world/en>. Sectoral data from Boston Consulting Group as summarized by Josh Freed and Ellen Hughes-Cromwick, *When America Leads: Competing for the Future of Clean Energy*, Executive Summary, Third Way, March 2023; <https://www.thirdway.org/executive-summary/when-america-leads-competing-for-the-future-of-clean-energy-executive-summary> (hereafter, “Freed and Hughes-Cromwick 2023”). Note that this analysis simplifies the covered sectors into 8 to be more compatible with how goods are described in the tariff nomenclature for the purposes of described data analysis.

15 Authors’ calculations based on trade data extracted from OEC.

16 Using trade data from OEC, the authors identified each country’s 2022 exports of 8 key decarbonization technology categories described supra note 14. Again, these categories may inadvertently capture trade in goods not used for decarbonization.

17 International Energy Agency, “China: Energy Mix,” accessed July 2024, <https://www.iea.org/countries/china/energy-mix>. See also, “Carbon intensity of electricity generation”, part of the following publication: Hannah Ritchie, Pablo Rosado, and Max Roser, “Energy”, *Our World in Energy*, 2023. Data adapted from Ember, Energy Institute, <https://ourworldindata.org/grapher/carbon-intensity-electricity>

18 International Energy Agency, “Average Age of Existing Coal Power Plants in Selected Regions in 2020,” October 13, 2021, <https://www.iea.org/data-and-statistics/charts/average-age-of-existing-coal-power-plants-in-selected-regions-in-2020>.

19 Shayla Ragimov, “Why We Should Leverage U.S. Solar’s Carbon Advantage,” Climate Leadership Council, April 29, 2022, <https://clccouncil.org/blog/why-we-should-leverage-u-s-solars-carbon-advantage/>.

20 Corey Cantor and Nikolas Soulopoulos, *The Lifecycle Emissions of Electric Vehicles: 2024 Edition*, BloombergNEF, March 11, 2024, BloombergNEF Terminal.

21 Using data from the Observatory of Economic Complexity, the authors identified each country’s share of exports for solar PV modules (HTS codes 8541.43 and 8541.90) and electric vehicles and batteries (HTS codes 8703.80, 8507.10-8507.80) in 2022.

22 Freed Hughes-Cromwick, 2023. This analysis simplifies the covered sectors (described supra note 14) to be more compatible with how goods are described in the tariff nomenclature for the purposes of described data analysis.

23 Clean Investment Monitor, Rhodium Group and MIT’s Center for Energy and Environmental Policy Research, database, n.d., <https://www.cleaninvestmentmonitor.org>.

24 Trade Promotion Coordinating Committee, *2023 National Export Strategy*, International Trade Administration, June 2023 (hereafter, “Trade Promotion Coordinating Committee, 2023”), <https://www.trade.gov/sites/default/files/2023-06/National-Export-Strategy-2023.pdf>.

25 *Letter from the President’s Export Council to the President of the United States*, November 2023, <https://www.trade.gov/sites/default/files/2023-11/PEC%20Climate%20Recommendation%2011292023.pdf>.

26 Trade Promotion Coordinating Committee, 2023.

27 For example, Senator Jim Risch’s Economic and Commercial Opportunities and Networks Act of 2023, S.367 (118th Congress), February 2023, <https://www.congress.gov/bill/118th-congress/senate-bill/367>.

- 28 International Energy Agency, *Global Critical Minerals Outlook 2024*, May 2024 (hereafter, "IEA, 2024"), <https://www.iea.org/reports/global-critical-minerals-outlook-2024>.
- 29 Danny Broberg and John Jacobs, *Critical Mineral Supply Chains Play a Crucial Role in the Clean Energy Transition*, Bipartisan Policy Center, March 2022, <https://bipartisanpolicy.org/blog/the-role-of-critical-minerals-in-the-clean-energy-transition/>.
- 30 Marc Humphries, *Critical Minerals and U.S. Public Policy*, Congressional Research Service, Report R45810, June 28, 2019, <https://crsreports.congress.gov/product/pdf/r/r45810>.
- 31 International Energy Agency, *Critical Minerals Dataset*, May 2024, <https://www.iea.org/data-and-statistics/data-product/critical-minerals-dataset>.
- 32 Bonnie Glaser and Abigail Wulf, *Review of China's Role in Critical Mineral Supply Chains*, German Marshall Fund, podcast, August 2023, <https://www.gmfus.org/download/article/22418>.
- 33 IEA, 2024.
- 34 IEA, 2024.
- 35 Linda Rowan, *Critical Mineral Resources: The U.S. Geological Survey Role in Research and Analysis*, Congressional Research Service, Report R48005, April 5, 2024, <https://crsreports.congress.gov/product/pdf/R/R48005>.
- 36 Bentley Allan, Noah Gordon, and Cathy Wang, *Friendshoring Critical Minerals: What Could the U.S. and its Partners Produce?*, Carnegie Endowment for International Peace, May 2023, <https://carnegieendowment.org/research/2023/05/friendshoring-critical-minerals-what-could-the-us-and-its-partners-produce?lang=en>.
- 37 *Commodities at a Glance: Special Issue on Access to Energy in Sub-Saharan Africa*, United Nations Conference on Trade and Development, April 2023, https://unctad.org/system/files/official-document/ditcom2023d1_en.pdf.
- 38 *Energy & Emissions Projections 2050*, EnerOutlook, 2023, <https://eneroutlook.enerdata.net/total-electricity-generation-projections.html>.
- 39 Hostert et al., 2024.
- 40 Lingling Wei, "China Reins In Its Belt and Road Program, \$1 Trillion Later," Wall Street Journal, September 26, 2022, <https://www.wsj.com/articles/china-belt-road-debt-11663961638>.
- 41 Jane Nakano, *Greening or Greenwashing the Belt and Road Initiative?*, Center for Strategic and International Studies, newsletter, May 2019, <https://www.csis.org/analysis/greening-or-greenwashing-belt-and-road-initiative>.
- 42 Ammar Malik et al., *Banking on the Belt and Road: Insights from a new global dataset of 13,427 Chinese development projects*, AidData at William & Mary, September 2021, https://docs.aiddata.org/ad4/pdfs/Banking_on_the_Belt_and_Road_Insights_from_a_new_global_dataset_of_13427_Chinese_development_projects.pdf.
- 43 U.S. government expenditures on foreign assistance are detailed by the Department of State and the U.S. Agency for International Development according to the requirements of the Foreign Aid Transparency and Accountability Act of 2016 on <https://www.foreignassistance.gov/>. In 2023, the U.S. disbursed \$66 billion in foreign assistance.
- 44 A brief summary of legislative proposals from the 118th Congress is available: Reuben Francis, "Carbon Import Fees: Active and Proposed Policies," Climate Leadership Council, blogpost, January 10, 2024, <https://clcouncil.org/blog/carbon-import-fees-active-and-proposed-policies/>. Examples of efforts from the White House include a draft ministerial decision submitted to the World Trade Organization by President Trump's U.S. Trade Representative Ambassador Bob Lighthizer in December 2020 titled "Advancing Sustainability Goals through Trade Rules to Level the Playing Field," which reads, in part, "The failure of a government to adopt, maintain, implement and effectively enforce laws and regulations that ensure environmental protections at or above a threshold of fundamental standards shall constitute an actionable subsidy under the [Agreement on Subsidies and Countervailing Measures]." Subsequently, President Biden's International Trade Administration issued a new rulemaking that clarifies that failure to enforce environmental standards will be considered in determining countervailing duties.



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