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# Escaping the Permanent Suez: Navigating the Geopolitics of European Decarbonization

**Ben Judah, Shahin Vallée, and Tim Sahay**





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Cover: Power-generating windmill turbines are pictured at the 'Amrumbank West' offshore windpark in the northern sea near the island of Amrum, Germany September 4, 2015. REUTERS/Morris Mac Matzen.

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# INTRODUCTION



Model of natural gas pipeline and Russian flag, July 18, 2022. REUTERS/Dado Ruvic/Illustration

In Europe, you can already see the future. Fly over the North Sea to Britain or take a leisurely train across central Spain and view the array of white wind turbines dotting down below or the scale of glinting blue panels stretching over the dry and dusty Spanish landscape as far as the eye can see. Though these signs of progress herald the early leadership of Europe in the quest for net zero, the continent faces a geopolitical predicament in this industrial revolution—made more evident in the shadow of the war in Ukraine—and with high stakes in an intensifying global competition in general and for green technology and clean energy in particular.

While decarbonization will eventually offer Europe some level of respite from the geopolitics of energy shocks and pipeline blackmail at the hands of authoritarian suppliers, of which Vladimir Putin's Russia is only the latest iteration, the more secure and prosperous future promised by the clean energy revolution is by no means guaranteed. The transition has become itself a source of

geopolitical competition, with its own dependencies that must be managed cautiously—from nuclear fuel to critical raw materials. The global balance of power is shifting as a result and could put Europe in a newly precarious situation.

Success in this endeavor is critical: it will define Europe's economic future and place in the world. Europe will, however, need to first look inward: the European Union must overcome major internal blockages, revolutionize its fiscal policy, and take a stand on a critical range of policy and political trade-offs. This will not only involve rationalizing its energy and environment policies at the EU level, but better coordinating this endeavor when it comes to the initiatives of national governments. Then the bloc will have to look outward: the global landscape is defined by the decay of the old trading order, authoritarian energy suppliers, emerging mining powers, and especially the huge risk that rising superpower competition between the United States and China will derail decarbonization.

To understand this journey, we begin with a historical overview, situating Europe's current painful predicament as part of a wider pattern defining its geopolitical experience of the oil and gas age. The first chapter focuses on how energy and power are fundamentally related in history. It only takes a glance at a map of the coaling stations of the British Empire, stretching out to Hong Kong, to realize that. It is not an accident that the British and French built great empires in the coal age, when both countries had Gulf-level deposits of what powered their day. We argue that the transition to the oil age was brutal for Europe. Simply put, the soil and seas of the European states do not have enough oil and gas to power themselves—this fact has left it at a historic disadvantage.

As coal's winners declined in the mid-twentieth century, oil's winners rose: chiefly the United States, Russia, and the Gulf monarchies. And in the twenty-first century the United States has been rising further only due to the shale gas revolution that turned the nation into a net hydrocarbon exporter through the 2010s. Europe has been caught—in various relationships of dependency and vulnerability—between these three energy powers. Even to this day, this fundamental underlying condition hasn't changed. Russia's assault on Ukraine, triggering its energy war and the massive inflationary shock that has rolled over its consumers, has driven European treasuries deeper into debt. In 2022, just like in 1973 when it was hit with the Arab oil embargo, Western Europe found its fundamental vulnerability exploited over a war on its periphery. Though wrong in his ethics and execution, the historical record has shown that British Prime Minister Anthony Eden was right to perceive the Suez Crisis and the passing of European hegemony in the Middle East as a critical turning point: its prosperity ever since has been punctuated by the kinds of authoritarian blackmail he feared.<sup>1</sup> This is what this report identifies as the *permanent Suez*. Effectively, this report argues that Europe's energy imports, and especially hydrocarbon addiction, has made its vulnerability worse.

European energy transition and decarbonization, if successful, can therefore benefit both security policy, removing the Russian state companies Gazprom and Rosneft from its critical suppliers, and also foreign policy, removing European funding for these oppressive, interventionist regimes. This future would be in stark contrast to the year 2022, which

saw a FIFA World Cup being celebrated in Qatar while its government was accused of bribing European parliamentarians, and Russia, despite all of Europe's sanctions, still receiving billions of dollars a day in payments for energy supplies, such as natural gas, oil, and nuclear fuel, which the continent acutely needed.<sup>2</sup> This is an omen of the future even amid an energy transition: Gulf states, now major capital exporters and players in Europe in their own right, will be empowered by this process for many decades as their share of global oil output rises as a result.

We argue that the capacity shown in Europe in 2022 in reducing reliance on Russian energy should be a template for the future: to reduce the democratic continent's broader reliance on these energy consolidated autocracies. Not only does Europe have the financial capacity, but it has the incentives given how much it is paying today for not moving faster on decarbonization and for ignoring its natural gas dependency on Russia. Since the wider war in Ukraine began, Europe has incurred more than €1 trillion (\$1.11 trillion) in extra fossil fuel costs, including both market costs from high prices and related government spending or announcements: this sum could have covered 57 percent of the cost of a year of spending necessary to achieve a rapid clean energy transition. The extra fuel costs also are more than ten times larger than its aid to Ukraine.<sup>3</sup>

The second chapter focuses on Europe's geopolitical viability in this transition. The outcome, we argue, will depend on it overcoming a series of internal blockages that hamper its ability to act to resolve a number of challenging trade-offs. Domestic, foreign, and energy policies cannot be disentangled in the geopolitics of the transition to net zero. The European Union's political system will have to overcome five fundamental internal challenges related to energy, fiscal, industrial, and foreign policy in order to navigate effectively.

The first is the *fiscal problem*, which is that the bloc's fiscal rules and its ineptly small EU budget limit the necessary financing for such an endeavor. The second is the *hostage problem*, which is that national politics have been held hostage by domestic anti-transition forces and interests. The third is the *collective action problem*, with national veto players at the European level able to hold back collective EU policy. The fourth is the *just transition problem*, exemplified by the *Gilets Jaunes* (Yellow Vests)

- 1 DR Thorpe, "What We Failed to Learn from Suez," *Telegraph*, November 1, 2006, <https://www.telegraph.co.uk/culture/3656288/What-we-failed-to-learn-from-Suez.html>.
- 2 Jessica Aizarani, "Leading Supplying Countries of Liquefied Natural Gas (LNG) to the European Union (EU-27) in 2020 and 2021," Statista, January 2023, <https://www.statista.com/statistics/1097893/lng-imports-to-europe-by-supplying-country>; and Charlie Cooper and Antonia Zimmermann, "Qatar Scandal Gives Europe a Big Gas Headache," *Politico*, December 19, 2022, <https://www.politico.eu/article/qatargate-germany-european-parliament-qatar-corruption-scandal-gives-europe-a-big-gas-headache/>.
- 3 Jeff D. Colgan, Alexander S. Gard-Murray, and Miriam Hinthorn, "Letting Europe's Energy Crisis Go to Waste: The Ukraine War's Massive Fossil Fuel Costs Fail to Accelerate Renewables," Brown University Watson Institute of International and Public Affairs, Climate Solutions Lab, August 1, 2023, 2, [https://watson.brown.edu/files/watson/imce/news/ResearchBriefs/2023/WI\\_Europe\\_s%20Energy%20Crisis\\_MP-3574\\_Final%20%281%29.pdf](https://watson.brown.edu/files/watson/imce/news/ResearchBriefs/2023/WI_Europe_s%20Energy%20Crisis_MP-3574_Final%20%281%29.pdf).

mass protest movement in France, which showed the risk of a lack of popular legitimacy for an anti-redistributive transition when emissions are known to be caused mostly by the richest countries and social groups. The fifth is the *industrial problem*, which is that Europe's industrial base is eroding and successful industrial policy is hard, prone to white elephants, and getting harder as climate change and geopolitical competition disrupt supply chains. Addressing these fundamental questions and these difficult trade-offs is essential for Europe to take the necessary leap out from its *permanent Suez* crisis—or see it worsen.

In our third chapter, we conclude there is no escape from geopolitics. Temporarily obscured by the pandemic and the war in Ukraine but vastly more significant in the long term is the fact that the planks of a new *green world order*, where countries compete for green technology leadership, for critical resources, and the benefits of lower and stable energy prices, are all falling into place. The first element of this is the emergence of two competing regimes of green industrial policy. Xi Jinping's 2020 net zero pledge and Joe Biden's August 2022 Inflation Reduction Act (IRA) mark, at least in principle, a turning point where each superpower is competing through subsidies to dominate the decarbonized industries of the future in sectors such as wind, batteries, and carbon capture and access to the vast material resources required to build them. The question now is whether Europe can become a third superpower in decarbonization. While the original European Green Deal in 2019 built out a broad range of regulatory policies, it needs to be substantially upgraded and fiscally backed. Simply put, the EU's Green Deal currently lacks the financial backing to realize its decarbonization aims.

The second element of this green world order concerns critical raw materials. Given that an electric vehicle (EV) currently takes six times more minerals to make than a traditional combustion engine, and given the broad industrial needs of electrification beyond transport, decarbonization will be defined by long and energy-intensive mining and minerals processes. Once again, Europe is not minerally endowed with these resources and will be forced to extract them from resource-rich allies and partners, of varying types, and from a myriad of less-developed states. The geopolitical contest ahead for accessing these resources will be daunting and will bring fundamental choices to Europe's political leadership including stark choices between the United States and China, but also a new relationship with critical mineral producers in less-developed states. Because China has built a global mining regime of interests, access,

and extraction through financial largesse and opportunistic state lending that back government initiatives, the EU is now playing catch-up. The central questions here are unresolved: Should the United States and the EU jointly form a market-changing critical raw materials club? To what extent would Washington use such a club as a tool against China? Or would the United States focus on itself, locking down the resources of Australia and Canada with their cooperation to fuel its transition without working with the EU?

This means the round-the-world trips of EU and German leaders sourcing new green deals herald a new problem: that of the relationship with the mining states, many of which are less-developed countries. Brussels and Berlin must recognize that unless fairer trading relationships are developed, the risk is not only of acute shortages of critical raw materials but also geopolitical blowback. This could take the form of an OPEC-like cartel of states, many of which feel historically wronged by Europe, able to wrest concessions or elicit a more compelling offer from China. The risks of a fragmented world crystallizing on the question of access to critical raw material are considerable, and already emerging to some extent. However, Europe needs to tread carefully to avoid tones or tactics that smack of neocolonialism and hypocritical relationships; or again fund support for consolidating authoritarian regimes.

The value chains of the future are the third element of this green world order. These competing regimes of industrial policy and raw materials will define who dominates these growth sectors and which societies capture much of the wealth they produce. This means Europe risks widespread deindustrialization if its green industries are uncompetitive. Both America and China pose fundamental problems in industrial policy. Europe's erratic superpower ally is designing its industrial policy with little care for its impact on the EU, as clearly illustrated by the original 2022 Inflation Reduction Act, at the same time as it seeks Europe's alignment regarding policy toward China. Meanwhile, China, the global autocratic superpower trading partner, has already stormed ahead of supposedly cutting-edge Europe. China is the world supplier of key green components such as wind turbines and electrolyzers, and has up to a 90 percent share of the European market for solar panels, many of which were made with slave labor in Xinjiang.<sup>4</sup> This is an important threat to Europe's competitive edge in the tools and machinery of the clean energy revolution—and also in the car industry, where China is becoming the EV global leader and export champion. However, Europe cannot achieve its decarbonization goals without China or the United States.

4 Mary Hui, "Europe's Latest Energy Security Tactic: Hoarding Chinese Solar Panels," *Quartz*, July 20, 2023, <https://qz.com/europe-s-latest-energy-security-tactic-hoarding-chines-1850659750/>; and William Alan Reinsch and Seán Arrieta-Kenna, "A Dark Spot for the Solar Energy Industry: Forced Labor in Xinjiang," Center for Strategic and International Studies, April 19, 2021, <https://www.csis.org/analysis/dark-spot-solar-energy-industry-forced-labor-xinjiang>.

The fourth element in the green world order is financing the energy transition in less-developed countries. Advanced economies, even if they fully decarbonize their own societies, need the assistance of less-developed states to do the same, as that is where emissions are projected to rise the fastest, accounting for half of global emissions by 2030. However, less-developed states need help to fund, finance, and transfer technology in what is an incredibly costly endeavor for these developing societies. The rise of China as a development and finance player and lender of last resort offers these states another avenue, and that role has diminished the influence of the World Bank and the International Monetary Fund, which are in need of profound and potentially unachievable reform. The EU, however, has in principle enough influence in the Bretton Woods institutions and global financial architecture to unlock considerable development financing and advocate for reform. But current progress on reforming international financial institutions is discouraging, instead fueling distrust from developing economies.

We conclude that decarbonization has only just started, but Europe is entering this new world order from a position of weakness. Internally, the European Union will have to take dramatic steps to integrate fiscally—with an expanded budget and its own taxing powers—in order to achieve decarbonization. Externally, the EU must navigate a difficult path, working with both the United States and China and fostering cooperation in this combined race to net zero emissions and green geopolitical power. This balancing act requires diplomacy to avoid serious confrontation between the two superpowers, which would have catastrophic consequences for the global climate goals and emission reductions targets. Europe must be wary of the geopolitical spillovers from this decarbonization race. Moreover, it must resist the temptation to free ride and let others undertake the cost of the transition. This is a matter of the European interest, as there are also exclusive benefits of taking the lead in the transition regarding industrial capacity, energy independence, and access to critical resources.

Therefore, to address this tension, this report proposes that the European Union should work with the United States on a critical raw materials club with two conditions: an essential agreement not to weaponize the club against China, hypothetically risking its access to such necessities, and an offer to Beijing to reduce limits on what can be imported from China under its Net Zero Industrial Act (NZIA) transition plans, which are unrealistic and likely to be missed in any case. This constructive approach to both China and the United States provides the needed balance. But Europe should not grant this for free. In exchange for China's deep and meaningful cooperation on climate change, for example at the Conference of the Parties, or COP sessions, and elsewhere, Brussels should reassure Beijing and be willing to negotiate about the depth and pace of its economic derisking strategy.

Meanwhile, facing the developing world, the European Union should push for fairer mineral ties to stabilize prices and to avoid shortages and a new OPEC-style hostile cartel, which would guarantee Europe long-term purchasing orders and incentives. In international institutions, the EU must work and lean heavily on the United States to reform international financial institutions to unlock funding for decarbonization for the developing world, such as boosting the capital for the World Bank and easing regulations outlining borrowing restrictions for climate financing including unlocking IMF special drawing rights. Furthermore, the EU should champion and seek to build a global spending-target coalition that is committed to annual spending based on a percentage of gross domestic product (GDP) and related to progress on global emissions. This aspect will not be easy, especially when looking at the discouraging progress of discussions on establishing a loss and damage fund at the COP27 and COP28 climate summits.<sup>5</sup> However, these measures are necessary if Europe is to answer in the affirmative the question haunting it as it enters the transition: is it to be—or not to be—a pole in the emerging green world order? Currently, the European Union, like postwar Britain before it, is on a path toward industrial decline and geopolitical marginalization in this new age.

5 Nina Lakhani, "\$700m Pledged to Loss and Damage Fund at Cop28 Covers Less than 0.2% Needed," *Guardian*, December 6, 2023, <https://www.theguardian.com/environment/2023/dec/06/700m-pledged-to-loss-and-damage-fund-cop28-covers-less-than-02-percent-needed>.

# CHAPTER 1: EUROPE'S PERMANENT SUEZ

It was the Labour politician Aneurin Bevan who in May 1945 memorably quipped that Britain was an island made mainly of coal and surrounded by fish.<sup>6</sup> Like many jokes, the future cabinet member's remark spoke to a deeper truth. Britain had steamed itself to unparalleled global domination in the nineteenth century on the back of coal rather than Victorian martial virtues or any specific genius in the "Anglo-Saxon race," contrary to the widely held beliefs of imperial elites at the time.

This was the Britain of Bevan's birth in 1897: a global energy superpower. Imperial Britain had the best capacity to exploit the energy resources of its time and became the Saudi Arabia of coal. On the eve of World War II, the country was the world's largest producer and exporter of coal. This innate geological advantage, the literal scene of Bevan's childhood as the son of a coal miner, had inflated his island's manufacturing and imperial ambitions to such heights in 1897 that *The New York Times* had talked of the United States as "belonging" in a wider sense to a global order that was the British Empire.<sup>7</sup> It was a transcontinental political system that could be mapped by the coaling stations that supported its fleet from Halifax and Aden to Singapore.

The geological conditions that found themselves so extraordinarily favorable to British power were also to be found in France, Belgium, and Germany, where the easily accessible coal of the Pas de Calais, Wallonia, and the Ruhr also drove industrialization, expansionism, and, ultimately, imperialism in Africa. It was not an accident that Western Europe, self-sufficient in the resources behind nineteenth-century modernity, would enjoy what Berlin officialdom once called its "place in the sun." The geological basis upon which power at the time was built and projected was widely appreciated by contemporaries. The American philosopher and poet Ralph Waldo Emerson once remarked: "We may well call [coal] black diamonds. Every basket is power and civilization . . . and with its comfort brings its industrial power."<sup>8</sup>

However, it was a new scientific revolution that would slowly set in motion Europe's demotion from the geopolitical pinnacle. Simply put, coal cannot be burned easily in internal combustion engines, which require the higher caloric values of oil, diesel, and kerosene to generate energy. And once these engines had reached a sophistication that would allow them to revolutionize both transport and warfare, the writing for Europe's energy ascendancy was on the wall.<sup>9</sup>

Europe's looming energy problem was clearly visible by the eve of World War I,<sup>10</sup> recognized by none other than Winston Churchill, then the first lord of the Admiralty. When making his fateful 1914 decision to switch the Royal Navy from sluggish coal to faster oil propulsion, thanks to the internal combustion engine, Churchill realized how exposed Britain would be, with no known oil reserves at home. It was clear to him that these resources were outside of Europe and that meant Britain needed to hold onto them through a new form of Middle Eastern energy empire, leading him directly to purchasing a 51 percent stake in the Anglo-Persian Oil company.<sup>11</sup>

Western Europe's new vulnerability was made visible by war. Only three years later, French Prime Minister Georges Clemenceau sent a telegram to US President Woodrow Wilson including this line: "France must possess the gasoline that will be necessary as blood in tomorrow's battles."<sup>12</sup> The fact that the Entente did and Wilhelmine Germany did not was as crucial to the outcome of the war, in their favor, as the introduction of tanks, which would run over the trenches on oil anyway. The energy dimension to power was perfectly clear to no less a Victorian figure as Lord George Nathaniel Curzon of Kedleston, the former foreign secretary and iconic viceroy of India, who observed: "The Allies floated to victory on a wave of oil."<sup>13</sup> The trouble ahead was that little of the fuel of the armies, fleets, and automobiles of the future was in Western Europe.

Europe's bad luck in the emerging oil world was clear by WWII. Germany's oil starvation had contributed to its defeat,

6 "Aneurin Bevan 1897–1960 British Labour Politician," in *Oxford Essential Quotations*, ed. Susan Ratcliffe (Oxford: Oxford University Press, 2016), <https://www.oxfordreference.com/display/10.1093/acref/9780191866692.001.0001/q-oro-ed6-00000981>.

7 "The British Empire," *New York Times*, June 20, 1897, <https://www.nytimes.com/1897/06/20/archives/the-british-empire.html>.

8 Ralph Waldo Emerson, "Wealth," in *The Conduct of Life*, accessed March 21, 2023, <https://emersoncentral.com/texts/the-conduct-of-life/wealth/>.

9 Helen Thompson, *Disorder: Hard Times in the XX1st Century* (Oxford University Press, 2022).

10 John Urry, "The Problem of Energy," *Theory, Culture & Society* 31, no. 5 (2014), <https://journals.sagepub.com/doi/10.1177/0263276414536747>.

11 Jonathan Kuiken, "Caught in Transition: Britain's Oil Policy in the Face of Impending Crisis, 1967–1973," *Historical Social Research/Historische Sozialforschung* 39, no. 4 (2014): 276.

12 Mohamed Sassi, "The Emergence of the French Oil Industry between the Two Wars," *Business and Economic History On-Line* 1 (2003): 13, <https://thebhc.org/sites/default/files/sassi.pdf>.

13 "When Oil Became Black Gold," *Harvard Gazette*, January 1, 2005, <https://news.harvard.edu/gazette/story/2005/01/when-oil-became-black-gold/>.

**Figure 1: A Brief Timeline of Europe's Energy Vulnerabilities**



with the two real victors, the United States and the Soviet Union, the world's largest and second-largest oil producers, respectively.<sup>14</sup> Nobody knew this better than Europe's desperate immediate postwar treasury officials. They already knew their lack of oil put it in what would be a lasting financial disadvantage: not only in the immediate postwar years was oil the single largest item in most European countries' budgets, but between 1948 and 1952, about 10 percent of the Marshall Plan aid was used to buy it.<sup>15</sup>

Meanwhile, on the other side of the Atlantic, it was already clear to Washington strategists that in the emerging Cold War, Western Europe would be dependent on outsiders, squeezed by three oil centers of power. In 1945, the US State Department noted that Saudi Arabian reserves would, if developed, constitute "a stupendous source of strategic power, and one of the greatest material prizes in world history."<sup>16</sup> And as a result, US Senator Owen Brewster surmised in 1947, "Europe in the next ten years may shift from a coal to an oil economy and therefore whoever sits on the valve of Middle East oil may control the destiny of Europe."<sup>17</sup>

This was not lost on the Western Europeans themselves. While Britain had no problem in letting go of rebellious territories of its old colonial empire like Palestine and India in 1947, it was ready to fight to defend its new energy empire of stakes and interests—the one which Churchill himself had initiated with the 1914 Anglo-Iranian purchase. Therefore, the first European postwar strategy to deal with its oil vulnerability was trying to directly control the key junctures of the Middle East. This can most clearly be seen in the logic behind British involvement in the coup that overthrew the democratically elected Iranian government of Mohammad Mosaddegh in 1953.<sup>18</sup>

Very quickly, this proved to be an unsustainable European strategy. Neither British intervention in Iran nor French desire to retain direct control over the oil resources of the Algerian Sahara succeeded midterm.<sup>19</sup> Prefigured by Mosaddegh, postcolonial Middle Eastern states were already accruing agency to challenge their old overlords. International politics, much to the worry of the aging Churchill, was already sharply bipolar, between the nuclear-armed American and Soviet camps, leaving little room for maneuver. These two trends had met, at the very start of the Cold War, in Saudi Arabia, with help from the United States.<sup>20</sup>

It was no accident that the 1947 Truman Doctrine was announced within weeks of the launch of the Trans-Arabian Pipeline, dramatically opening up Saudi production to the world.<sup>21</sup> Washington, keen to pursue its own energy empire of stakes and interests, had secured with King Abdulaziz to have its own oil companies exploit the buried treasure prospected for across Saudi Arabia. British and French firms were absent from this bonanza. Lacking domestic and international petrodollars at scale, European states' balance of payments remained precarious—a key source of vulnerability.<sup>22</sup>

These were the trends which would conspire in Europe's world historical crack-up in the 1956 Suez Crisis. Rising Middle Eastern agency, this time personified by the Egyptian leader Gamal Abdel Nasser, was visible as Cairo nationalized the British-French-owned Suez Canal—a direct act of defiance against the European strategy of retaining control of regional infrastructure critical to energy economies. But it was not Arab resistance that called off the British-French expedition, in collusion with Israeli forces, which swiftly and effectively seized the canal, but the crushing dynamics of Cold War bipolarity.<sup>23</sup>

14 Keith Martin, "The Big Inch: Fueling America's WWII War Effort," National Institute of Standards and Technology, March 26, 2018, <https://www.nist.gov/blogs/taking-measure/big-inch-fueling-americas-wwii-war-effort>; and Frederick Phillip Hellin, "Russia's Oil and Hitler's Need," *Atlantic*, June 1942, <https://www.theatlantic.com/magazine/archive/1942/06/russias-oil-and-hitlers-need/653693/>.

15 David S. Painter, "The Marshall Plan and Oil," in *Cold War History* 9, no. 2 (2009): 159–175, <https://www.tandfonline.com/doi/pdf/10.1080/14682740902871851>.

16 *Foreign Relations of the United States: Diplomatic Papers*, 1945, Volume VIII, The Near East and Africa (Washington: Government Printing Office), Document 20, <https://history.state.gov/historicaldocuments/frus1945v08/d20>.

17 Edward H. Shaffer, *The United States and the Control of World Oil* (Milton Park, United Kingdom: Taylor & Francis, 2016), 143.

18 Vanessa Thorpe, "MI6, the Coup in Iran that Changed the Middle East, and the Cover-up," *Guardian*, August 2, 2020, <https://www.theguardian.com/world/2020/aug/02/mi6-the-coup-in-iran-that-changed-the-middle-east-and-the-cover-up>.

19 "Algerians Press for New Oil Deal," *New York Times*, October 6, 1964, <https://www.nytimes.com/1964/10/06/algerians-press-for-new-oil-deal.html>; Although Mossaddegh was overthrown, AIOC never regained full access over Iranian oil. AIOC, which was later renamed British Petroleum Amoco in 1954, was made to join a US-dominated consortium and gained only a fraction of Iranian oil afterwards. See "Iran Tells Oil Consortium Pact Will Not Be Renewed," *New York Times*, January 24, 1973, <https://www.nytimes.com/1973/01/24/archives/iran-tells-oil-consortium-pact-will-not-be-renewed-companies.html>; and Mary Ann Heiss, "The United States, Great Britain, and the Creation of the Iranian Oil Consortium, 1953-1954," *International History Review* 16, No. 3 (August 1994), 511–35, <https://www.jstor.org/stable/40107317>.

20 Dennis Merrill, "The Truman Doctrine: Containing Communism and Modernity," *Presidential Studies Quarterly* 36, no. 1, Presidential Doctrines (March 2006), 27–37, <https://www.jstor.org/stable/27552744>.

21 "Contract Let for Big Oil Pipeline in Arabia," *Pacific Maine Review* 44 (March 1947), 114–5, <https://archive.org/details/pacificmarinerev4447paci/page/n294/mode/1up>.

22 Merrill, "The Truman Doctrine."

23 Robert O. Collins, "In Search of the Nile Waters, 1900–2000," in *The Nile: Histories, Cultures, Myths*, ed. Haggai Erlich and Israel Gershoni (London: Lynne Rienner Publishers Inc.), 256–7; Charles B. Selak Jr., "The Suez Canal Base Agreement of 1954," *American Journal of International Law* 49, no. 4 (October 1955), 487–8, <https://www.jstor.org/stable/2194417>; and Jean Edward Smith, *Eisenhower in War and Peace* (New York: Random House, 2013), 692.



Smoke rises from oil tanks beside the Suez Canal hit during the initial Anglo-French assault on Port Said, November 5, 1956. Wikipedia/Imperial War Museums ([https://en.wikipedia.org/wiki/File:Port\\_Said\\_from\\_air.jpg](https://en.wikipedia.org/wiki/File:Port_Said_from_air.jpg)).

Washington, fearing for its own geopolitical and energy interests in the Middle East, diplomatically pummeled Britain and France. Against a backdrop of Soviet threats, US Ambassador to the United Nations Henry Cabot Lodge Jr. was able to push for a cease-fire to prevent further escalation by the UK-French campaign.<sup>24</sup> Europe's intertwined energy and fiscal weakness in the new regime proved its undoing: while it had prepared for Saudi Arabia imposing an oil embargo, it had not expected the United States to threaten to sell British sterling bonds. Consequently, London had no choice but to call off the invasion or face fiscal calamity. This dynamic was abundantly clear to President Dwight D. Eisenhower himself; after preventing American oil companies from rerouting oil to the French and British, he mused: "Those who began this operation should be left to work out their own oil problems—to boil in their own oil."<sup>25</sup>

Later, the leader of the British opposition, Hugh Gaitskell, explained the ramifications of the Suez Crisis:

The Suez Canal is blocked for many months, we are in great difficulties over oil supplies, we face financial and economic crises at home, we have lost any influence that we had in the Arab States, we have thrown the Arab States wide open to Russian influence, we have created very grave divisions in the Commonwealth, we have created a breach in the Anglo-American understanding which used to exist, and we have very seriously damaged our reputation abroad for fair-mindedness, honesty and support for the United Nations.<sup>29</sup>

Europe's first strategy for the oil age—external control—lay in ruins and Prime Minister Eden, who spearheaded the

24 Michael Seiler, "Henry Cabot Lodge Jr., Ex-Senator, Dies at 82: Was Ambassador to South Vietnam and to United Nations," *Los Angeles Times*, February 28, 1985, <https://www.latimes.com/archives/la-xpm-1985-02-28-mn-12690-story.html>.

25 David A. Nichols, *Eisenhower 1956: The President's Year of Crisis—Suez and the Brink of War* (New York: Simon and Schuster, 2011), 188–274.

ill-fated Suez operation, would find himself written up as a fool in European history. Downing Street had failed to fully grasp the big picture of the continent's new predicament in the oil age. Europe, in oil-fueled bipolarity had neither the political nor the financial independence to defy Washington. This was the lesson that London would take to heart. However, viewing Nasser as a fascist-like irredentist figure,<sup>26</sup> Eden was right about one thing. Warning that the dictator “cannot be allowed to have his thumb on our windpipe,”<sup>27</sup> he was correct to identify Europe's future as one where neighboring authoritarians would repeatedly blackmail it over energy. This possibility has remained ever since: the *permanent Suez*.

Europe's history has since been an attempt to escape from this situation. Following the debacle over the canal, the leading European countries—Britain, France, Italy, and Germany—each pursued energy strategies to secure their supply through privileged partnerships with authoritarians. London, with British Petroleum in the lead, built privileged relationships with the Gulf monarchies of Kuwait, Oman, and the United Arab Emirates, which gained independence from the British Empire in the 1960s and 1970s. Italy, meanwhile, turned south, with its state-owned oil company, later known as ENI, offering very generous profit-sharing deals to corner concessions in North Africa, especially Libya. France similarly focused on West Africa with the likes of Elf, which following a merger is now known as TotalEnergies. Meanwhile, West Germany looked east toward the massive hydrocarbon discoveries taking place in the USSR.<sup>28</sup>

At first, cheap oil flowed in the postcolonial days, but Eden's fears would quickly materialize when a war in Europe's periphery triggered blowback on the European powers. Amid US assistance to Israel in the 1973 Yom Kippur War, King Faisal in Riyadh and the Organization of Arab Petroleum Exporting Countries (OAPEC) announced an oil embargo. Taking the form of country-specific export bans and production decreases, the main targets were the United States, Canada, Britain, and the Netherlands. But, as was well known to King Faisal, the economies and the

energy systems of all Western European countries would be collateral. Saudi Arabia was joined by every Arab state except Iraq and Libya, leading to as much as a 70 percent drop in Middle Eastern oil exports to Western Europe. The oil price rose by 300 percent, pushing European countries into stagflation. This was the first historic blowback in the *permanent Suez*, and accelerated Europe's efforts to seek petroleum elsewhere, such as in Norway and West Africa.<sup>29</sup>

The search for energy security would be redoubled post-1973 as Europe's great quest. Initially, in a great reversal of the vision of the world held by Eden and his French partner in the Suez debacle, Prime Minister Guy Mollet, Britain and the members of the European Economic Community would all mollify their politics toward the Arab world. But in the aftermath, the paths of the European Big Three would diverge. Prompted by the higher prices, Britain threw itself into developing its own discovery of North Sea oil.<sup>30</sup> France, lacking such resources, would seek its own escape through the Messmer Plan. Named after French Prime Minister Pierre Messmer, the massive build-out of fifty-six nuclear power plants was popularized under the slogan: “In France, we do not have oil, but we have ideas.”<sup>31</sup> However, it would be principally the decisions around hydrocarbons taken in Bonn, piloting the largest European economy, which would eventually reinforce the vulnerability to blackmail inherent in the *permanent Suez*, as the Federal Republic of Germany turned to Russia.

The year 1973 was a turning point not just in European oil but also gas. Just as the Arab oil embargo was forcing Britain, Germany, Italy, Switzerland, and Norway to ban flying, driving, and motorboating on Sundays, the first Soviet pipeline gas was beginning to flow into West Germany. This was the result of the decisive 1970 “gas for pipes” deal, in which Bonn agreed to exchange crucial pipelines building know-how for this energy. These Cold War-era German and Italian deals with the USSR roused consistent US ire.<sup>32</sup>

In *Ally Versus Ally: America, Europe and the Siberia Pipeline Crisis*, published in 1987, a young and rapidly rising

26 DR Thorpe, “What We Failed to Learn from Suez.”

27 Ian Black, “How We Failed to Learn the Lessons of Suez,” *Guardian*, September 30, 2006, <https://www.theguardian.com/books/2006/oct/01/historybooks.features1>.

28 James Onley, *Britain and the Gulf Shaikhdoms, 1820–1971: The Politics of Protection* (Washington: August 18, 2009), 10–16, <https://www.files.ethz.ch/isn/110431/CIRSOccasionalPaper4JamesOnley2009.pdf>; Silvio Labbate, “Italy and Its Oil Dealings with Libya. Limits and Obligations of a Dependency: The Difficult 1970s and 1980s,” *Middle Eastern Studies* 56, no. 1 (June 2019), 84–99, <https://www.tandfonline.com/doi/full/10.1080/00263206.2019.162533>; John R. Frears, *France in the Giscard Presidency* (Boston: George Allen & Unwin, 1981), 109–127; and Arthur Sullivan, “Russian Gas in Germany: A 50-year Relationship,” *Deutsche Welle*, March 9, 2022, <https://www.dw.com/en/russian-gas-in-germany-a-complicated-50-year-relationship/a-61057166>.

29 Robert Lacey, *The Kingdom: Arabia & The House of Sa'ud* (New York: Harcourt Brace Jovanovich, 1981), 413; and Office of the Historian, “Oil Embargo, 1973–1974,” US Department of State (website), accessed February 22, 2023, <https://history.state.gov/milestones/1969-1976/oil-embargo>.

30 Giuliano Garavini, “Thatcher's North Sea: The Return of Cheap Oil and the ‘Neo-liberalisation’ of European Energy,” *Contemporary European History* (2022): 1–16, <https://doi.org/10.1017/S0960777322000686>.

31 Valérie Lehmann, Valérie Colomb, and Bernard Motulsky, *Communication et grands projets: les nouveaux défis* (Québec: Presses de l'Université du Québec, 2013), 141.

32 Frank Bösch, “Energy Diplomacy: West Germany, the Soviet Union and the Oil Crises of the 1970s,” *Historical Social Research/Historische Sozialforschung* 39, no. 4 (2014): 165–185, <https://www.jstor.org/stable/24145532>.



Burning oilfield during Operation Desert Storm, Kuwait, 1991. Photo by Jonas Jordan, United States Army Corps of Engineers.

Washington scholar spoke for the Beltway establishment in lamenting European hopes that “expanded economic relations will produce positive change in the Kremlin foreign and domestic politics,” calling it “wishful thinking.” His name was Antony “Tony” Blinken and he now serves as secretary of state in the Biden administration. His book can be summarized neatly as follows: authoritarian and geopolitical risk meant Russia was no escape for European economies from the *permanent Suez*.<sup>33</sup>

It would speak to the deeper, material, and energy bases of European geopolitics that the same author would find himself crisscrossing Europe as Biden’s top diplomat as Russia unleashed a broad attack against Ukraine. Just as Blinken had warned, Putin, attempting to be the King Faisal of 2022, would choose to weaponize Russian energy, choking off gas supplies to prevent Europe from building up reserves for the winter. Despite decades of institutions and capacity building, from the creation of the International Energy Agency (IEA) to guide smart investments in energy efficiency to the development of strategic petroleum reserves ensuring states store a fuel buffer against energy crises, Europe found itself back in the situation it had faced in 1973: a war on its periphery had resulted in energy blackmail and an inflationary shock.<sup>34</sup>

European history is not cyclical, but each energy age brings with it a certain existential predicament for states and economies. Nowhere better illustrates that than Europe, which fell from imperial coal hegemony into subordinate oil and gas vulnerability in the leap from one age to another. Europe’s eventual emergence as a political and economic union began as an energy project, the European Coal and Steel Community in 1951, yet the very fact that the same role prophesied by Eden could be reprised in 2022 is damning. Once again, an authoritarian had a “thumb on our windpipe.” But the difference today is that clean energy offers Europe at least partial escape. Decarbonization could be Europe’s greatest security and democracy policy if they develop the supply chains for it. Otherwise, they will supplant on energy vulnerability with another. This history casts a long shadow on today’s energy networks and dependencies and explains Europe’s current vulnerability to energy-rich autocracies.

Indeed, despite Russian throttling of its energy supplies and extensive Brussels-led sanctions and diversification, the European Union was still spending €260 million on energy a day for much of 2022, adding up to €100 billion in payments to Russia during the first seven months of the conflict.<sup>35</sup> Decades of energy ties with the Kremlin had

33 Antony J. Blinken, *Ally Versus Ally: America, Europe and the Siberia Pipeline Crisis* (New York: Praeger Publishers, 1987).

34 Stephen G. Gross, “What Europe Can Learn From the 1973 Oil Shock,” *Foreign Policy*, November 3, 2022, <https://foreignpolicy.com/2022/11/03/europe-energy-crisis-russia-war-1973-oil-shock-security-green-transition/>.

35 Lauri Myllyvirta, “September Update on Russian Fossil Fuels: EU Imports Cross EUR 100 Billion Since the Beginning of the Invasion,” Centre for Research on Energy and Clean Air, October 4, 2022, <https://energyandcleanair.org/september-2022-update-on-russian-fossil-fuels/>.

translated directly into a buildup of strategic corruption inside Europe, which even the war in Ukraine and sanctions regime could not eliminate. These dependencies extend far beyond Russia and fossil fuel. They are fundamental to Europe's current energy predicament. For the record, the European Union member states—France, in particular—continue to import nuclear fuel from Rosatom, which has not been put under sanction. In Southern Europe, dependencies on the oil fields of Gabon, Republic of the Congo, or Equatorial Guinea or the natural gas of Algeria and Libya have been at the heart of intense games of two-way toxic political influence.

Europe's vulnerability is structural in this energy age. Essentially, Europe's energy addiction—both fossil and nuclear—has created strong streams of funds for a wide variety of authoritarian regimes with resource deposits. In the immediate neighborhood, these snake down from Russia's Yamal peninsula, round the Urals, go through the Caspian Sea, then into the Persian Gulf, with more in North and Central Africa. Sitting along these seams, Russia, Kazakhstan, Iran, Qatar, Saudi Arabia, Libya,

Algeria, Gabon, Republic of the Congo, and Niger might all have very different political cultures, but they all form a single regime type: *energy resource autocracies*. Facing these energy resource autocracies, Europe has a stability problem across its immediate neighborhood and beyond. Research shows that autocrats are more likely to start wars—and are more likely to lose them.<sup>36</sup> Research also suggests that energy autocrats then have the added advantage of being more resistant to international sanctions regimes.<sup>37</sup> This means that comparisons between Putin's Russia and Saddam Hussein's Iraq or the Islamic Republic of Iran are pertinent and the influence of key energy resource autocracies will persist during the first few decades of decarbonization.

This is a tough strategic picture. However the clean energy revolution offers Europe an opportunity to diminish its vulnerabilities through decarbonization. European states together have the technical ability to greatly reduce their reliance on energy resource autocracies through a massive expansion of clean energy. In this, 2022 was also a turning point.

36 Dan Reiter and Allan C. Stam, "Why Democracies Win More Wars than Autocracies," *Washington Post*, March 31, 2022, <https://www.washingtonpost.com/politics/2022/03/31/ukraine-democracies-war-putin-russian-losses/>.

37 Desha M. Girod, Megan A. Stewart, and Meir R. Walters, "Mass Protests and the Resource Curse: The Politics of Demobilization in Rentier Autocracies," *Conflict Management and Peace Science* 35, no. 5 (2018): 503–522.

## CHAPTER 2: EUROPE'S CRITICAL CHOICES

Few European countries like to admit it, but almost seventy years since Eden's blunder in the Suez Canal, the ability to marshal true global geo-economic influence can only be found in Brussels, when the EU acts together, not in Berlin or Paris, when members act alone. Individually they are declining medium-sized powers. However, the EU is a unique political creature: mixing both federal and national actors into a supranational body that is not quite a state, not quite a federation, and not quite an international organization. This *sui generis* nature gives it incredible strengths, as the world's largest trading bloc, but also considerable weaknesses. The path for Europe's continued relevance lies in addressing these weaknesses rapidly and effectively—and the energy cum climate crises offer a historical opportunity to do so. The EU's policies emerge today through a complex interplay of the European Commission, national governments, and the European Parliament. With its power siloed, distributed, and actualized for the most part through consensus, and hampered by veto players, this makes the complexity of decarbonization more challenging for the EU than for unitary actors. The simpler days of Churchill deciding energy policy are long gone.

To succeed, Europe's leaders face five critical choices: First, the *fiscal problem*, given that current EU fiscal rules and the EU budget are holding back the necessary investments for decarbonization. Second, the *hostage problem*, as powerful carbon-intensive vested industries can hold legislatures and governments hostage. Third, the *collective action problem*, given that the system has so many veto players—national or even regional—that any individual government can derail or hold back the EU altogether. Fourth, the *just transition problem*, given that if a transition lacks legitimacy and fairness, then social consequences, protest movements, or populists can derail it. Fifth and last, the *industrial problem*, because Europe's industrial base is eroded and industrial policy is hard and often fails.

These are Europe's interlocking blockages which will raise critical challenges to its polity and politics. Europe will have to find a way to overcome its crippling fiscal conservatism, control its entrenched carbon sectors to drop their backwater oppositions, find ways to bring onboard carbon-heavy regions and governments, assuage public fear and discontent by linking climate transition with social

cohesion, and get the hard task of picking and supporting winners in a worsening climate—and do all of the above while encouraging and achieving the highest possible degree of international cooperation.

### THE FISCAL PROBLEM

#### Europe's Fiscal Straitjacket Harms Decarbonization

It has often been said that all European politics come back to the politics of collective debt. This is nowhere more true than when it comes to climate policy. As it stands, Europe will not be able to achieve rapid decarbonization without relaxing its fiscal rules and vastly upgrading the EU budget with a common borrowing facility and its own tax raising powers. Currently only four EU countries—Denmark, Ireland, Malta, and Sweden—can meet their national climate goals without breaching the existing rules.<sup>38</sup> Europe therefore has an ambitious plan for decarbonization without the public financing to get there.

The European Commission estimates that the EU will have to spend some €600 billion per year to achieve the objectives set in its Green Deal Industrial Plan climate policy package, including existing spending, which will have to come in part from public sources.<sup>39</sup> To achieve its decarbonization and climate goals, Europe will therefore need to loosen its fiscal rules. Politics however, is standing in the way. Deep and flawed perceptions of national interest, especially in countries with more “frugal” outlooks, will have to change in order for the plan to be implemented and for decarbonization to succeed. There are, however, some reasons for optimism. Today, unlike in the Eurozone debt crisis which followed the 2008 financial crash, European leaders are proving more flexible. In addition, the perception of geopolitical existential risks in Ukraine is helping to mobilize political will for more ambitious action. Indeed, over the past year, European countries have nationalized utilities—including in Germany—plowed money into green investments, and taxed the windfall profits of energy companies. Fiscal rules have now effectively been suspended or bent for several years, and once-ridiculed policies like price caps have been experimented with across Europe. However, if real progress is to be sustained, such long-term fiscal obstacles will have to be permanently lifted. This challenge

38 Sebastian Mang and Dominic Caddick, “Beyond the Bottom Line,” New Economics Foundation, April 28, 2023, <https://neweconomics.org/2023/04/beyond-the-bottom-line>.

39 “Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions,” European Commission (website), February 1, 2023, [https://commission.europa.eu/system/files/2023-02/COM\\_2023\\_62\\_2\\_EN\\_ACT\\_A%20Green%20Deal%20Industrial%20Plan%20for%20the%20Net-Zero%20Age.pdf](https://commission.europa.eu/system/files/2023-02/COM_2023_62_2_EN_ACT_A%20Green%20Deal%20Industrial%20Plan%20for%20the%20Net-Zero%20Age.pdf).

is key to the next European Commission's work program when it shepherds the Multiannual Financial Framework (MFF), which began in 2021 and will conclude in 2027.

Unlocking Europe's path to this new economy will require change in Germany. Germany's own efforts in ramping up renewables, such as building out liquefied natural gas (LNG) terminals and infrastructures to move away from Russian gas, were impressive.<sup>40</sup> However, it does not amount to a real European energy policy response, and is primarily reactive instead of proactive. For real and sustained decarbonization over the medium term, Berlin will have to play more collaboratively, enabling a real European energy policy—and requiring profound compromise with competing visions but also shared resources behind a common vision. In turn, unless Europe is prepared to settle for structurally higher and more volatile energy prices than that of the United States or China, it will face serious economic consequences. Compounding matters further is the need for considerable public resources that the EU budget currently lacks. This is why expanding Europe's borrowing capacity appears inevitable in order to mobilize the necessary resources for an effective transition. This can happen through joint mutual debt issuance on a large scale, modeled on the Next Generation EU (NGEU) Fund—a temporary economic-recovery response during the pandemic that includes green measures—and loosen its own domestic fiscal straitjacket. Germany, however, is so far keen to prevent further fiscal federalization. Having pledged a €200 billion energy package for its own citizens and companies, backed in part by new borrowing, the country is now insisting that it will oppose further joint EU debt issuance or any softening of fiscal rules that would enable other countries to raise debt.<sup>41</sup> This goes against loud calls from other member countries, the European Commission, and even the IMF for more joint debt issuance.<sup>42</sup>

Worse still, a strict constitutional rule prevents Berlin from running a budget deficit. This resistance is rooted in the *Schuldenbremse*, or debt brake introduced in 2009 and which has become a totemic fixture of the German political

debate since.<sup>43</sup> However, these rules have been consistently circumvented and the German Constitutional Court is now pressing the German government to end its bending of the rules. Indeed, a Constitutional Court decision in mid-November 2023 ruled the German Climate and Transition Fund unconstitutional and sent a shockwave through Germany's political system. Germany is now short of some €60 billion to underwrite its climate policy, and there might be more pressure ahead.<sup>44</sup> This should force a serious political conversation about a new domestic fiscal architecture, but the resistance remains high and any political changes will be slow.

Nevertheless, the reality is that Germany modifies its constitution often and finds a way to summon the political will to create fiscal space whenever necessary: in the 2015 European migration crisis, with record levels of asylum seekers, federal regions and municipalities needed more financial transfers; and in 2022, Berlin agreed to create a new €100 billion off-budget defense fund.<sup>45</sup> The current German government coalition has decided to avoid the issue altogether for now. But it will come back to haunt it, not only because of the EU but also because its own constitutional court argued in a historical ruling in 2021 that the government is not meeting its climate policy objective.<sup>46</sup> This should create profound internal tensions that can eventually only be addressed by constitutional reform and a fiscal breakthrough but this may have to wait for the German elections in 2025.

In Brussels, meanwhile, the current negotiations to reform European fiscal rules are surely a step in the right direction, albeit a small one. In reality, the new proposed approach is more flexible than the current one, but does not guarantee that member states have all the fiscal space and incentives they need to finance the transition. A more ambitious reform than the one proposed by the Commission is both possible and necessary and is only achievable as part of a broader deal that includes reform of national fiscal rules, a larger EU budget, new taxes for the EU budget, and a clearer commitment to safeguard green investments.

40 "Germany Builds Up LNG Import Terminals," Reuters, September 20, 2023, <https://www.reuters.com/business/energy/germany-builds-up-lng-import-terminals-2023-08-09/>.

41 "Germany's Parliament Approves 200 Billion Euro Fund to Tackle Energy Crisis," Reuters, October 21, 2022, <https://www.reuters.com/business/energy/germanys-parliament-approves-200-billion-euro-fund-tackle-energy-crisis-2022-10-21/>; and Guy Chazan and Sam Fleming, "Germany Rejects Push for Fresh EU Borrowing to Battle Energy Crisis," *Financial Times*, October 30, 2022, <https://www.ft.com/content/86b27da5-bc6c-49d0-af72-62f79c5c39b3>.

42 Jan Strupczewski, "IMF Calls for EU Fiscal Capacity, Rules to Be Linked to Risk," Reuters, September 5, 2022, <https://www.reuters.com/world/europe/imf-calls-eu-fiscal-capacity-rules-be-linked-risk-2022-09-05/>.

43 Hung Tran, "Germany's Debt Brake Isn't Working," *Econographics* (blog), Atlantic Council, December 7, 2023, <https://www.atlanticcouncil.org/blogs/econographics/germanys-debt-brake-isnt-working/>.

44 Tran, "Germany's Debt Brake."

45 Shahin Vallée, Jérémie Cohen-Setton, and Dominik Buhl, "Germany's Debt Brake and Europe's Fiscal Stance After COVID-19," DGAP Policy Brief, German Council on Foreign Relations, May 5, 2021, <https://dgap.org/en/research/publications/germanys-debt-brake-and-europes-fiscal-stance-after-covid-19>.

46 Benjamin Wehrmann and Julian Wettengel, "Q&A—What the German Top Court's 'Debt Brake' Ruling Means for Climate Policy," Clean Energy Wire, December 5, 2023, <https://www.cleanenergywire.org/factsheets/qa-what-german-top-courts-debt-brake-ruling-means-climate-policy>; and Shahin Vallée, "Germany Has Narrowly Swerved Budget Disaster—but Its Debt Taboo Still Threatens Europe," *Guardian*, December 13, 2023, <https://www.theguardian.com/commentisfree/2023/dec/13/germany-budget-debt-europe-constitution-crisis>.

Recently, however, the fiscal problem deepened when the EU decided to embark on a bold response to the US IRA and embrace green industrial policy. While greening industrial policy was an integral part of the EU's original green deal in 2019, the European Commission took time to change its doctrine on trade, competition policy, and state aid to make it viable. But the financing to underwrite this green industrial policy remains limited at the European level, which means that it will be constrained or, even worse, will feed intra-European competition that is already visible between France and Germany on issues surrounding electricity-market reform and subsidies for the nuclear energy industry. Both countries have chosen different energy strategies and are concerned that the other will gain a structural competitive advantage over the other. As a result, Germany is obstructing efforts by France to subsidize its electricity generation via nuclear power and France is undermining Germany's attempt to subsidize energy prices for its energy-intensive sectors.<sup>47</sup> This turf war is illustrative of the challenges of green industrial policy that is insufficiently Europeanized in its design and in its financing. It raises profound risks for its effectiveness and for internal European cohesion.

These challenges have only emerged recently and are therefore not addressed properly by the existing policy infrastructure. Notably, the Fit for 55 legislative package—adopted in April 2023 and with all the elements in effect by the end of June—contains policies ranging from regulatory measures to taxes, both broadening and sharpening Europe's green policy. It also encompasses trade policy,

such as the new Carbon Based Adjustment Mechanism (CBAM) tariff to enable the EU to achieve a reduction of its emissions of 55 percent by 2023, compared to 1990. Still, the main shift on industrial policy really happened much later in 2023, as a result of Europe's burning desire to fiscally respond in kind to the US IRA. As a result, European climate policy is increasingly tentacular and ambitious, but it lacks financial firepower, in sharp contrast to the US IRA's potentially unlimited tax credits.

The panic over loss of competitiveness—for the green technology sector and more broadly for all energy-intensive industries and the EV sector—has caused an existential crisis in Europe that compelled fiscal action, but only at the national level. As a result, it is nowhere near enough to fully finance the transition. Positively, the EU has decided that the temporary state aid framework established during the height of Europe's energy crisis will essentially relax constraints weighing on individual governments to support their green industries. In particular, the EU agreed to introduce “matching exemptions” to its state aid rules, which allow member states to match aid provided by a foreign country to European competition in order to maintain economic activity in their country.<sup>48</sup> These were steps encouraged by European corporations threatening to relocate their production to the United States, at the expense of their investment plans in Europe. Promisingly, these ideas were decided alongside a discussion about creating a European sovereignty fund to finance the green transition, which for the first time was mentioned by Commissioners

**Table 1: Europe's Green Deal Industrial Plan**

Green Deal Industrial Plan				
	Simplified regulatory environment	Faster access to funding	Enhancing skills	Open trade for resilient supply chains
Loosening of state aid rules		X		
Net Zero Industry Act	X		X	
Critical Minerals Act	X			X

Source: Authors

47 “Ajustement à l'objectif 55,” Conseil Européen (website), July 25, 2023, <https://www.consilium.europa.eu/fr/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/>.

48 “State Aid: Commission Adopts Temporary Crisis and Transition Framework to Further Support Transition Towards Net-zero Economy,” European Commission, March 9, 2023, [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_23\\_1563](https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1563).



Exterior of the German Bundestag. Photography by Ralf Steinberger. Flickr/Ralf Steinberger (<https://flickr.com/photos/145472109@N04/31251495122>).

Thierry Breton and Paolo Gentiloni in October 2022.<sup>49</sup> The ambition was for this fund to become the primary fiscal resource for the EU’s green transition—but European leaders did not agree to adopt it.

When Europe’s Green Deal Industrial Plan surfaced in February 2023, the sovereignty fund had vanished, in large part as a result of a short-termist pact between President Macron and Dutch Prime Minister Mark Rutte,<sup>50</sup> which involved a French concession to use currently available money and later work on a sovereignty fund. This effectively killed any effort to Europeanize the design and funding of Europe’s green industrial plan. As a result, despite very ambitious targets set in the NZIA for domestic production of electrolyzers, photovoltaic (PV) devices, and

wind turbines, the EU is short of policies and funding for its green industrial revolution, and will therefore be a lot more reliant on Chinese technology and suppliers than it likes to admit.

## THE HOSTAGE PROBLEM

### Carbon-Intensive Industries Hold Parliaments Hostage

European decarbonization risks being stalled or delayed by vested interests. This hostage problem, where powerful carbon-intensive industries (starting with oil companies) can exercise undue influence over legislative or government agendas, is best exemplified by the stalling actions

49 Thierry Breton and Paolo Gentiloni, “Germany’s Latest Response to Energy Crisis Raises Questions,” *Irish Times*, October 3, 2022, <https://www.irishtimes.com/opinion/2022/10/03/germanys-latest-response-to-energy-crisis-raises-questions/>; “A European Sovereignty Fund for an Industry ‘Made in Europe’ | Blog of Commissioner Thierry Breton,” European Commission, September 15, 2022, [https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT\\_22\\_5543](https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_5543); and an interview with senior French officials by the authors, August 2023.

50 Clea Caulcutt, “Macron, Rutte Agree to Disagree on European Response to US Subsidies,” *Politico*, January 30, 2023, <https://www.politico.eu/article/macron-rutte-agree-to-disagree-on-european-response-to-us-subsidies/>.

of both the German automobile industry and the Dutch agribusiness. Decisive action on decarbonization will require European politics to cut through this obstruction of confusing long-term national interests for short-term firm-level interests, especially when these firms are typically no longer a source of profit and jobs in a growing industry but locked into a declining industry.

The German automobile industry's influence is visible on every autobahn, where you see no speed limits. For decades, the nation's environment ministers have tried to pass autobahn speed limits, with the environmental agency estimating that a national speed limit of 130 kilometers per hour would reduce its carbon emissions by two million tons per year—yet that action has proved impossible. The power of the automakers' lobbying group, Verband der Automobilindustrie (VDA), which vigorously opposed such speed limits, is credited with successfully blocking them.<sup>51</sup> Earlier in 2023, the German government made a stunning reversal in its position on phasing out the combustion engine. After the EU celebrated an agreement in October 2022 to ban the sale of new internal combustion engine (ICE) vehicles in the EU by 2035, Germany (initially) single-handedly asked to reopen the legislative file, and was soon joined by other EU countries including Italy, Poland, and Bulgaria in expressing reservations about the law.<sup>52</sup> This dispute was settled in March 2023 on a new EU-wide agreement that effectively allows ICE vehicles to be sold beyond 2035 provided they run on “clean fuel” with stricter CO<sub>2</sub> emissions. It is particularly striking that such corporate lobbying was allowed even under a coalition government with the German Green Party.

The so-called Dieseltgate scandal, which began in 2015, is another clear example of the hostage problem. After German automaker Volkswagen (VW) was found to have been cheating on emissions tests, the reactions of US and European systems diverged. In the United States, officials did not let VW, whose US market presence was slight

but growing, off the hook. Authorities forced VW to pay \$25 billion in compensation for the 580,000 diesel cars it sold in the US market.<sup>53</sup> In addition, VW was forced to help speed up the transition to clean energy. Strikingly, the California Supreme Court ordered VW to pay \$2 billion in fines to set up new EV charging stations and to pay for pollution cleanup in the most affected communities in the United States.

In Europe, where VW had influence, officials were much less tough. Though VW sold eight million nitrogen oxide-spewing diesel vehicles that flouted European environmental laws, the company escaped paying fines until 2021. Worse still, in France and Germany its market strength was partially due to the fact that the auto industry, regulators, and lobbyists had promoted diesel cars as green and fuel efficient since the 2000s.<sup>54</sup>

A more vivid illustration of the hostage problem is found in the Netherlands. EU auditors found that despite \$100 billion in agricultural subsidies being labeled as “climate spending” since 2014, the Common Agriculture Policy funds had “little impact on agricultural emissions.”<sup>55</sup> This caused a particular scandal in the Netherlands, an agricultural superpower, whose exports in this sector bring in roughly \$30 billion per year.<sup>56</sup> This small country runs an extraordinarily intensive agribusiness sector, with Dutch farms containing four times more livestock per hectare than the EU average.<sup>57</sup> However, the counterpart of those exports and efficiency is worsening nitrogen emissions from manure produced by 3.8 million cows, twelve million pigs, and 102 million chickens.<sup>58</sup> Eventually, Dutch courts found farmers in breach of EU nitrogen legislation and the Dutch government proposed a budget of \$25 billion, with policy levers including culls in animal numbers, land buyouts, and even expropriations.<sup>59</sup> These policies faced growing opposition among farmers who threatened to break fragile legislative coalitions. Large-scale protests paralyzed the Dutch economy in 2019, as farmers blocked highways

51 Kim Mackrael, William Boston, and Georgi Kamtchev, “Germany, EU Reach Deal on Combustion-Engine Plan,” *Wall Street Journal*, March 25, 2023, <https://www.wsj.com/articles/germany-eu-reach-deal-on-combustion-engine-plan-9c14d115>.

52 Jorge Liboreiro, “In Win for Germany, EU Agrees to Exempt e-fuels from 2035 Ban on New Sales of Combustion-engine Cars,” *Euronews*, March 28, 2023, <https://www.euronews.com/my-europe/2023/03/28/in-win-for-germany-eu-agrees-to-exempt-e-fuels-from-2035-ban-on-new-sales-of-combustion-en>.

53 Roger Parloff, “How VW Paid \$25 Billion for Dieseltgate—And Got Off Easy,” *ProPublica*, February 6, 2018, <https://www.propublica.org/article/how-vw-paid-25-billion-for-dieseltgate-and-got-off-easy>.

54 Lawrence Carter, “Power of Brussels Car Lobby Revealed,” *Unearthed*, Greenpeace UK journalism project, September 25, 2015, <https://unearthed.greenpeace.org/2015/09/25/power-of-brussels-car-lobby-revealed/>.

55 “ARC Exclusive—Auditors Heavily Criticise Commission's CAP Plans,” *ARC2020* (Agricultural & Rural Convention), October 31, 2018, <https://www.arc2020.eu/arc-exclusive-auditors-heavily-criticise-commissions-cap-plans/>; and Kate Abnett, “EU Farming Policy Failing to Fight Climate Change, Auditors Say,” *Reuters*, June 21, 2021, <https://www.reuters.com/business/environment/eu-farming-policy-failing-fight-climate-change-auditors-say-2021-06-21/>.

56 Hans J. M. van Grinsven et al., “Benchmarking Eco-Efficiency and Footprints of Dutch Agriculture in European Context and Implications for Policies for Climate and Environment,” *Frontiers in Sustainable Food Systems* 3 (March 11, 2019), <https://www.frontiersin.org/articles/10.3389/fsufs.2019.00013/full>.

57 Erik Stokstad, “Nitrogen Crisis from Jam-packed Livestock Operations Has ‘Paralyzed’ Dutch Economy,” *Science*, December 4, 2019, <https://www.science.org/content/article/nitrogen-crisis-jam-packed-livestock-operations-has-paralyzed-dutch-economy>.

58 Lukas Kotkamp, “Political Animals: Dutch Parties Stuck Over Livestock,” *Politico*, November 15, 2021, <https://www.politico.eu/article/livestock-netherlands-cows-pigs-chickens-farming-agriculture/>.

59 Stokstad, “Nitrogen Crisis.”

and drove tractors toward the Hague.<sup>60</sup> Countries across Europe will soon face similarly hard choices.

## THE COLLECTIVE ACTION PROBLEM

### Carbon-Intensive Regional Interests Hold Europe Back

Europe's political system hands huge influence to carbon-intensive regional interests. Because the EU is made up of individual states negotiating either with or through common institutions, this semifederalized system can turn carbon-intensive nations or regions into veto players or stallers who need to be placated at a minimum to make progress. This state of affairs is the result of legacy national energy choices and the byproduct of geographical and mineral endowments. The case of the Polish coal industry is a perfect example of the collective action problem that repeatedly slows decarbonization.

Even though Poland was already making plans to diversify and invest in nuclear energy, it initially pushed against European decarbonization in the strongest terms. "There is no plan to abandon coal in Poland," President Andrzej Duda told statesmen at the 2018 United Nations climate conference in Katowice: "Coal is our strategic raw material. We have supplies for two hundred years and it is difficult for us to give up coal, thanks to which we have energy sovereignty."<sup>61</sup> This strong feeling reflected the country's resource base with coal powering over 70 percent of Poland's electricity. This corresponds to strong regional and business interests inside the Polish political system, turning Warsaw into a staller.

Brussels, with money, thought it had the answer. However, this has come at the cost of deprioritizing other pressing issues. The European Commission offered Poland €3.9 billion of its specially created Just Transition Fund (JTF), created against the backdrop of the negotiations to create the European Green Deal, between 2019 and 2021. The JTF is specifically aimed at carbon-intensive regions that are heavily dependent on fossil fuel extraction, and

the Commission hopes to financially induce an embrace of the transition. Then-European Commission Executive Vice-President Frans Timmermans noted in 2020: "As we rebuild our economies and our societies we will have to resist falling into the trap of rebuilding old structures. We simply cannot afford paying to go back to business as usual and then paying again to transform."<sup>62</sup> In the case of Poland, Brussels initially sought to make the deal conditional on improvements regarding the bloc's terms on the rule of law. But in the end, the Commission was forced to drop these demands and hand over nearly a quarter of the fund to a single member state.<sup>63</sup> The energy crisis that followed Russia's invasion of Ukraine stressed the coal phaseout plans in both Poland and Germany. While Poland is maintaining its current plan to close all coal mines by 2049, no new closures are expected to occur until 2033 at the earliest.<sup>64</sup> Germany, meanwhile, has a more ambitious plan to phase out coal by 2038, with a further goal of reaching it by 2030 at the earliest, yet it restarted two coal power plants as a stopgap measure to make up for lower natural gas supplies from Russia. With uncertainty over the future of the EU climate and transition fund, all of these commitments might be put to serious test.<sup>65</sup> This exposes the reality that the Just Transition Fund and the EU's coal phaseout commitments are going to be undermined if not abandoned altogether in the absence of the required compensatory transfers.

Poland should not merely be seen as a "bad" actor extorting a "good" one. European policy choices deliberately built Poland as a coal producer. Following the 1973 energy crisis, it was the European Commission's own new energy security rules that greatly boosted coal. On the one hand, in Western Europe, these policies resulted in countries building more than 115 coal-fueled plants to no longer rely only on their oil-fired ones, including in states with no previous history of coal power like Denmark and Finland.<sup>66</sup> On the other hand, in then-Sovietized Eastern Europe, this policy enabled states like Poland to become large westward suppliers, greatly expanding coal mining in regions like Upper Silesia as a result.<sup>67</sup> It was this cheap energy that made Poland so attractive to German, French, and Italian

60 Eline Schaart, "Angry Dutch Farmers Swarm The Hague to Protest Green Rules," *Politico*, October 16, 2019, <https://www.politico.eu/article/angry-dutch-farmers-swarm-the-hague-to-protest-green-rules/>.

61 Piotr Żuk and Kacper Szulecki, "Unpacking the Right-populist Threat to Climate Action: Poland's Pro-governmental Media on Energy Transition and Climate Change," *Energy Research & Social Science* 66 (August 2020), <https://www.sciencedirect.com/science/article/abs/pii/S2214629620300621>.

62 "Speeches by EVP Timmermans, Commissioner Ferreira and Commissioner Simson at the Just Transition Platform Launch Event," European Commission, June 29, 2020, [https://ec.europa.eu/commission/presscorner/detail/en/speech\\_20\\_1220](https://ec.europa.eu/commission/presscorner/detail/en/speech_20_1220).

63 Alina Pogoda, "Poland May Irretrievably Lose Half of Its Funds for a Just Transition," *Just Transition* (blog), March 23, 2021, <https://www.just-transition.info/poland-may-irretrievably-lose-half-of-its-funds-for-a-just-transition/>.

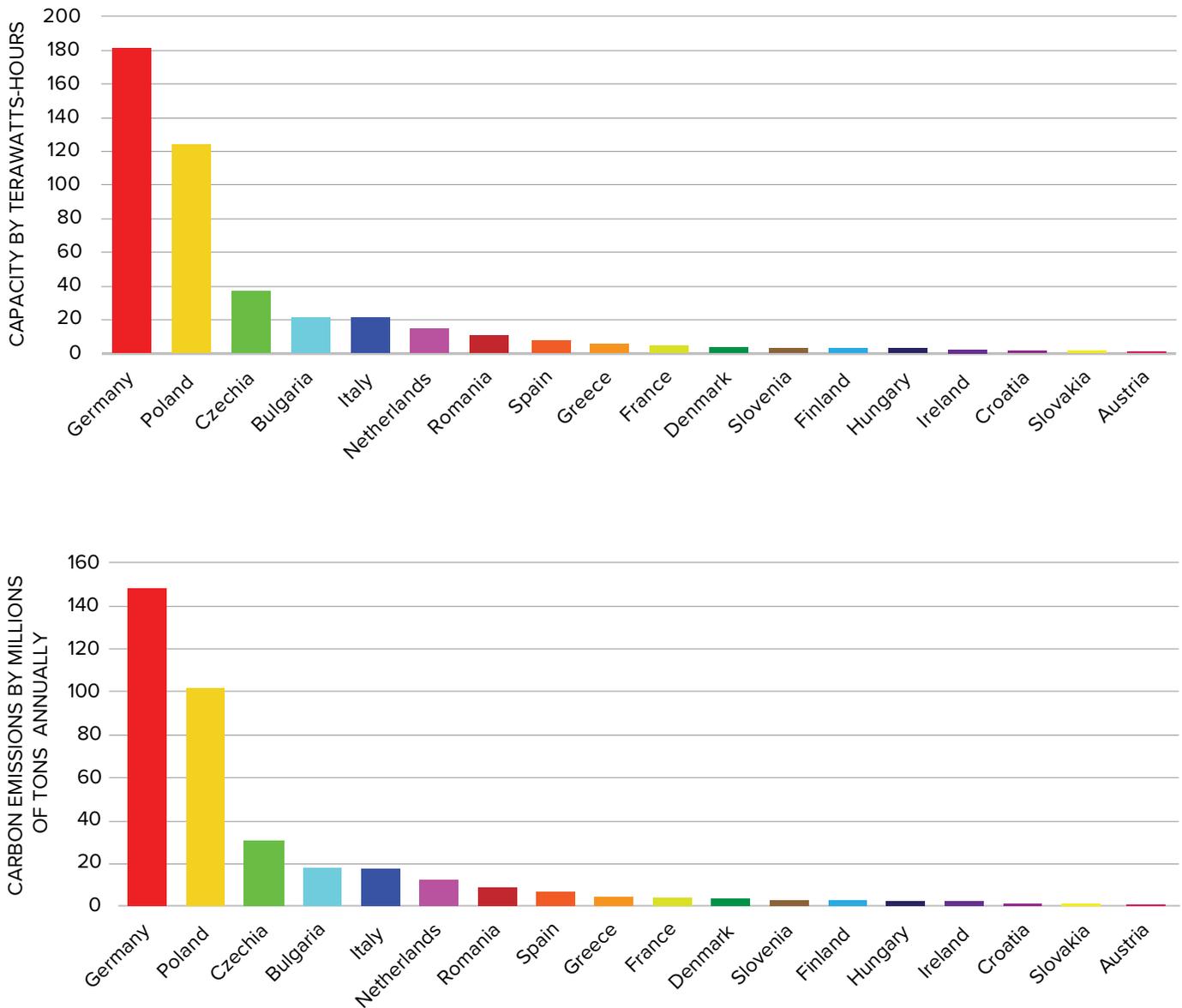
64 Aleksandra Krzysztosek, "Poland to Slow Coal Phase-out Process, Maintain 2049 End-date," *Euractiv*, November 8, 2022, <https://www.euractiv.com/section/energy/news/poland-to-slow-coal-phase-out-process-maintain-2049-end-date/>.

65 Carolina Kyllmann, "German Coal Region Brings Phase-out Forward to 2030 but Refires Lignite Short-term," *Clean Energy Wire*, October 4, 2022, <https://www.cleanenergywire.org/news/german-coal-region-brings-coal-phase-out-forward-2030-refires-lignite-short-term>.

66 European Commission, "Medium Term Guideline for Coal 1975-1985," *Official Journal of the European Union* C22 (1975), 1–18.

67 OECD, "East-West Technology Transfer—The Case of Poland," *OECD Observer*, no. 3 (1983), <https://doi.org/10.1787/observer-v1983-3-en>.

**Figure 2: Germany’s Coal Backsliding**



Sources: Ember and Global Energy Monitor (GEM) data, as shown in “Europe’s Clashes Over Coal May Extend Well beyond Poland,” Reuters, June 20, 2023, <https://www.reuters.com/markets/commodities/europes-clashes-over-coal-may-extend-well-beyond-poland-2023-06-20/>.

investors after the country joined the EU in 2004, with auto engine and parts production in Poland nearly quadrupling between 2000 and 2008.<sup>68</sup> Energy has been a key thread in knitting Poland into the West and the European Union. Brussels needs to make the transition just as important and attractive—or risk having collective action stall attempts to make Europe clean.

**THE JUST TRANSITION PROBLEM**

**Decarbonization Risks Public Backlash**

European elites risk the rejection of decarbonization by the electorate, particularly by an emerging coalition of industrial interests as well as people in lower income

68 Janusz Buliński, “The Automotive Industry in Poland,” Economic Information Department, Polish Information and Foreign Investment Agency S.A., October 2010, 2, [https://www.paih.gov.pl/files/?id\\_plik=14305](https://www.paih.gov.pl/files/?id_plik=14305).



A burning newsagent's shop is seen during a demonstration by the "yellow vests" movement in Paris, France, March 16, 2019. REUTERS/Philippe Wojazer

brackets who rightly feel the weight of an unjust burden for the adjustment, while contributing the least to emissions. The poorest are the most energy cost-burdened. Consequently, right-wing populist parties across Europe are repositioning themselves as climate skeptics partly because their voters tend to live in poorer areas whose economies are carbon-dependent. This is the risk exemplified by the 2018-19 protesters known as the *Gilets Jaunes*, known for their signature high-visibility yellow vests, which are mandatory for drivers in France. Triggered by a carbon tax on fuel, the protest movement rocked the Macron government, forcing an about-turn and leading to a broader reluctance to advance decarbonization initiatives. Their most popular slogan—"Paradise for the rich, not a radish for the rest"—was a disaster for the framing of European decarbonization. European elites should worry about the *Gilets Jaunes* prefiguring a broader backlash: with the continent's poor already the most-energy burdened in terms of the percentage of income spent on fuel or with livelihoods immersed in carbon-heavy industries or work patterns,<sup>69</sup>

protest movements or populists could easily derail the roll-out of regressive decarbonization.

The loss of industrial jobs due to decarbonization could actually considerably heighten this risk, providing a perfect alliance between corporate vested interests and poor workers. This is, in fact, what is already fueling a tacit alliance between far right populists and pro-business conservative parties, both of which are challenging the European Green Deal. They are together liable to become a central political force in the next European Parliament and even the Commission, and this has not been countered yet by an alternative policy package that can create broad societal support for decarbonization. Europe's climate transition therefore hangs on the ability to arrange a socially just transition to enlist broad popular support for a policy that is today highly regressive—when emissions are largely the result of privileged individuals and energy-intensive corporations. In fact, according to the IEA, the 10 percent of the US and EU publics in the highest income groups had

69 Jorgelina Do Rosario, "Rising Energy Prices Could Fuel Social Unrest across Europe This Winter," Reuters, September 1, 2022, <https://www.reuters.com/business/energy/rising-energy-prices-could-fuel-social-unrest-across-europe-this-winter-2022-09-01/>.

median carbon emissions three to five times that of the median individual emissions and sixteen times higher than the median emissions of the poorest 10 percent.<sup>70</sup>

European populists are building an arc of reluctance and consistently position themselves as not just opposed to immigration, as in earlier incarnations, but as climate skeptics. In Germany, the Alternative for Germany (AfD) has pitched itself as a pro-diesel party, opposing various phaseouts. This has proved a winning strategy for the party, which has won support in deindustrialized areas suffering from poverty, low investment, and population decline, and where decarbonization is sometimes viewed as a burdensome and imposed luxury. Tellingly, in the last European elections the AfD received the party's largest share of the vote in the coal-rich regions of Brandenburg and Saxony. This is part of a pan-European trend. In the Netherlands, as we have seen, Dutch populist and conservative parties have protested the ammonia tax imposed on the nation's livestock. In Italy, figures in the ruling hard-right League and Brothers of Italy coalition have denounced EU decarbonization policies as hurting both consumers and industries, with Deputy Prime Minister Matteo Salvini blasting EU green policies in 2022 as "a danger to the competitiveness of businesses and the lifestyle of Italian citizens." In France, Marine Le Pen, who ran for president as the National Rally candidate in the last election, is fighting against diesel taxes and for greater energy subsidies. The danger is therefore that these parties help crystallize an anti-climate policy coalition in the next European Parliament after June 2024. We are already seeing signs of this dynamic in the European Parliament with the highly contested passage of the Nature Restoration Law, which nearly failed due to an ad hoc alliance between the right and the far right.<sup>71</sup>

The socioeconomic risks inherent in the transition are not lost on European leaders. In the energy crisis of 2022, European governments chose to subsidize citizens' energy bills while also cutting fuel taxes on an enormous scale of between 0.5 percent and 7.4 percent of national GDP.<sup>72</sup> Looking ahead, the European Council is pairing its post-2025 plans for carbon pricing of fuels for transportation and homes with a newly created "social climate fund" that will distribute nearly \$60 billion to vulnerable households between 2025 and 2030.<sup>73</sup> What European leaders do not seem prepared for is a permanent level of transfers to

enable an effective transition. In reality, Europe's climate policy paradigm is highly technical and engineered without accounting for social concerns.

The task ahead requires deep and sustained engagement with the public. However generous, subsidies alone cannot prevent a backlash. No matter how attractive the hypothetical future clean energy economy, no matter how generous the buyouts offered by governments bent on transition, the sudden energy transition also is a rupture with public understanding and could be perceived as a betrayal of trust or violation of the social contract. People's entire way of life—from how they heat their homes, what cars they drive, and how their cities look—will need to be transformed in a way that could be felt to be deeply upsetting and unsettling, especially for lower-income and less-privileged people.

The unfairness of the energy transition is made plain when carbon taxes exempt aviation fuel and private jets, and taxes are cut for the wealthy, while ordinary people face higher carbon taxes for heating and transportation fuels. The political vision of modernity sold to European electorates over generations has been centered on the carbon economy. Legitimizing decarbonization requires political leaders to convince their electorates they have a new and better vision for modernity itself, not just pain. The fight over climate policy is about creating domestic political coalitions to support investment, good jobs, and affordable green goods. That vision of the seductive, attractive, and convivial low carbon life, will have to be tailored to national circumstances, and worryingly for Europe as well as for the United States, it is in this public debate where elites have come up short. More than half of the respondents in a recent European Council on Foreign Relations survey said that there is no debate on the European Green Deal in their national media.<sup>74</sup> While this may change quickly, the current state of affairs does not bode well.

## THE INDUSTRIAL PROBLEM

### Industrial Policy Is Hard

Dirigisme is difficult, especially in more decentralized contexts where industrial interests are diverse, institutional structures and practices are different, and welfare models

70 Laura Cozzi, Olivia Chen, and Hyeji Kim, "The World's Top 1% of Emitters Produce over 1000 Times More CO<sub>2</sub> than the Bottom 1%," International Energy Agency, February 22, 2023, <https://www.iea.org/commentaries/the-world-s-top-1-of-emitters-produce-over-1000-times-more-co2-than-the-bottom-1>.

71 Ajit Niranjani, "EU Passes Nature Restoration Law in Knife-edge Vote," *Guardian*, July 12, 2023, <https://www.theguardian.com/world/2023/jul/12/eu-passes-nature-restoration-law-vote-meps>.

72 Colgan, Gard-Murray, and Hinthorn, *Letting Europe's Energy Crisis Go to Waste*, 2; Giovanni Sgaravatti et al., "National Fiscal Policy Responses to the Energy Crisis," Bruegel, June 26, 2023, <https://www.bruegel.org/dataset/national-policies-shield-consumers-rising-energy-prices>.

73 "Deal on Establishing the Social Climate Fund to Support the Energy Transition," European Parliament, December 18, 2022, <https://www.europarl.europa.eu/news/en/press-room/20221212IPR64528/deal-on-establishing-the-social-climate-fund-to-support-the-energy-transition>.

74 Susi Dennison, Rafael Loss, and Jenny Söderström, "Europe's Green Moment: How to Meet the Climate Challenge," European Council on Foreign Relations, April 20, 2021, <https://ecfr.eu/publication/europes-green-moment-how-to-meet-the-climate-challenge/>.

diverge. When it comes to decarbonization, European officials risk relearning several bad practices of the past that have long confounded industrial policy without addressing two emerging ones. Picking winners is hard and supply chain coordination is complex. Industrial policy needs to be European but national contexts and instruments will probably need to differ, thereby creating uncertainty over the level-playing field. This is only going to become more difficult with time as Europe's industrial base erodes in the context of higher and more volatile energy prices in a changing climate landscape.

The pitfalls of picking winners is best exemplified by that great failure of the last age of state-driven industrial policy: the Concorde, the Anglo-French supersonic jet withdrawn from service in 2003. Billed as a brilliant new innovation drastically cutting flight times between Europe and the US and opening the way to European leadership in aviation, the project eventually failed after an accidental and deadly Concorde crash. Expensive to operate and extremely noisy, blocked by regulators from the US domestic market as a result, the Concorde was a symbolic white elephant.<sup>75</sup> Politicians, driven by the need for shiny national flagships like Concorde, do not have the best track record as investors of public funds. However the challenge ahead is not only the risky business of picking winners, but the price of inaction as key industries gradually get undermined by foreign competition, be it Chinese or American.

Moreover, Europe's challenge of an eroded industrial base is well illustrated by the state of the French nuclear industry or the decay of the German auto sector in the EV space or the chemicals industry. These are both creating critical industrial crises and fueling industrial policy reactions that are actually undermining cooperation rather than fueling a shared European industrial policy. Indeed, France is engaged in a furious battle to repair, expand, protect, and subsidize its nuclear industry despite challenges that seem financially and technically overwhelming. And Germany is facing a profound crisis that is fueling an all-out subsidies race that is perhaps best epitomized by the recent bailouts of its gas utilities or the €10 billion subsidy to locate

a new Intel chip manufacturing plant in Germany.<sup>76</sup> In both countries, there are not only doubts that these industrial policies can work but also growing signs that they are fundamentally incompatible on a European level.

In France, home of the Messmer Plan, more than twenty years have passed since a new nuclear reactor was built. This aging nuclear fleet requires profound maintenance, but many skilled welders have left the industry and the highly trained workforce has not been replenished. As a result—despite nuclear energy providing a million jobs and more than a quarter of the bloc's electricity—acute staff shortages led to maintenance backlogs and shutdowns in the 2022 energy crisis, requiring US and Canadian engineers.<sup>77</sup> “Due to a lack of coherent policy and investment this energy is in structural decline,” said a recent report for the French Senate.<sup>78</sup> Other headwinds hampering French nuclear energy capacity include higher temperatures and lower river levels that create problems for the water cooling systems.

Exhibiting a general approach of “whatever it takes” to achieve a nuclear revival, Macron's government this year passed legislation to build six new nuclear plants and won court approval to regain control of EDF, which is responsible for France's nuclear energy production.<sup>79</sup> It also seeks to count nuclear energy toward renewable energy targets.<sup>80</sup> This headlong rush with subsidies leads to conflicts with other EU members: saving the French nuclear industry at all cost conflicts with the EU's Renewable Energy Directive and with electricity market reform, as France essentially seeks a right to provide a permanent subsidy to the French nuclear fleet.<sup>81</sup> This would not only save the economics of the nuclear industry but also essentially provide low energy prices to the French economy—potentially providing a durable and distortive competitive edge over other EU members' national economies.

Meanwhile, Germany is also pursuing its own industrial strategy. Robert Habeck, the federal minister for economic affairs and climate action, has proposed introducing a transitory energy price cap for the energy-intensive sector; in

75 Peter Thomas, “How the Next Supersonic Jets Can Succeed Where Concorde Failed,” CNN, June 10, 2021, <https://www.cnn.com/travel/article/how-supersonic-flights-can-succeed/index.html>.

76 “Germany to Offer Aid Only to Strategic Sectors After Intel Subsidy, Minister Says,” Reuters, June 21, 2023, <https://www.reuters.com/technology/germany-offer-aid-only-strategic-sectors-after-intel-subsidy-minister-2023-06-21/>.

77 Liz Alderman, “Half of France's Nuclear Plants Are Off-Line,” *New York Times*, November 15, 2022, <https://www.nytimes.com/2022/11/15/business/nuclear-power-france.html>.

78 Daniel Gremillet, Jean-Pierre Moga, and Jean-Jacques Michau, “Nucléaire et hydrogène: l'urgence d'agir [Nuclear and Hydrogen: The Urgency to Act],” Rapport d'information n° 801, Senate of France, July 20, 2022, <https://www.senat.fr/rap/r21-801/r21-8010.html>.

79 Alderman, “Half of France's Nuclear Plants Are Off-Line”; “French Parliament Votes Nuclear Plan with Large Majority,” Reuters, March 21, 2023; and “French Government Wins Court Approval for EDF Nationalisation,” Nuclear Engineering International (website), accessed August 19, 2023, <https://www.neimagazine.com/news/newsfrench-government-wins-court-approval-for-edf-nationalisation-10830185>.

80 Kate Abnett, “Germany, Spain Push to Keep Nuclear Out of EU Renewable Energy Goals,” Reuters, March 16, 2023, <https://www.reuters.com/business/energy/germany-spain-push-keep-nuclear-out-eu-renewable-energy-goals-2023-03-16/>.

81 Kate Abnett and Julia Payne, “EU Countries Consider Scrapping Part of Energy Reforms—Document,” Reuters, October 2, 2023, <https://www.reuters.com/business/energy/eu-countries-consider-scrapping-part-energy-reforms-document-2023-10-02/>.



French President Emmanuel Macron listens to a Renault worker talking about the Kangoo electric car, during his visit to the site of the future factory of Japan-based battery maker Envision AESC group, where Renault SA develops an electric-vehicle manufacturing hub, in Douai, France, June 28, 2021. Ludovic Marin/Pool via REUTERS

addition, the German government has applied for the largest amount of state aid under the temporary framework introduced by the Commission, in response to the IRA, fueling fears that Germany would essentially deepen its industrial lead over the rest of Europe and aggravate agglomeration effects.<sup>82</sup> These fears have materialized with the intense lobbying and heavy subsidies that the German government was prepared to arrange for Intel, which has committed to building two chip plants in Germany,<sup>83</sup> and for Tesla to invest in Germany, although Tesla has since scaled back its investments in Germany due to a feeling that the IRA provided better benefits.<sup>84</sup>

The rollout of green steel is another case. Despite Swedish companies like SSAB having long innovated renewably powered hydrogen-based direct reduction of iron ore, their entire production matrix had to change.<sup>85</sup> Innovation alone was not enough—it required multiple forms of coordination. First, the huge demand for renewable electricity to feed electrolyzers meant new renewable-powered power lines had to be coordinated between SSAB and electricity suppliers. Second, the cost of installing the new electrolyzers required coordination on government subsidies to make green steel profitable. Third, to create a market, it was necessary to assure green steel producers

82 “Germany Considers Electricity Price Cap to Support Industry,” *Deutsche Welle*, May 5, 2023, <https://www.dw.com/en/germany-considers-electricity-price-cap-to-support-industry/a-65531798>.

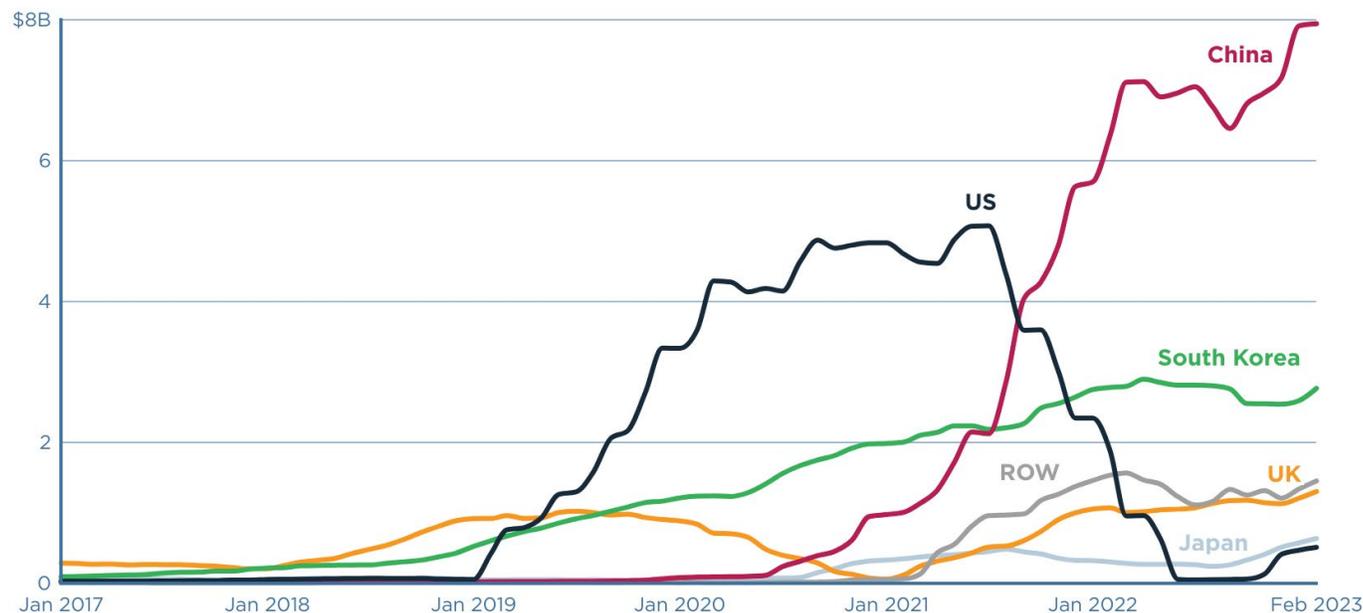
83 Friederike Heine, Supantha Mukherjee, and Andreas Rinke, “Intel Spends \$33 Billion in Germany in Landmark Expansion,” Reuters, June 19, 2023, <https://www.reuters.com/technology/berlin-sign-agreement-with-intel-after-chip-plant-talks-2023-06-19/>.

84 Victoria Waldersee, “Tesla Scales Back German Battery Plans, Won Over by U.S. Incentives,” Reuters, February 22, 2023, <https://www.reuters.com/technology/tesla-scales-back-german-battery-plans-won-over-by-us-incentives-2023-02-21/>.

85 Duncan Kushnir et al., “Adopting Hydrogen Direct Reduction for the Swedish Steel Industry: A Technological Innovation System (TIS) Study,” *Journal of Cleaner Production* 242 (January 2020), <https://doi.org/10.1016/j.jclepro.2019.118185>.

**Figure 3: China's Automobile Revolution****The EU used to import electric vehicles from the US but now mostly imports from China and South Korea**

Value of EU electric vehicle imports, 12-month trailing sums, billions of USD, 2017-23 (year to date)



ROW = rest of world

Notes: The CN codes are 87038010 and 87038090 in 2017-23 and 87039010 in 2016. Trade values are converted to US dollars from euros using end-of-month USD/euro spot exchange rates from Federal Reserve Economic Data (DEXUSEU).

Source: Eurostat.

© Peterson Institute for International Economics. Source: Chad P. Bown, "Industrial Policy for Electric Vehicle Supply Chains and the US-EU Fight Over the Inflation Reduction Act," Working Paper 23-1, Peterson Institute for International Economics (PIIE), May 2023, <https://www.piie.com/sites/default/files/2023-05/wp23-1.pdf>.

of guaranteed demand from automakers like Volvo and BMW via pre-purchasing orders.<sup>86</sup> Finally, to stop imports of cheaper carbon-heavy steel made in a blast furnace from states like China or Turkey, it was necessary to design the EU's trade tariff policy as such. The bloc's CBAM had to be designed and put in place to make them too expensive to import.<sup>87</sup> Such a matrix is not easy to create, let alone maintain.

Successful industrial policy is fraught with the issue of coordination, which is only made deeper in the European context. The sheer complexity and interconnectedness

of decarbonization requires the state to drive this, but the EU doesn't have the full prerogatives of an economic planner and has often been forced to concede to the ambitions of individual member states. The task of greening electricity, transport, industry, buildings, and agriculture simultaneously is an immense challenge, and treating problems and bottlenecks in isolation rather than holistically makes matters worse. And the more siloed the approach, the slower the process. The Net Zero Industrial Act is a case in point: it sets a number of extremely ambitious objectives for Europeanizing supply chains in green technologies (e.g., PV panels, electrolyzers, wind

86 Alejandro de la Garza, "The World's Steel Comes at a Steep Climate Cost. A Swedish Company Is Trying to Change That," in *Time 2030: How to Build a Sustainable, Equitable World* (a project of *Time Magazine*), April 28, 2022, <https://time.com/6171369/ssab-sweden-green-steel/>.

87 David E. Bond et al., "The EU Agreement on a Carbon Border Adjustment Mechanism," White & Case, March 16, 2023, <https://www.whitecase.com/insight-alert/eu-agreement-carbon-border-adjustment-mechanism>.

turbines) but lacks the policy tools and fiscal resources to achieve these targets.<sup>88</sup>

Illustratively, EU policies meant to encourage widespread EV adoption have already had unintended consequences to the detriment of European sovereignty. In 2021, the EU's Fit for 55 package included a date banning new ICE vehicles in Europe in 2035, as mentioned above. But the EU, lacking proper financing for its transition arrangement, failed to give European automakers incentives and to set up European supply chains. Consequently, a large number of these companies moved EV production to China, where such supply chains are much better established and costs are lower. The result: a surge of Chinese EV exports to Europe—driven in part by EU companies. German automotive foreign investment accounted for a third of all European foreign investments in China from 2018 to 2021, the period of the European Green Deal's introduction. By 2021, German automotive companies' investments accounted for 42 percent of EU foreign direct investment in China, and Chinese EV imports to the EU started to balloon to concerning levels.<sup>89</sup>

Worsening matters, climate breakdown means the natural environment is already making this even harder. Notwithstanding the frightful geopolitics, the summer of 2022 saw unprecedented and unpredictable new risks throw up new challenges. Hot weather led to nuclear power plants going offline in France due to a lack of cooling water. This triggered lower French energy exports,

driving up prices across Europe. Meanwhile, hot weather and the lack of rain drove the river level down, beaching transport barges on the Rhine in Germany and further driving up shipping costs. Climate change, in this manner, found itself driving up inflation—a contributing factor to the conditions prompting central banks to raise interest rates, which in turn raises the cost of capital and curbs investment. Even if you get the politics right, the industrial challenge will be tough in general and in Europe especially.

### **Decarbonization and the Wider World**

There are no easy answers to these five challenges. These interrelated factors and the profound spillovers between Europe's decarbonization policies and those of the rest of the world demonstrate the need for a coherent theory of change to align European ambitions and global policy cooperation.

The circumstances call for the European Union to skillfully position itself internationally between the emerging competitive green industrial policies of the United States and China, which will determine where Europe lands in the global factory. In addition, the EU and its member states must sort out how to relate to less-developed states with the critical raw materials Europe critically needs for decarbonization and financing needs to achieve their own climate and development goals. The shape of the emerging geopolitics of the transition is the focus of the next chapter.

88 Zsolt Darvas and Guntram B. Wolff, "A Green Fiscal Pact for the EU: Increasing Climate Investments while Consolidating Budgets," *Climate Policy* 23, no. 4 (2022), <https://www.tandfonline.com/eprint/SUUCT4V5EFIKFRPUEWSD/full?target=10.1080/14693062.2022.2147893>.

89 Elettra Ardissino (senior analyst, Greenmantle), interview with the authors, August 9, 2023; Gregor Sebastian, "The Bumpy Road Ahead in China for Germany's Carmakers," Mercator Institute for China Studies (think tank), *MERICs China Monitor*, October 27, 2022, 5, [https://merics.org/sites/default/files/2023-02/MERICs\\_China\\_Monitor\\_No79-Automotive-RD-in-China\\_EN.pdf](https://merics.org/sites/default/files/2023-02/MERICs_China_Monitor_No79-Automotive-RD-in-China_EN.pdf); "European Investment in China Concentrates More on Handful of Large Firms: Report," Reuters, September 14, 2022, <https://www.reuters.com/markets/europe/european-investment-china-concentrates-more-handful-large-firms-report-2022-09-14/>; and Chad P. Bown, "Industrial Policy for Electric Vehicle Supply Chains and the US-EU Fight Over the Inflation Reduction Act," Working Paper 23-1, Peterson Institute of International Economics, May 2023, 20, <https://www.piie.com/sites/default/files/2023-05/wp23-1.pdf>.

## CHAPTER 3: THE GREEN WORLD ORDER

The contours of a green world order are forming. Obscured by both the pandemic and the ongoing war in Ukraine, its new building blocks have been falling into place. These have been replacing piecemeal the frayed old “Washington consensus” of neoliberalism at home and World Trade Organization free trade abroad. This is not an accident. This is intentional on the part of the great powers when it comes to decarbonization: China, the United States, and, potentially, the European Union.

This era symbolically commenced in April 2023, when US National Security Advisor Jake Sullivan laid out the Biden administration’s policy as a “new Washington consensus” pulling together industrial policy, decarbonization, and economic reshoring in a speech at the Brookings Institution think tank.<sup>90</sup> But this had been foretold during the election campaign by foreign policy architects like Jennifer Harris and Sullivan himself, who together helped elaborate a connected foreign and international economic policy.<sup>91</sup> Democrat in its current execution, this radical turn was enabled because it reflects a growing bipartisan consensus; some of these protectionist policy steps were in fact initiated under the Trump administration. It is nonetheless telling that it was the US national security advisor giving this speech: the great power competition is embedded in this green world order. Decarbonization, at least under the Biden administration, is now being driven by grand strategists from the cockpit of US geopolitical interests whose aim is to shape the postcarbon age as decisively as their post-WWII predecessors shaped the hydrocarbon age. While this may change with future administrations, the reality of US-China competition for leadership in these areas will impose some continuity.

We can already make out the four contours of Sullivan’s green and oppositional new era. First, decarbonization necessitates industrial policy, and it is now abundantly clear that the transition will be shaped by the geopolitics of competitive great power industrial policy, not collaboration.

This is an important departure from the 2015 celebration of the Paris Agreement that suggested that climate action would come as a result of international cooperation, with the gradual expansion of carbon pricing and taxing at its core. Since then, three competing regimes of green industrial policy have been announced in the last three years that have potentially done more for climate action than all the Conference of Parties together: beginning with China, as Xi announced his Carbon Neutrality Pledge in 2020; followed by the United States, with Biden’s Inflation Reduction Act in 2022; and then the European Union, with its 2023 Green Deal Industrial Plan and Net Zero Industrial Act, following an earlier European Green Deal in 2019. Each comes with questions about the resolve, policies, and funding behind these pledges, and risks of backsliding are considerable. But most analysts now conclude that oil and gas consumption will peak this decade and COP28 in Dubai signals at a minimum the direction of travel for phasing out hydrocarbons.<sup>92</sup> The outcome of this green industrial race and its concurrent subsidies will be of major societal and geopolitical importance.

Decarbonization—changing the chemical basis of the economy from fossil fuels to metals that can produce and store electrons—is inherently a mining and industrial process.<sup>93</sup> This means that, second, the geopolitics of decarbonization will be defined by the geopolitics of mining and processing. The transition will indeed be extraction heavy. When it comes to geopolitics, mines are best understood not just as holes in the ground but webs of influence, interests, and extraction. Mineral necessity means we are now witnessing the consolidation of two or three rival global mining webs, serving extractive demands of decarbonization in the United States, EU, and China.<sup>94</sup>

Many of these are wealthy allied states like Australia and Canada, with special ties to the United States, covering lithium, zircon, cobalt, among other resources; for both raw and refined products, Australia alone extracts 53 percent and 19 percent of the world’s lithium and cobalt,

90 “Reactions to National Security Advisor Jake Sullivan’s Brookings Speech,” Brookings Institution, May 9, 2023, <https://www.brookings.edu/2023/05/02/reactions-to-national-security-advisor-jake-sullivans-brookings-speech/>.

91 See Jennifer Harris, “America Needs a New Economic Philosophy. Foreign Policy Experts Can Help,” *Foreign Policy*, February 7, 2020, <https://foreignpolicy.com/2020/02/07/america-needs-a-new-economic-philosophy-foreign-policy-experts-can-help/>; and Walter Russell Mead, “Transcript: Dialogues on American Foreign Policy and World Affairs: Discussing the Future of U.S. Foreign Policy and National Security with Jake Sullivan,” Hudson Institute, May 11, 2020, <https://www.hudson.org/national-security-defense/transcript-dialogues-on-american-foreign-policy-and-world-affairs-discussing-the-future-of-u-s-foreign-policy-and-national-security-with-jake-sullivan>.

92 “Understanding GEC Model Scenarios,” IEA, accessed December 22, 2023, <https://www.iea.org/reports/global-energy-and-climate-model/understanding-gec-model-scenarios>.

93 “Molecules & Electrons: The Power Couple Key to Decarbonizing Our Planet,” Tree Energy Solutions, September 10, 2024, <https://tes-h2.com/blog/molecules-and-electrons-the-power-couple-key-to-decarbonizing-our-planet>.

94 Martín Arboleda, *Planetary Mine: Territories of Extraction under Late Capitalism* (London: Verso, 2020), 15–17.



President Joe Biden signs H.R. 5376, the “Inflation Reduction Act of 2022”, Tuesday, August 16, 2022, in the State Dining Room of the White House. (Official White House Photo by Cameron Smith)

respectively.<sup>95</sup> But the rest are not such states—and the clean energy race will reshape relations between the advanced and less-developed economies. The United States and the EU see no option but to sign deals with developing states across Latin America, Africa, and Asia. There is a risk that an OPEC-style cartel could eventually form for critical raw materials like lithium. With stronger states, there is the added risk of enabling strongmen; and with the weaker states, one needs to avoid acting as a neocolonial power.

Meanwhile, many of these countries themselves are experimenting with new forms of mineral developmentalism<sup>96</sup> seeking to contest wealthy countries’ old place in the value chain in terms of refining and assembly. When it comes to the great powers, the EU and the United States also have discussed—as an offshoot of their negotiations on making European firms eligible for IRA subsidies—the idea of jointly forming a critical raw material club. Such an eventual club could have profound economic and political consequences.<sup>97</sup> At the same time, China is already a key

mining and processing state, offering it significant leverage over key aspects of critical supply chains. Across the world the clash of these global mining webs are about to reshape countless ties. It is, however, very hard to foretell what these arrangements will become and the extent to which these interdependences can and will be weaponized by Washington and/or Beijing.<sup>98</sup> The question of access to critical raw materials could eventually be at stake in a fragmented world of intense superpower competition.

European policymakers are therefore facing difficult questions. Will these emerging arrangements come to reshape the world order by framing and truly constraining access to critical commodities in the way that OPEC has been for the hydrocarbon era? Or will they simply be modest and narrow, and poorly enforced free trade arrangements? Harris, after serving on the US National Security Council as senior director for international economics between 2021 and 2023, has sounded the alarm for the critical shortages to come—which risk derailing decarbonization—to make the case for why US allies should organize a buyers’ club with

95 “Fast Facts,” Department of Industry, Science, and Resources of the Commonwealth of Australia, accessed August 10, 2023, <https://www.globalaustralia.gov.au/industries/net-zero/critical-minerals>.

96 Developmentalism is a school of thought that promotes protectionist policies (usually in the form of tariffs and fostering a strong internal market) to foster economic development and raise living standards in less-developed states. For further information on the origins and practice of developmentalism, see Ernest Ming-Tak Leung, “Developmentalisms,” *Phenomenal World*, September 18, 2021, <https://www.phenomenalworld.org/analysis/developmentalisms/>.

97 Alberto Nardelli and Jorge Valero, “US and EU Near Critical Minerals Accord to Unlock US Subsidies,” Bloomberg, March 29, 2023, <https://www.bloomberg.com/news/articles/2023-03-29/us-and-eu-near-critical-minerals-accord-to-unlock-us-subsidies>; and “EU Moves Forward with Critical Minerals Agreement Negotiations with the US,” European Commission, June 14, 2023, [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_23\\_3214](https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3214).

98 For more on weaponized interdependence in general, see Henry Farrell and Abraham L. Newman, “Weaponized Interdependence: How Global Economic Networks Shape State Coercion,” *International Security* 44, no. 1 (2019): 42–79.

incentives for producers such as longer-term purchase agreements and more generous royalty-sharing models.<sup>99</sup>

But it is not clear whether this bold club proposal will be acted upon. This is dependent on many things that are hard to read at this juncture: whether the United States will truly make it a binding instrument, which depends in part on the outcome of the next US presidential election; how much the Europeans will want to align or whether they will try to create their own autonomous set of deals; and last but not least, how China will react to the idea by raising the stakes in the commodities race and fueling a deepening cold war that could potentially escalate into a hot war.

Furthermore, decarbonization is fundamentally a problem of sustaining long-term investment. However, the funding mechanisms for this in less-developed states are not in place. This means that, third, the green world order is dependent on a critical fault line: access to global capital and finance. Missing in action is a global financial architecture that can help poorer countries make these investments at the scale and within the time line that is necessary. In this, advanced economies and less-developed states need each other. To reduce emissions, advanced economies need less-developed states to decarbonize, as most of the future carbon that destabilizes their common future will be produced there. Meanwhile, less-developed states need the advanced economies for financial assistance and technology transfers—just as the advanced economies of the EU member states face austerity pressures and financial retrenchment. As noted by Daniela Gabor, advanced economies are encouraging decarbonization by derisking private decarbonization-based investments into infrastructure and sectors, but this flexibility is less possible for less-developed states.<sup>100</sup> And in some countries, the level of development is such that clean energy is far from the top government spending priority, such as food security, education, and public health.

The search for such a framework will soon become a key and contested part of geopolitics as the current discussions on restructuring the debt overhang of African countries or the recapitalization of the World Bank and the quota reform of the IMF have long exposed. Advanced economies and less-developed states have already engaged in high-level discussions on the matter, such as the Barbados-proposed Bridgetown Initiative.<sup>101</sup> Meanwhile, there have been results outside of the IMF and multilateral

development banks, such as the \$8.5 billion climate funding agreement South Africa made with the United States, the EU, and the United Kingdom, and similar Just Energy Transition Partnerships involving leading economies with Indonesia and Vietnam.<sup>102</sup>

As daunting as the geopolitical project of decarbonization may be, the European Union has since 2020 demonstrated it can act decisively when it comes to collective debt and pandemic relief, Russia sanctions, energy decoupling, and military aid. It also has, as of 2023, put forward its own project to set the rules of global trade in the green world order—the CBAM tariff, whose effectiveness is yet to be determined in practice—despite this leaving it at odds with the United States and China on the world stage. Brussels is attempting a concerted albeit disjointed effort to make the continent a pole in the green world order and managing the dilemmas posed by competing great power industrial policy regimes, critical materials, and the map of financial distress. This report's conclusion—which follows this overview chapter—will propose critical elements for it to succeed. Fundamentally, the green world order is still up for grabs.

## THE DEATH OF THE OLD ORDER

This is the story of a nasty surprise. Europe expected to be a leader in the geopolitics of the green transition. It led global efforts with the Paris Agreement, it pressed ahead with an ambitious European Green Deal in 2019 as the United States was leaving the Paris Agreement and China contemplated its outward stance. It is now playing catch-up. This is deeply concerning as decarbonization is also the race to master the industries and energy grids of tomorrow. Falling behind means losing out economically and geopolitically—with potentially huge societal implications for the EU, such as deindustrialization. Today both European governments and senior Commission officials openly fear being leapfrogged in the race to dominate the green value chains of the future. This is because Europe made error after error in the long period, stretching from 2005 to 2021, when the German grand coalition leadership had a predilection for austerity and trading with Russia, while China, de facto aided by the EU's "frugal four" (Netherlands, Austria, Sweden, and Denmark), defined its politics.

Though Europe lost precious time for decarbonization, it was very much a collective error. Long-term interests failed

99 Jennifer Harris, "No Country Can Solve Critical Mineral Shortages Alone," *Financial Times*, July 7, 2023, <https://www.ft.com/content/394dca37-ac50-4380-9b03-4fdcfce2ff7c>.

100 Daniela Gabor, *The (European) Derisking State*, SocArXiv (online paper server), May 17, 2023, doi:10.31235/osf.io/hpbj2.

101 "Explainer: What Is the 'Bridgetown Initiative' Asking for at Paris Financial Summit?," Reuters, June 20, 2023, <https://www.reuters.com/business/finance/what-is-bridgetown-initiative-asking-paris-financial-summit-2023-06-20/>.

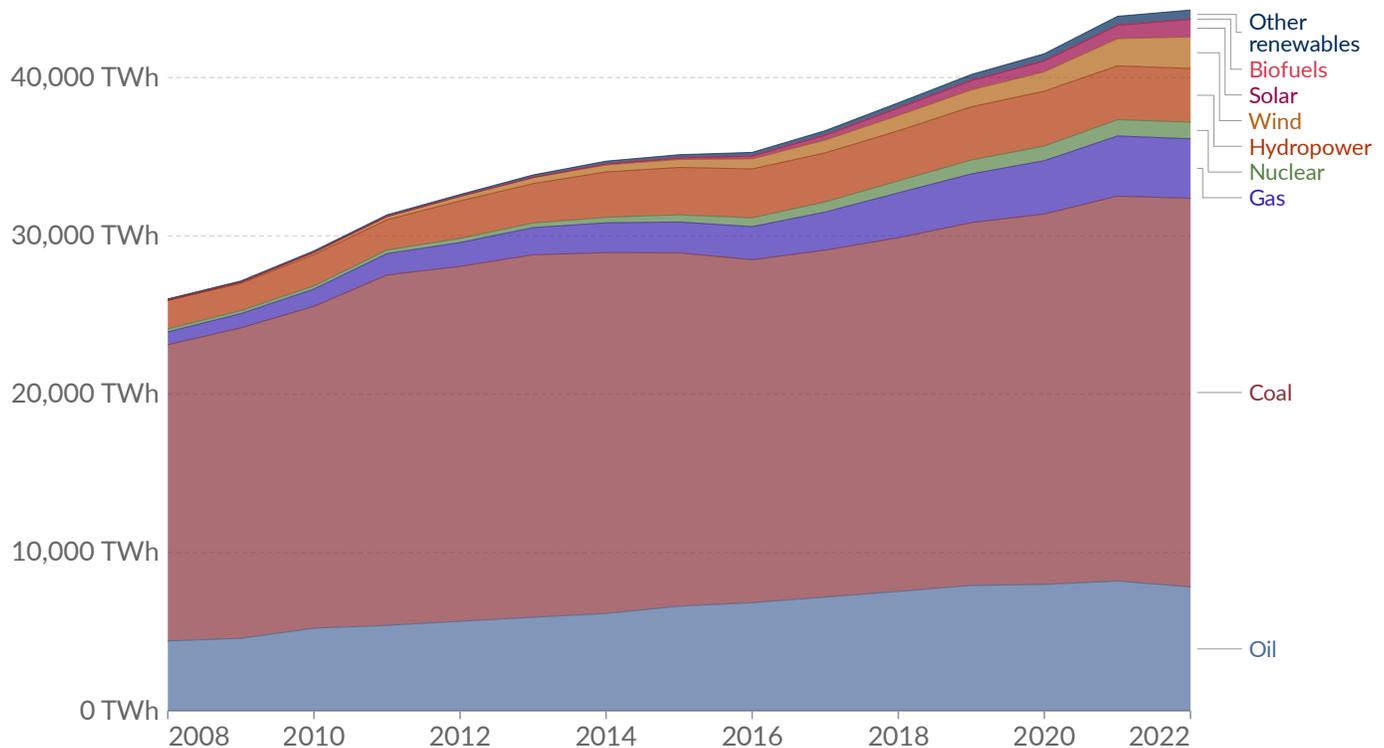
102 Editorial Board, "A Deal to Help South Africa Is a Breakthrough for the World," Opinion, *New York Times*, January 14, 2023, <https://www.nytimes.com/2023/01/14/opinion/climate-change-south-africa.html>.

**Figure 4: China's 'All of the Above' Energy**

## Energy consumption by source, China

Measured as a percentage of primary energy<sup>1</sup> using the substitution method<sup>2</sup>.

Our World  
in Data



Data source: Energy Institute - Statistical Review of World Energy (2023)

[OurWorldInData.org/energy](https://OurWorldInData.org/energy) | CC BY

Note: Other renewables include geothermal, biomass and waste energy.

**1. Primary energy:** Primary energy is the energy available as resources – such as the fuels burnt in power plants – before it has been transformed. This relates to the coal before it has been burned, the uranium, or the barrels of oil. Primary energy includes energy that the end user needs, in the form of electricity, transport and heating, plus inefficiencies and energy that is lost when raw resources are transformed into a usable form. You can read more on the different ways of measuring energy in our article.

**2. Substitution method:** The 'substitution method' is used by researchers to correct primary energy consumption for efficiency losses experienced by fossil fuels. It tries to adjust non-fossil energy sources to the inputs that would be needed if it was generated from fossil fuels. It assumes that wind and solar electricity is as inefficient as coal or gas. To do this, energy generation from non-fossil sources are divided by a standard 'thermal efficiency factor' – typically around 0.4. Nuclear power is also adjusted despite it also experiencing thermal losses in a power plant. Since it's reported in terms of electricity output, we need to do this adjustment to calculate its equivalent input value. You can read more about this adjustment in our article.

Source: Energy Institute - Statistical Review of World Energy (2023) – with major processing by Our World in Data. "Other renewables (including geothermal and biomass)" [dataset]. Energy Institute, "Statistical Review of World Energy" [original data].

to dictate policy. In the EU, diesel was subsidized and declared to be the planet-friendly fuel of the future following the 1997 Kyoto Protocol.<sup>103</sup> Meanwhile, across North America throughout the 2000s, utilities built out natural gas power and then fueled the shale boom with vast

government subsidies, transforming America's energy position.<sup>104</sup> Western policy, throughout this era, in fact promoted a gas transition and a diesel transition—not the greenest possible transition. Natural gas has of course lowered emissions from coal, but it is still a hydrocarbon. Moreover, there

<sup>103</sup> Paul Nieuwenhuis, "Fact Check: Are Diesel Cars Really More Polluting Than Petrol Cars?," *Conversation*, May 2, 2017, <https://theconversation.com/fact-check-are-diesel-cars-really-more-polluting-than-petrol-cars-76241>.

<sup>104</sup> Collin Eaton and Benoit Morenne, "U.S. Shale Boom Shows Signs of Peaking as Big Oil Wells Disappear," *Wall Street Journal*, March 8, 2023, <https://www.wsj.com/articles/u-s-shale-boom-shows-signs-of-peaking-as-big-oil-wells-disappear-2adef03f>.

is an additional factor of methane leakages even as low as 0.2% that render gas as dirty as coal.<sup>105</sup> As late as 2015, the United States exported no LNG, but little over five years later it was closing on Qatar as a top global exporter.<sup>106</sup> By the same year, a third of Europe's car fleet was composed of diesel engine cars.<sup>107</sup> These were examples of highly flawed transitions.

Meanwhile, the old economic world order decayed during those same decades: Domestically, even Sullivan now says that “the American middle class lost ground” and the wealthy profited at their expense, as valuable manufacturing jobs moved offshore. Internationally, this is exemplified by the decline of the WTO. Between 2001 and the present, no new WTO trade rounds have been successful.<sup>108</sup> Meanwhile, beginning with the Obama administration, the United States stopped sending judges to the Appellate Body, the standing seven-person committee of the WTO that hears appeals on disputes between WTO members. As the organization has weakened, its anti-dumping trade norms have declined, especially in China, to the disadvantage of manufacturing in the United States, the EU, and Japan.<sup>109</sup>

As the international order frayed and it lost its domestic legitimacy in the United States and many other advanced economies, the perception of China in the Washington political establishment began to change. This is best measured by the starkly evolving opinion on whether admitting China to the WTO was a “win” or a mistake for American grand strategy.<sup>110</sup> One by one, senior US officials who supported China's admission to the WTO openly regretted their stance, including Charlene Barshefsky, the US trade representative from 1997 to 2001, and Mickey Kantor, who served in the same role from 1993 to 1996 and as US secretary of commerce from 1996 to 1997. Kantor later said, “What we had was the

expectation that we'd work towards making solid, serious progress—and what has happened is the Chinese have taken that as some form of weakness.”<sup>111</sup> These tensions would explode in the populist surge of 2016, with Senator Bernie Sanders surging in the Democratic primary and Donald Trump being elected president while arguing that “the great American middle class is disappearing” due to poor trade deals with China.<sup>112</sup> 2016 was the explosion, not the start of a process.

Throughout the lost decades, US and EU investment in decarbonization lagged. Government policy, cultural shifts, and market conditions pushed the wrong priorities: sports utility vehicles (SUV) took off instead of accelerating the development and production of EVs.<sup>113</sup> When it comes to energy, policy prioritized a rising share of natural gas-based energy supplies as coal and nuclear power generation and production were drawn down, ahead of more investments in clean energy-based technology.<sup>114</sup> Industrial policy was minimal. The United States and the EU only slowly began dabbling in green industrial policy after the 2008 financial crisis. President Obama's Department of Energy did this on a small scale, making seed loans to Tesla and other green start-ups, and setting the first renewable energy targets. The success of the limited investments show what could have been achieved. Meanwhile, in Europe, subsidies known as “feed-in tariffs” fueled a small boom in German solar manufacturing, but a lack of subsidies of scale saw this fail to challenge China despite the initial technological lead. Total wind and solar additions actually fell in Europe following 2011, only recovering to that year's rate in 2019.<sup>115</sup>

For China, these were not lost decades. Beijing aggressively upped its industrial policy. When the 2008 financial crisis hit and demand for Chinese goods collapsed, Beijing turned

105 Deborah Gordon et al., “Evaluating Net Life-cycle Greenhouse Gas Emissions Intensities from Gas and Coal at Varying Methane Leakage Rates,” *Environmental Research Letters* 18, no. 8 (2023), <https://iopscience.iop.org/article/10.1088/1748-9326/ace3db>.

106 Stephen Stapczynski, “US Surges to Top of LNG Exporter Ranks on Breakneck Growth,” Bloomberg, January 2, 2023, <https://www.bloomberg.com/news/articles/2023-01-03/us-surges-to-top-of-lng-exporter-ranks-on-breakneck-growth>.

107 Brad Plumer, “Europe's Love Affair with Diesel Cars Has Been a Disaster,” Vox, October 16, 2015, <https://www.vox.com/2015/10/15/9541789/volkswagen-europe-diesel-pollution>.

108 Editorial Board, “Global Trade After the Failure of the Doha Round,” Opinion, *New York Times*, January 1, 2016, <https://www.nytimes.com/2016/01/01/opinion/global-trade-after-the-failure-of-the-doha-round.html>.

109 Stephanie Nebehay, “U.S. Seals Demise of WTO Appeals Bench: Trade Officials,” Reuters, December 9, 2019, <https://www.reuters.com/article/trade-wto/u-s-seals-demise-of-wto-appeals-bench-trade-officials-idUSL8N28J3L6>.

110 Robert D. Blackwill and Ashley J. Tellis, “Revising US Grand Strategy toward China,” Council Special Report No. 72, Council on Foreign Relations, March 2015, [https://carnegieendowment.org/files/Tellis\\_Blackwill.pdf](https://carnegieendowment.org/files/Tellis_Blackwill.pdf).

111 Phelim Kine, “China Joined Rules-based Trading System—Then Broke the Rules,” *Politico*, December 9, 2021, <https://www.politico.com/news/2021/12/09/china-wto-20-years-524050>.

112 Donald J. Trump, “Disappearing Middle Class Needs Better Deal on Trade,” Opinion, *USA Today*, March 14, 2016, <https://www.usatoday.com/story/opinion/2016/03/14/donald-trump-tpp-trade-american-manufacturing-jobs-workers-column/81728584/>.

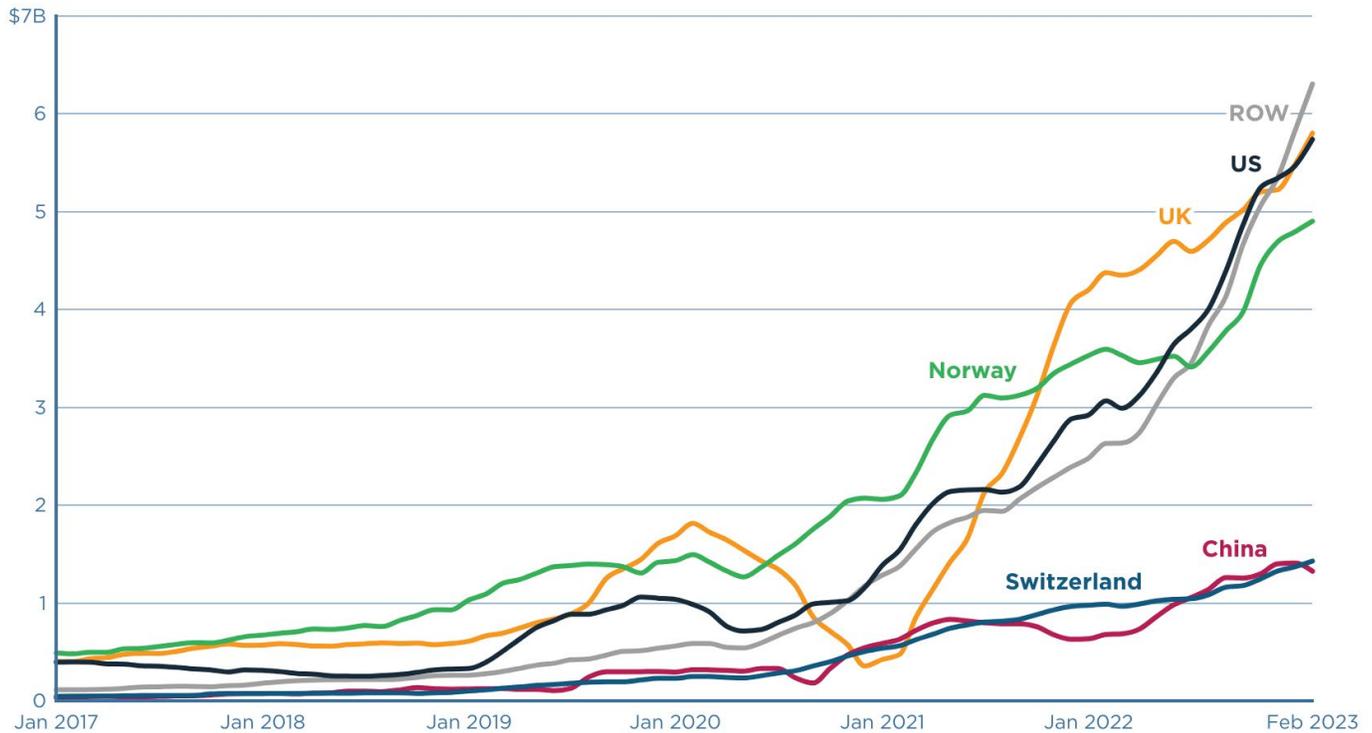
113 Laura Cozzi and Apostolos Petropoulos, “Global SUV Sales Set Another Record in 2021, Setting Back Efforts to Reduce Emissions,” IEA, December 21, 2021, <https://www.iea.org/commentaries/global-suv-sales-set-another-record-in-2021-setting-back-efforts-to-reduce-emissions>.

114 Justin Rowlett, “Why Electric Cars Will Take Over Sooner Than You Think,” BBC News, June 1, 2021, <https://www.bbc.com/news/business-57253947>; “How Europe Became So Dependent on Putin for Its Gas,” updated July 26, 2022, Bloomberg, <https://www.bloomberg.com/news/articles/2021-11-10/how-europe-has-become-so-dependent-on-putin-for-gas-quicktake#xj4y7vzkg>.

115 Tim Sahay and Kate Mackenzie, “Carbon Budget versus Fiscal Budget,” *Phenomenal World*, June 29, 2023, <https://www.phenomenalworld.org/analysis/carbon-budget-versus-fiscal-budget/>.

**Figure 5: The IRA Is Not Holding Back EU Automobiles**

Value of EU electric vehicle exports, 12-month trailing sums, billions of USD, 2017-23 (year to date)



ROW = Rest of world

Notes: The CN codes are 87038010 and 87038090 in 2017-23 and 87039010 in 2016. Trade values are converted to US dollars from euros using end-of-month USD/euro spot exchange rates from Federal Reserve Economic Data (DEXUSEU).

Source: Eurostat.

© Peterson Institute for International Economics. Source: Chad P. Bown, "Industrial Policy for Electric Vehicle Supply Chains and the US-EU Fight Over the Inflation Reduction Act," Working Paper 23-1, Peterson Institute for International Economics (PIIE), May 2023, <https://www.piie.com/sites/default/files/2023-05/wp23-1.pdf>.

inward, doubling down on carbon-heavy coal, cement, and heavy industry while also laying the groundwork for decarbonization.<sup>116</sup> It was an "all of the above" energy strategy: Chinese emissions and coal soared from 7.5 billion tons in 2008 to 11.47 billion tons in 2021, and from 18,715 terrawatt hours (TWh) of energy in 2008 to 24,315.47 TWh in 2021.<sup>117</sup> Between 2007 and 2020, Chinese domestic green investments increased from \$20.9 billion to \$161.2 billion in 2023 USD values.<sup>118</sup> Under then-President Hu Jintao, China chose to aggressively subsidize solar PV, battery plants, and EV

manufacturing in a policy that the World Bank later dubbed as a "national green development strategy."<sup>119</sup> Over the 2010s, the EU and the United States would tolerate creeping Chinese dominance in key green industries. Europe stomached the slow decline of German solar manufacturing at the hands of Chinese competitors. Beijing searched multiple continents for metals and built an enormous metal processing complex, ensuring that resource-rich countries would have to seek Chinese processing and technology to turn their raw metals into the battery packs of the future.

<sup>116</sup> Jeremy Wallace, "The Carbon Triangle," *Phenomenal World*, February 11, 2023, <https://www.phenomenalworld.org/analysis/the-carbon-triangle/>.

<sup>117</sup> Hannah Ritchie and Max Roser, "China: Energy Country Profile," Our World in Data, 2022, <https://ourworldindata.org/energy/country/china>; and Hannah Ritchie and Max Roser, "China: CO<sub>2</sub> Country Profile," Our World in Data, 2022, <https://ourworldindata.org/co2/country/china>.

<sup>118</sup> Ruxu Sheng et al., "Green Investment Changes in China: A Shift-Share Analysis," *International Journal of Environmental Research and Public Health* 18, no. 12 (2021): 6658, doi: 10.3390/ijerph18126658.

<sup>119</sup> *China 2030: Seizing the Opportunity of Green Development in China*, World Bank, 2011, <https://www.worldbank.org/content/dam/Worldbank/document/SR3--229-292.pdf>.

## Strategy

The shock of the pandemic and lockdowns ended this period. March 2020 laid bare the fragility of global supply chains and their concentration in China, stunning the United States and the EU leadership into reckoning with China's dominance in critical supply lines and key energy technologies.<sup>120</sup> No longer did cost savings seem like the sole objective. Afterward, the loss of the European lead in the global green value chain came clearly into view. Across the EU and the United States, right- and left-wing populists stoked popular outrage at the complacency of elites. Data cited in the discourse included figures of up to 3.7 million American jobs lost between 2001 and 2018 due to the growing US trade deficit with China.<sup>121</sup> Meanwhile, experts lamented that the US government let China dominate these emerging green industries by licensing technical knowledge from American and European firms. Security officials were also alarmed. In 2022, FBI Director Christopher Wray alleged widespread industrial espionage by China to steal technical knowledge in “key technologies” including in clean energy production.<sup>122</sup> Motivated by geopolitical insecurity, US and EU elites would now turn to reshoring and industrial policy.

Europe's lost decades came to an end in May 2020 when Angela Merkel, under intense pressure from France and the global downturn, was forced to bury a key part of her own legacy: no new collective debt. To prevent full-on economic collapse, the European Union enacted the €750 billion NextGenerationEU borrowing plan, powered by collective debt issuance amid multiple new stimulus policies.<sup>123</sup> This marked a radical break with Merkelian policies: austerity was dropped in favor of fiscal expansion. By the time the EU's flagship decarbonization project, the Green Deal, began to operate in mid-2020, it was in a Europe that was no longer as brittle as it had been.<sup>124</sup> But like in the United States, it would take geopolitics to radically shift policy. While a new crisis was triggered in February 2022

by Russia's aggression against Ukraine, much of the pandemic-era fiscal tool kit was restructured toward decarbonization to escape reliance on Russian gas more directly.<sup>125</sup> The push for a green world order created a new chapter of great power competition. Its contours are now clear: competitive industrial policy, global mining webs, and the financial challenge of sustaining decades of high investment in wealthy and less-developed states.

## CLASH OF THE GLOBAL INDUSTRIAL POLICIES

The green world order is defined by the rise of competitive green industrial policy and surging private investment. When it comes to this, China is the clear leader. The manufacturing juggernaut is now seeking to preserve its dominance in clean energy industries. Since the last crash, China has cemented its leadership across various clean industries through state investment, protectionist policies, and integration of its vast internal market.<sup>126</sup> Since Xi's 2020 pledge for China to achieve carbon neutrality before 2060, Chinese investments in clean manufacturing have accelerated dramatically, reaching an astounding 91 percent of global clean manufacturing investments in 2022.<sup>127</sup>

More recently, the United States came back in full force. The Biden administration's triple-whammy of legislation in its first two years—the Infrastructure Investment and Jobs Act (IIJA), CHIPS and Science Act, and finally the IRA—commits considerable sums to strengthen America's competitive standing. The CHIPS and Science Act commits over \$200 billion in research and development for new tech clusters around chipmakers, and the IRA, through an estimated \$369 billion in tax credits—a conservative estimate at that—is expected to dramatically shift the unit economics of US clean energy technologies with knock-on effects for countries importing these cheaper green goods.<sup>128</sup> Despite

120 IEA, “Executive Summary,” in *Energy Technology Perspectives 2023* (Paris 2023), <https://www.iea.org/reports/energy-technology-perspectives-2023/executive-summary>.

121 Robert E. Scott and Zane Mokhiber, “Growing China Trade Deficit Cost 3.7 Million American Jobs between 2001 and 2018,” Economic Policy Institute, January 30, 2020, <https://www.epi.org/publication/growing-china-trade-deficits-costs-us-jobs/>.

122 Christopher Wray, “Countering Threats Posed by the Chinese Government Inside the U.S.,” Federal Bureau of Investigation (website), January 31, 2022, <https://www.fbi.gov/news/speeches/countering-threats-posed-by-the-chinese-government-inside-the-us-wray-013122>.

123 “NextGenerationEU,” European Union (website), accessed May 5, 2023, [https://next-generation-eu.europa.eu/index\\_en](https://next-generation-eu.europa.eu/index_en).

124 Thomas Reilly, “The EU's Green Deal Industrial Plan for the Net-Zero Age,” Covington & Burling LLP, February 3, 2023, <https://www.insideenergyandenvironment.com/2023/02/the-eus-green-deal-industrial-plan-for-the-net-zero-age/>.

125 Mona Ali, “Militarized Adaption,” *Phenomenal World*, January 25, 2023, <https://www.phenomenalworld.org/analysis/militarized-adaptation/>.

126 IEA, “Executive Summary”; Logan Goldie-Scot, “Clean Energy Trade Policy Case Study: China,” BloombergNEF, February 2021, [https://csis-website-prod.s3.amazonaws.com/s3fs-public/China%20Case%20Study%20-%20BloombergNEF.pdf?9PeyTCJziM\\_7krcFlvH7KhZSZYmr5tAr](https://csis-website-prod.s3.amazonaws.com/s3fs-public/China%20Case%20Study%20-%20BloombergNEF.pdf?9PeyTCJziM_7krcFlvH7KhZSZYmr5tAr).

127 Adam Tooze, “Did Xi Just Save the World?” *Foreign Policy*, September 25, 2020, <https://foreignpolicy.com/2020/09/25/xi-china-climate-change-saved-the-world/>; and “Global Low-Carbon Energy Technology Investment Surges Past \$1 Trillion for the First Time,” BloombergNEF, January 26, 2023, <https://about.bnef.com/blog/global-low-carbon-energy-technology-investment-surges-past-1-trillion-for-the-first-time/>.

128 Lachlan Carrey, “Green Industrial Strategy,” *Phenomenal World*, May 20, 2023, <https://www.phenomenalworld.org/analysis/green-industrial-strategy/>; “An Act to Provide for Reconciliation Pursuant to Title II of S. Con. Res. 14.,” Pub. L. No. 117–169, 136 STAT. 1818 (2022), <https://www.congress.gov/117/plaws/publ169/PLAW-117publ169.pdf>; and Paul Ciampoli, “Ultimate Public Climate Spending Spurred by Inflation Reduction Act Could Be Over \$800 Billion: Credit Suisse,” American Public Power Association, October 19, 2022, <https://www.publicpower.org/periodical/article/ultimate-public-climate-spending-spurred-inflation-reduction-act-could-be-over-800-billion-credit>.

this ramp-up, China is still far ahead. In 2024, it is projected to install eight times more onshore wind energy capacity and five times the solar PV, compared to the United States—more than double that of the European Union and the United States combined.<sup>129</sup>

Even so, Europe was shocked by the scale of the new US subsidies and their made-in-America requirements. Not only were they in clear violation of WTO rules, but Congress had passed them without regard for European allies suffering economically from Russia's war in Ukraine.<sup>130</sup> A telling low point in the relationship came as Senator Joe Manchin, who passed the deciding vote in favor of the IRA, responded to complaints about the legislation from German Chancellor Olaf Scholz by taking out his phone and searching “tariff costs on autos in Germany,” which showed EU tariffs towering over American ones.<sup>131</sup> European pushback has secured more than nothing. Over the past year there has been some efforts by the US administration, sometimes against the wishes of Congress, to compromise and to make European EV manufacturing somewhat covered by IRA subsidies under vehicle leasing—provided the products comply with rules of origin through their supply chains.<sup>132</sup>

The scale of the subsidies upends the US-EU trading status quo. The IRA's upfront investment tax credits could lower up to 70 percent of investment costs for renewable energy technologies and halve the generation costs of onshore wind and solar energy, factors that encourage both local and foreign investment into US-based decarbonization. Additionally, the IRA provides “domestic content” tax

credits for US-based companies to produce iron and steel within the United States itself for renewable energy projects, including wind energy and adjacent technologies such as batteries.<sup>133</sup> Consequently, in the European battery industry alone, up to two-thirds of the fifty planned lithium-ion battery factories in Europe are potentially at risk of being permanently uncompetitive.<sup>134</sup> The US government also provides \$7,500 for any American wishing to purchase a new EV, including manufacturing incentives and domestic content requirements. As a result, firms such as Enel in solar, Hyundai in EVs, and Panasonic in batteries are shifting capital expenditure plans toward the United States.<sup>135</sup> This is why an embittered Macron remarked on the IRA to Biden: “Perhaps this law will solve your problems but it will make mine worse.”<sup>136</sup>

The EU has responded with its own version of such subsidies and a timid version of local content objectives, rather than rules. Meanwhile, the United States has tried to compel Europeans to accept the IRA as a potential benefit and find some work-arounds to avoid the worst effects on EU car exporters, which have continued to gain ground in terms of US market share. Despite this, a US concession was given to allow European manufacturers to qualify for American taxpayer subsidies for batteries made in the EU as long as the vehicle is leased and not purchased.<sup>137</sup> Meanwhile, progress in discussions to lessen some of the more concerning impacts of the IRA on the EU was made during the bilateral meeting of Commission President Ursula von der Leyen and President Biden in March 2023.<sup>138</sup> The Biden administration's approach has been to push, not invite, the EU to align. This is the geopolitical

129 *Renewable Energy Market Update: Outlook for 2023 and 2024*, IEA, June 2023, 20, [https://iea.blob.core.windows.net/assets/63c14514-6833-4cd8-ac53-f9918c2e4cd9/RenewableEnergyMarketUpdate\\_June2023.pdf](https://iea.blob.core.windows.net/assets/63c14514-6833-4cd8-ac53-f9918c2e4cd9/RenewableEnergyMarketUpdate_June2023.pdf).

130 Christian Scheinert, “Briefing Requested by the [European Parliament] ECON Committee: EU's Response to the US Inflation Reduction Act (IRA),” Directorate-General for Internal Policies: Policy Department for Economic, Scientific and Quality of Life Policies, June 2023, 3, 7–8, 11, 13 [https://www.europarl.europa.eu/RegData/etudes/IDAN/2023/740087/IPOL\\_IDA\(2023\)740087\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2023/740087/IPOL_IDA(2023)740087_EN.pdf).

131 Alexander Ward and Suzanne Lynch, “‘You're Hurting My Country': Manchin Faces Europe's Wrath,” *Politico*, January 19, 2023, <https://www.politico.com/news/2023/01/19/joe-manchin-davos-inflation-reduction-act-europe-00078510>.

132 Bown, “Industrial Policy for Electric Vehicle Supply Chains,” 21-2.

133 “Part III—Administrative, Procedural, and Miscellaneous,” US Internal Revenue Service, May 12, 2023, <https://www.irs.gov/pub/irs-drop/n-23-38.pdf>.

134 *How Not to Lose It All: Two-thirds of Europe's Battery Gigafactories at Risk*, European Federation for Transport and Environment, March 2023, [https://www.transportenvironment.org/wp-content/uploads/2023/03/2023\\_03\\_Battery\\_risk\\_How\\_not\\_to\\_lose\\_it\\_all\\_report.pdf](https://www.transportenvironment.org/wp-content/uploads/2023/03/2023_03_Battery_risk_How_not_to_lose_it_all_report.pdf).

135 “US Inflation Reduction Act: Climate & Energy Features and Potential Implications,” BCG Executive Perspectives, Boston Consulting Group, August 2022, <https://media-publications.bcg.com/BCG-Executive-Perspectives-US-Inflation-Reduction-Act-16August2022.pdf>; James Kim et al., “The Inflation Reduction Act's EV Tax Credits: Supply Chain Challenges and Bridge Solutions Under US Trade Rules,” *National Law Review*, October 13, 2022, <https://www.natlawreview.com/article/inflation-reduction-act-s-ev-tax-credits-supply-chain-challenges-and-bridge>; Thomas Gray et al., “New IRA Tax Incentives for US Manufacturing in Renewable Energy Sector,” Troutman Pepper, October 25, 2022, <https://www.troutman.com/insights/new-ira-tax-incentives-for-us-manufacturing-in-renewable-energy-sector.html>; János Allenbach-Ammann, “Korean Trade Minister Calls for Cooperation with EU against US Subsidy Bill,” *Euractiv*, December 12, 2022, <https://www.euractiv.com/section/economy-jobs/news/korean-trade-minister-calls-for-cooperation-with-eu-against-us-subsidy-bill/>; Kate Magill, “What Enel Has Planned for Its US Solar Manufacturing,” *Manufacturing Dive*, December 7, 2022, <https://www.manufacturingdive.com/news/enel-interview-head-solar-manufacturing-north-america-factory-first/638150/>; Lulian Dnistran, “Hyundai to Invest \$8.5 Billion in EV Development, US Factory,” *InsideEVs*, January 27, 2023, <https://insideevs.com/news/633833/hyundai-investment-in-evs-and-american-factory/>; and Ryan Kennedy, “Panasonic Plans Second \$4 billion U.S. EV Battery Plant,” August 29, 2022, <https://pv-magazine-usa.com/2022/08/29/panasonic-plans-second-4-billion-u-s-ev-battery-plant/>.

136 Leila Abboud, “Emmanuel Macron Says U.S. Climate Law Risks ‘Fragmenting the West,’” *Financial Times*, December 1, 2022, <https://www.ft.com/content/a1a03af2-831a-433c-8984-b99c84018a13>.

137 Bown, “Industrial Policy for Electric Vehicle Supply Chains,” 21-2.

138 “Joint Statement by President Biden and President von der Leyen,” White House, March 10, 2023, <https://www.whitehouse.gov/briefing-room/statements-releases/2023/03/10/joint-statement-by-president-biden-and-president-von-der-leyen-2>.



A worker holds safety materials at Prospect Lithium Zimbabwe mine in Goromonzi, Zimbabwe, January 9, 2024. REUTERS/Philimon Bulawayo

context in which Europe is launching its own competitive industrial policy, and it remains unclear how supportive or hostile the United States will be economically as the 2024 election looms.

## THE CLASH OF THE GLOBAL MINING WEBS

Mining is defining the emerging green world order and re-shaping geopolitics. Across the world, a fight is underway for the supply of minerals and raw materials for renewable energy technologies and batteries—and the profits from them.

Mining is set to soar in the new green world order. By 2030, the clean energy sector will demand more than 60 percent of the world's cobalt and nickel, 40 percent of its copper, and 80 percent of its lithium, according to the

latest critical materials report from the IEA.<sup>139</sup> By 2040, in a high-growth scenario, mineral demand will increase by 400 percent compared to the present.<sup>140</sup> Electric vehicles alone will require millions of tons of lithium, graphite, nickel, and other materials. The average EV vehicle contains almost six times the amount of materials that a combustion engine vehicle would have.<sup>141</sup> Battery demand for EVs is currently driving 75 percent of lithium demand, and in 2021 enough lithium was mined to produce just 11.4 million new EVs—far fewer than will eventually be required.<sup>142</sup>

This new age risks being defined by shortages. Concerningly, lithium shortages have been projected for as early as 2025.<sup>143</sup> Avoiding them and all the dangers that could pose for the transition will require 330 new mines to be established over the next decade. This includes fifty-nine new lithium mines, where the world currently only has a couple of dozen.<sup>144</sup> Once again, Europe has drawn the short straw,

139 *The Role of Critical Minerals in Clean Energy Transitions*, IEA, May 2021, <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>.

140 *The Role of Critical Minerals in Clean Energy Transitions*.

141 "Minerals Used in Electric Cars Compared to Conventional Cars," IEA, October 26, 2022, <https://www.iea.org/data-and-statistics/charts/minerals-used-in-electric-cars-compared-to-conventional-cars>.

142 Myra P. Saefong, "Lithium Demand From EVs Is Strong. Shortages Will Keep Prices High," *Barron's*, Updated Sept 29, 2022, <https://www.barrons.com/articles/lithium-price-ev-demand-shortages-51664401463>.

143 Leonardo Paoli and Timur Gül, "Electric Cars Fend Off Supply Challenges to More than Double Global Sales," IEA, January 30, 2022, <https://www.iea.org/commentaries/electric-cars-fend-off-supply-challenges-to-more-than-double-global-sales>.

144 Harris, "No Country Can Solve."

with even less of these critical materials than oil and gas reserves.<sup>145</sup> Ominously for Europe, critical materials are more geographically concentrated than hydrocarbons. Australia, the world's largest exporter of lithium, provides around 50 percent of the global supply. Meanwhile, the Democratic Republic of the Congo (DRC) and China each export about 70 percent of the world's supply of cobalt and rare earth minerals, respectively.<sup>146</sup> In comparison, Saudi Arabia, Russia, and the United States account for between 10 percent and 15 percent of the world's crude oil supply despite being the largest crude oil producers.<sup>147</sup> Without trusted partnerships, the permanent Suez for Europe may shift from one set of states to another. This is the reason why Washington and Brussels have discussed a critical raw material club that would provide producers with enough assurances of demand to invest in mining capacity—and could offer the club a better chance at managing prices. But these economic arguments should not hide that such a club would also create a profound geopolitical fault line with potentially irreversible consequences, especially if China feels its own access to such materials is at risk.

The EU and United States trail China in securing resources and processing capacity. China already has the leading global mining networks, with dominance in the extraction of rare earth elements and a commanding lead in global markets for the supply of refined critical materials. In fact, by 2019, China had already processed up to 80 percent of the global supply of materials needed for lithium battery production.<sup>148</sup> A similar dynamic appears in cobalt refining, with China holding at least an 80 percent share of the global refining capacity in 2019, a “stranglehold” on the EV battery supply chain.<sup>149</sup>

These advantages will prove hard for the EU and the United States to challenge. Given insufficient US and EU critical mineral production, refining, and manufacturing capacity, an immediate break from China—in the form of trade restrictions, tariffs, or embargoes on Chinese materials—would delay crucial energy transitions and risk Chinese retaliations. As a result, both the EU and the United States must work to secure their own critical mineral mining networks to ensure they at least have the resources, either in raw or refined forms, to construct the technologies needed for the decarbonization transition. The key geopolitical question is whether the United States and EU join forces or go it alone.

And will they fully exploit their own mining potential, or seek to outsource these environmental matters, thereby permitting challenges to the rest of the world? Will they be capable of developing a single transatlantic-based global mining network and should they? Or will there be three separate global-scale mining networks? This is yet to be determined and has profound geopolitical consequences.

## THE MINING STATES STRIKE BACK

Some key mining states are rich continent-sized nations, like Australia and Canada, with special relationships to the United States and the capacity to entrench Anglophone influence over the new emerging world economy. Others are not: these poorer mining states will have agency in the new green world order. Echoing the postwar era, many are now flirting with developmentalism in the form of export bans or nationalizations. There is a fear of a new OPEC-like cartel of exporters and signs that such producers of critical materials are coordinating to leverage the geopolitical competition to grab more value in new supply chains. Furthermore, these extractive relationships may either consolidate autocracies or smack of neocolonialism.

To avoid neocolonial exploitation, European financing for extraction should be coupled with an offer to support further processing in the country or region if that is wanted by partner countries and local communities. This would allow more local value-added production in mining states rather than the current EU-enforced free trade agreements that are structured to add value inside the EU, and maximize raw material exports from mining states.

Exports bans are already here. Over the past year, Namibia and Zimbabwe have banned the exports of raw lithium, Chile has increased state control over lithium mining, and Mexico has launched a review of mining concessions in its emerging lithium sector.<sup>150</sup> This trend is best exemplified by Indonesian President Joko Widodo, who is known as Jokowi, holding nickel hostage. Indonesia is taking control of its abundant supply of nickel and copper—materials essential for the energy transition especially for batteries and renewable energy such as wind and solar, but also nuclear—and incentivizing investment in processing facilities. Indonesia is copying the developmentalist successes of

145 Charlie Cooper, Antonia Zimmermann, and Sarah Anne Aarup, “China Leaves EU Playing Catch-up in Race for Raw Materials,” *Politico*, March 10, 2023, <https://www.politico.eu/article/white-gold-rush-salt-lithium-batteries-raw-materials-chile-salar-atacama/>.

146 Bordoff and O'Sullivan, “The Age of Energy Insecurity.”

147 Bordoff and O'Sullivan, “The Age of Energy Insecurity.”

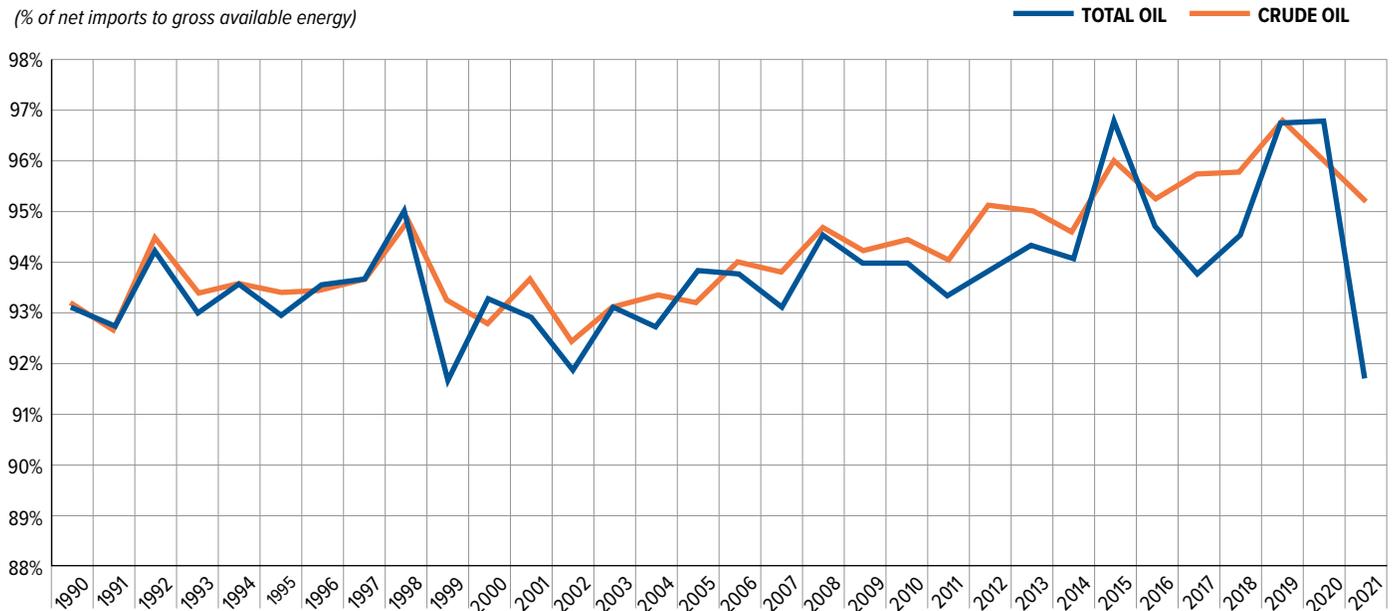
148 John Xie, “How China Dominates Global Battery Supply Chain,” *Voice of America*, September 1, 2020, <https://www.voanews.com/a/silicon-valley-technology-how-china-dominates-global-battery-supply-chain/6195257.html>.

149 Frik Els, “CHART: China's Stranglehold on Electric Car Battery Supply Chain,” *Mining.com*, Glacier Media Group, April 16, 2020, <https://www.mining.com/chart-chinas-stranglehold-on-electric-car-battery-supply-chain/>.

150 Leslie Hook, Harry Dempsey, and Ciara Nugent, “The New Commodity Superpowers,” *Financial Times*, August 8, 2023, <https://www.ft.com/content/0d2fba79-940f-4a28-8f4f-681e755200f>.

**Figure 6: Europe's Unhealthy Reliance on Oil Imports (in percentages)****Import dependency, crude oil and total oil, 1990-2021**

(% of net imports to gross available energy)



© European Union, 1995-2013. Source: Eurostat, "File: Oil and Petroleum Products," Statistics Explained website, last edited March 24, 2023, [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Oil\\_and\\_Petroleum\\_ProductsFig6.jpg](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Oil_and_Petroleum_ProductsFig6.jpg).

the East Asian Tigers as well as the 1970s nationalization drives of OPEC countries. To the chagrin of the European Commission, which challenged him at the WTO,<sup>151</sup> Jokowi banned exports of nickel, forced international companies to refine and process it domestically, and sought technology transfer to state-owned enterprises.<sup>152</sup>

Indonesia matters as it has the largest nickel reserves in the world, with a majority controlled by its state-owned mining company, MIND ID. Should its policies succeed,

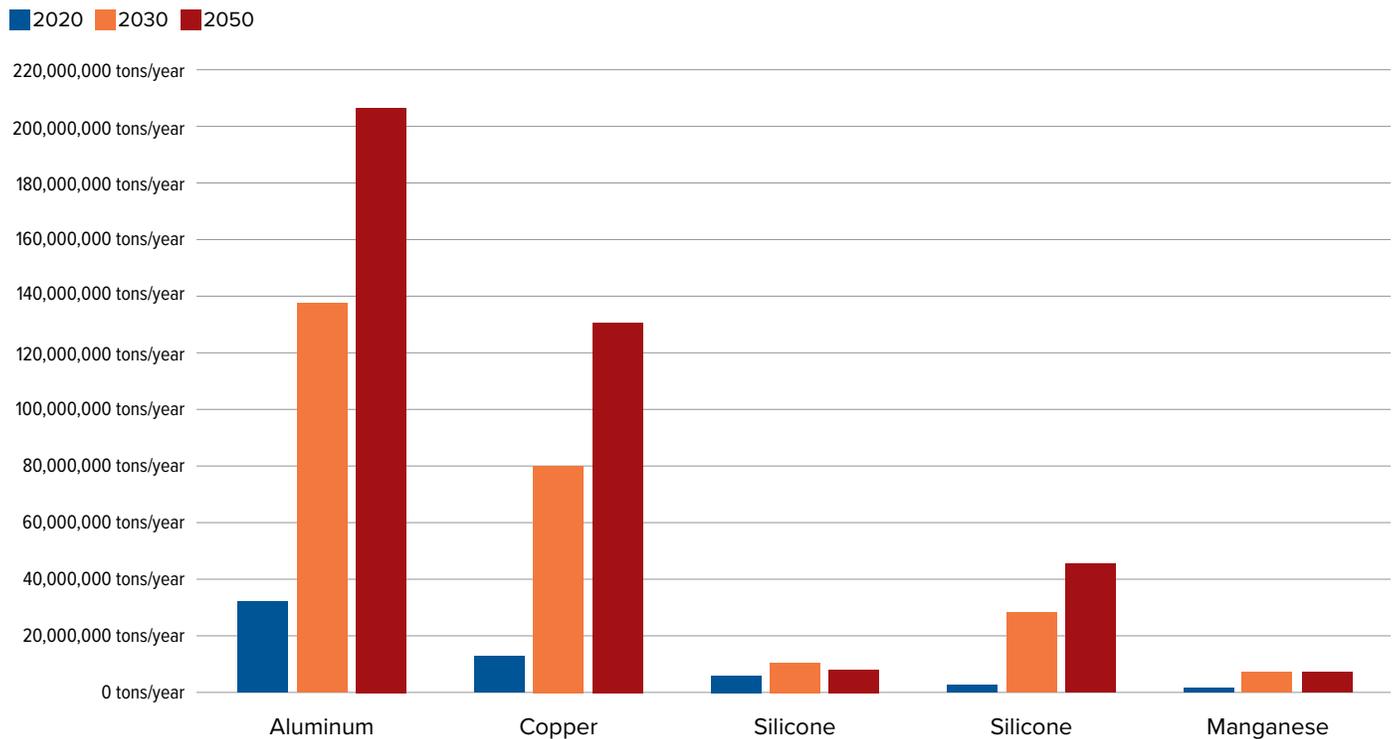
others will likely follow suit. Indonesia is now forcing the extractive great powers to process its resources in the country before exporting.<sup>153</sup> After Jokowi banned nickel exports to many Chinese companies, the advanced economies and their allies agreed to set up joint ventures in Indonesia including for the transfer of critical technology that is required to make battery-grade nickel.<sup>154</sup> Jokowi has added bauxite to his export controls. The next targets for such treatment are expected to be tin, with Indonesia ranking as the world's second-largest producer; aluminum, as

151 The WTO has ruled against Indonesia's actions and urged compliance. See Jacqueline Holman, "Indonesia's Nickel Ore Export Ban, Domestic Processing Requirements Found Violating WTO Rules," S&P Global, November 30, 2022, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/metals/113022-indonesias-nickel-ore-export-ban-domestic-processing-requirements-found-violating-wto-rules>.

152 Jewellord T. Nem Singh, "Geographies in Transition," *Phenomenal World*, June 29, 2022, <https://www.phenomenalworld.org/analysis/geographies-in-transition/>; Jewellord Nem Singh and Jesse Salah Ovidia, "The Theory and Practice of Building Developmental States in the Global South," *Third World Quarterly* 39, no. 6 (2018), <https://www.tandfonline.com/doi/full/10.1080/01436597.2018.1455143>; and Scott Foster, "Indonesia Bans Mineral Exports to Move Up Value Chain," *Asia Times*, February 22, 2022, <https://asiatimes.com/2022/02/indonesia-bans-mineral-exports-to-move-up-value-chain/>.

153 Cullen S. Hendrix, "Indonesia Wants to Sell Nickel to the US, but First It Should Scrap Its Export Bans," Peterson Institute of International Economics, April 26, 2023, <https://www.piie.com/blogs/realtime-economics/indonesia-wants-sell-nickel-us-first-it-should-scrap-its-export-bans>.

154 "Overview of Indonesia's EV Downstream Sector: A Focus on Nickel," Deloitte Indonesia Perspectives 3rd Edition, February 2022, <https://www2.deloitte.com/content/dam/Deloitte/id/Documents/about-deloitte/id-about-dip-edition-3-chapter-4-feb2022-en.pdf>; Yudith Ho and Eko Listiyorini, "Chinese Companies Are Flocking to Indonesia for Its Nickel," Bloomberg, December 15, 2022, <https://www.bloomberg.com/news/articles/2022-12-15/chinese-companies-are-flocking-to-indonesia-for-its-nickel>; "Volkswagen Plans JVs in Indonesia and China," *Mining Technology*, March 22, 2022, <https://www.mining-technology.com/news/volkswagen-jvs-nickel-cobalt-supply/>; Reuters Staff, "Indonesia State Miner Agrees to Buy 20% Stake in Vale Indonesia," Reuters, October 13, 2019, <https://www.reuters.com/article/us-vale-indonesia-divestiture/indonesia-state-miner-agrees-to-buy-20-stake-in-vale-indonesia-idUSKBN1WT05B>; "Ford Steps Up as Foreign Stakeholders Surge EV Industry in Indonesia," *Jakarta Post*, July 26, 2022, <https://www.thejakartapost.com/adv/2022/07/26/ford-steps-up-as-foreign-stakeholders-surge-ev-industry-in-indonesia.htm>; Danny Lee and Faris Mokhtar, "Tesla Must Make Cars Locally, Not Just Batteries, Jokowi Says," Bloomberg, August 18, 2022, <https://www.bloomberg.com/news/articles/2022-08-18/tesla-must-make-cars-locally-not-just-batteries-jokowi-says>; "China Battery Giant CATL Joins \$6 Billion Venture in Indonesia," Bloomberg, April 15, 2022, <https://www.bloomberg.com/news/articles/2022-04-15/china-battery-giant-catl-joins-6-billion-venture-in-indonesia>; and Madeleine Bruder, "LG Energy Signs \$9bn EV Supply Chain Deal in Indonesia," *Financial Times*, April 19, 2022, <https://www.ft.com/content/5a5b1cfb-bc18-44c4-8600-df2d7d6c8b14>.

**Figure 7: Europe's Unhealthy Reliance on Metal Imports (in quantity)**

© European Union, 2023. Source: European Commission, “Infographic-An EU Critical Raw Materials Act for the Future of EU Supply Chains,” accessed December 2023, <https://www.consilium.europa.eu/en/infographics/critical-raw-materials/>.

the world’s fifth-largest producer; and copper.<sup>155</sup> Although such plans have been shelved at least until May 2024, the threat of an export ban remains high.<sup>156</sup> All these metals are key to decarbonization.

Nationalizations are also on the horizon. In Chile, which ranks as the second-largest exporter of lithium after Australia, President Gabriel Boric announced plans to further nationalize the domestic lithium mining industry.<sup>157</sup> Implementing the plan would make Chile the second country to do so after Mexico.<sup>158</sup> Chile’s status as holding the

largest projected national lithium reserves on the planet means that this move will have important consequences for lithium supply chains and potentially be seen as a model by other lithium states. This has so far incentivized US and European EV battery manufacturers to begin seeking lithium from other sources in case the policy radicalizes further.<sup>159</sup>

The obvious conclusion is that Europe may not be bargaining from an advantageous position in materials trading, particularly if critical materials exporters form a cartel

155 Shotari Tani, “Indonesia’s Drive to Lift Resource Curse Shakes Global Producers,” *Nikkei Asia*, January 25, 2022, <https://asia.nikkei.com/Spotlight/Asia-Insight/Indonesia-s-drive-to-lift-resource-curse-shakes-global-producers>; Julian Kettle, “Tin—the Forgotten Foot Soldier of the Energy Transition,” *Wood Mackenzie*, April 20, 2021, <https://www.woodmac.com/news/opinion/tin--the-forgotten-foot-soldier-of-the-energy-transition/>; Rona Rita David, “Strategic Materials and Energy Transition: Aluminium,” *Energy Industry Review*, September 9, 2021, <https://energyindustryreview.com/metals-mining/strategic-materials-and-energy-transition-aluminium/>; and Fathin Ungku and Mai Nguyen, “Global Copper Buyers Must Look Elsewhere for Concentrate as Indonesia Cuts Exports: CRU,” *Reuters*, June 8, 2021, <https://www.reuters.com/article/us-indonesia-mining-copper/global-copper-buyers-must-look-elsewhere-for-concentrate-as-indonesia-cuts-exports-cru-idUSKCN2DK1KY>.

156 “Indonesia to Allow Exports of Five Raw Minerals despite June Ban,” *Reuters*, May 24, 2023, <https://www.reuters.com/article/indonesia-metals/indonesia-to-allow-exports-of-five-raw-minerals-despite-june-ban-idUSL4N37L171>.

157 Sarah Anne Aarup and Barbara Moens, “EU Ties Trade Bow with Chile—to Carmakers’ Delight,” *Politico*, December 9, 2022, <https://www.politico.eu/article/eu-trade-deal-chile-carmaker-delight-lithium/>; and Alexander Villegas and Ernest Scheyder, “Chile Plans to Nationalize Its Vast Lithium Industry,” *Reuters*, April 21, 2023, <https://www.reuters.com/markets/commodities/chiles-boric-announces-plan-nationalize-lithium-industry-2023-04-21/>.

158 “Mexico’s Lopez Obrador Orders Ministry to Step Up Lithium Nationalization,” *Reuters*, February 18, 2023, <https://www.reuters.com/world/americas/mexicos-lopez-obrador-orders-ministry-step-up-lithium-nationalization-2023-02-19/>.

159 Associated Press, “Chile’s Plan for State Control in Lithium Dismays Business,” *CNBC*, April 22, 2023, <https://www.cnbc.com/2023/04/22/chiles-plan-for-state-control-in-lithium-dismays-business.html>; and Joe McDonald, “Threatened by Shortages, Electric Car Makers Race for Supplies of Lithium for Batteries,” *Associated Press*, June 27, 2023, <https://apnews.com/article/china-ev-lithium-united-states-battery-87eb9382a0181bb7ee64e835efe7b170>.

### EU Strategic Partnerships on Raw Materials



Source: European Commission, Directorate General International Partnerships.

Source: European Commission data in *A Partnership of Equals? How to Strengthen the EU's Critical Raw Materials Strategic Partnerships*, Fern, EU Raw Materials Coalition, PowerShift et al., November 2023, <https://power-shift.de/wp-content/uploads/2023/11/RMC-A-Partnership-of-equals.pdf>.

similar to OPEC and have the power to collectively influence global prices and amass bargaining power in the process. Already, Mexican President Andrés Manuel López Obrador and Bolivian President Luis Arce have proposed developing a Latin America-based lithium exporters' club directly modeled on OPEC.<sup>160</sup> The concern is this would force Europe into the same difficult position it was in during the 1970s, when multiple oil embargos were imposed on it, even as Europe reduces its dependence on hydrocarbon-based energy. In short, it looks like a new minerals version of the same *permanent Suez* predicament. There is nothing inevitable, however, about an OPEC-style critical materials cartel. The wide distribution of many of these

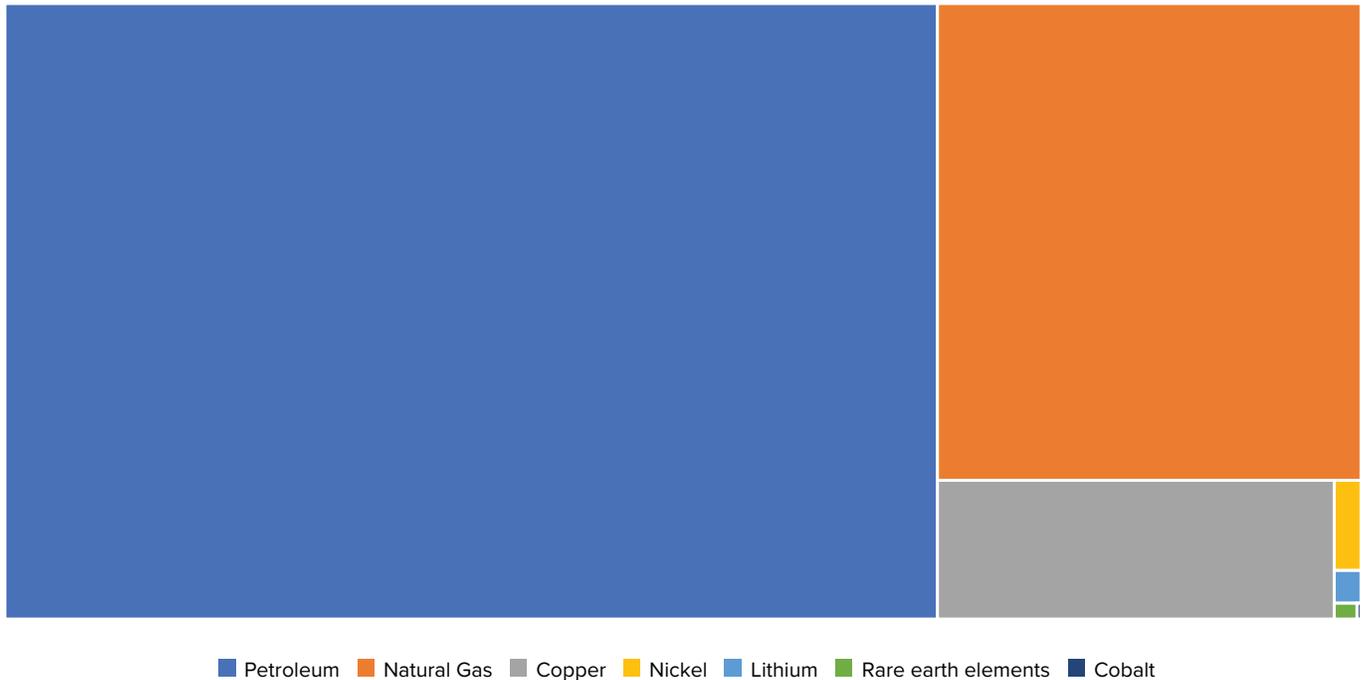
critical materials and divergent objectives will make cartelization hard.

China's towering strength as a mining state poses enormous challenges for Europe. It is the world's leading refining state for such critical materials as cobalt, copper, and lithium and has major deposits of copper.<sup>161</sup> There are risks China could leverage its control over the supply of rare earth elements or other critical materials against perceived adversaries. Already in 2010, during its dispute with Japan over the Senkaku islands, China retaliated by banning its rare earth exports.<sup>162</sup> Japan wisely developed a rare-earth procurement strategy and invested in alternate suppliers and substitute

160 Daniel Ramos, "Bolivia President Calls for Joint Latin America Lithium Policy," Reuters, March 23, 2023, <https://www.reuters.com/world/americas/bolivia-president-calls-joint-latin-america-lithium-policy-2023-03-24/>.

161 Hook, Dempsey, and Nugent, "The New Commodity Superpowers."

162 Rodrigo Castillo and Caitlin Purdy, "China's Role in Supplying Critical Minerals for the Global Energy Transition," Leveraging Transparency to Reduce Corruption, a Brookings Institution initiative, July 2022, [https://www.brookings.edu/wp-content/uploads/2022/08/LTRC\\_ChinaSupplyChain.pdf](https://www.brookings.edu/wp-content/uploads/2022/08/LTRC_ChinaSupplyChain.pdf).

**Figure 8: The Critical Mineral Trade Remains Outmatched by the Fossil Fuels Trade**

Source: UN Comtrade and International Renewable Energy Agency data in Leslie Hook, Harry Dempsey, and Ciara Nugent, “The New Commodity Superpowers,” *Financial Times*, August 8, 2023, <https://www.ft.com/content/0d2fba79-940f-4a28-8f4f-68f1e755200f>.

metals to slash Chinese imports from 90 percent to under 50 percent.<sup>163</sup> Although eroding, China’s dominance over the global supply of rare earth elements consistently draws particular concern from the United States and Europe. China’s processing of rare earth elements also creates substantial environmental damage. Beijing could retaliate by imposing a ban on rare earth element exports against the transatlantic community in a manner similar to Russia’s constant threats to end its oil and gas exports to Europe following Russia’s second invasion of Ukraine. There are reports that Chinese officials are already considering export bans of raw and refined rare earth elements to the United States and its allies in retaliation for US-led attempts to restrict semiconductor exports to China.<sup>164</sup> Beijing’s weighing of a rare earth minerals embargo shows awareness of its leading position in its global supply and leverage vis-à-vis adversaries.

Weak states may prove as challenging as strong ones. Europe’s desire to secure stability of supply runs the risk

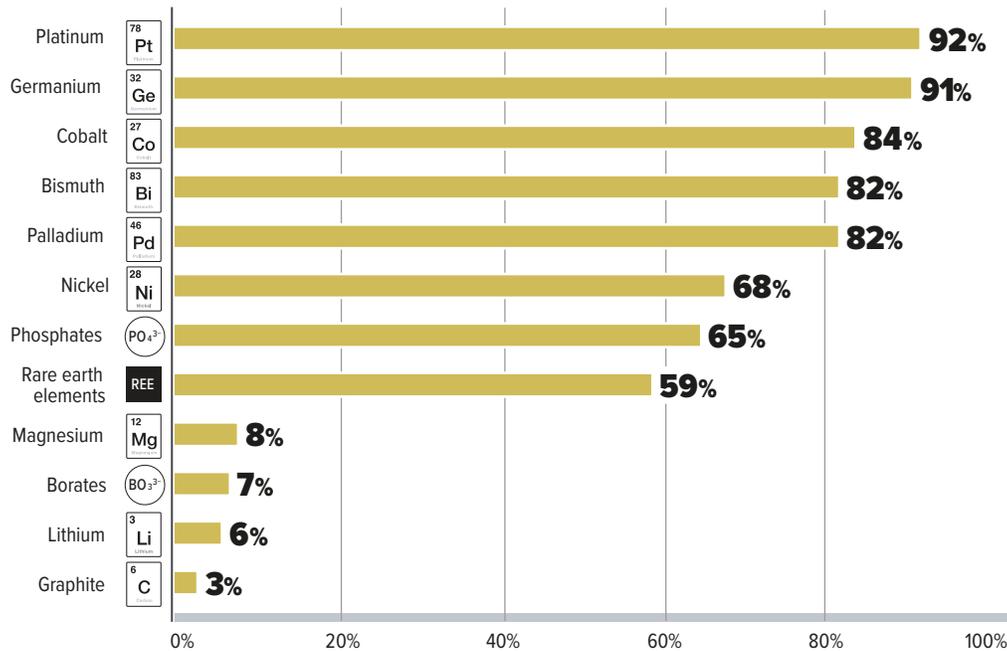
of neocolonialism in smaller countries or unstable states. There is some precedent for such fears including relations between France and many of its former African colonies during the Cold War. The development of “Françafrique,” the network of influence that France has maintained in Africa since the end of its colonial empire, was partly driven by France’s desire to ensure a continued supply of uranium to power its nuclear power plants.<sup>165</sup> Niger, which provides a substantial portion of uranium to France and recently experienced a coup that opens the door to possible Russian influence, is a case in point. Intense anger against France was voiced, building on allegations that workers’ rights—particularly in relation to guarantees for healthy working conditions—are routinely ignored by French companies in their pursuit for uranium. The junta has pursued a fairly pro-Kremlin foreign policy since assuming power, opening fears in France about access to uranium supplies from the country as France removes its existing troop presence in the country.<sup>166</sup>

163 Mary Hui, “Japan’s Global Rare Earths Quest Holds Lessons for the US and Europe,” *Quartz*, April 23, 2021, <https://qz.com/1998773/japans-rare-earths-strategy-has-lessons-for-us-europe>.

164 Shunsuke Tabeta, “China Weighs Export Ban for Rare-earth Magnet Tech,” *Nikkei Asia*, April 6, 2023, <https://asia.nikkei.com/Spotlight/Supply-Chain/China-weighs-export-ban-for-rare-earth-magnet-tech>.

165 Silja Fröhlich, “Françafrique Lives On,” *Deutsche Welle*, August 3, 2020, <https://www.dw.com/en/africa-and-france-an-unfulfilled-dream-of-independence/a-54418511>.

166 Mdou Moctar, “Can Colonialism Be Overcome?,” *New York Times*, December 6, 2021, <https://www.nytimes.com/2021/12/06/special-series/france-colonialism-niger-mining.html>; “France is Pulling Its Ambassador—and 1,500 Troops—Out of Niger,” National Public Radio, September 25, 2023, <https://www.npr.org/2023/09/25/1201620947/france-is-pulling-its-ambassador-and-1-500-troops-out-of-niger>.

**Figure 9: Share of global exports subject to an export restriction, 2020**

**Sources:** (Kowalski *et al.*, 2023; OECD Inventory of Export Restrictions on Industrial Raw Materials, 2022).

**Notes:** For ease of reading, the label “Germanium” has been used to denote the following group of materials: germanium, niobium, vanadium, gallium, indium and hafnium.

© IRENA. Source: IRENA, *Geopolitics of the Energy Transition: Critical Materials* (Abu Dhabi: International Renewable Energy Agency, 2023), 57, <https://www.irena.org/Publications/2023/Jul/Geopolitics-of-the-Energy-Transition-Critical-Materials>.

Future European attempts to secure critical materials should take care to avoid replicating exploitative neocolonialist practices in a greater “Eurafrique.” The dirty geopolitics of mining is already visible in central Africa, particularly in the case of French uranium mining in Niger. As of 2022, 27 percent of France’s natural uranium supply came from Kazakhstan, with another 20 percent and 19 percent coming from Niger and Uzbekistan, respectively.<sup>167</sup> An unstable critical materials Eurafrique could already be emerging in the case of the DRC. More alarmingly, the UK-based mining company RandGold worked with the China-based CMOG Group to oppose a policy that would have increased the DRC government’s mining royalties.<sup>168</sup> A Eurafrique that takes no heed of human rights can make unexpected allies.

European policymakers face the challenge of developing long-term plans without clear global mineral maps or a sense of which technologies will predominate. This makes it exceptionally hard to design long-term deals with critical materials suppliers. Yet there are some grounds for optimism. Sodium batteries require significantly less critical materials than lithium-based batteries,<sup>169</sup> and Ford and VW are seeking them through joint ventures with Chinese firms. Recent breakthroughs in this technology could dramatically reduce Europe’s mining needs if brought quickly to market. Already, the Sweden-based company Northvolt has announced it has developed a means of deploying sodium-ion batteries at a wide scale, especially in the Middle East, Africa, and South Asia.<sup>170</sup> And significant discoveries of rare earths in Finland and Sweden and phosphorus in

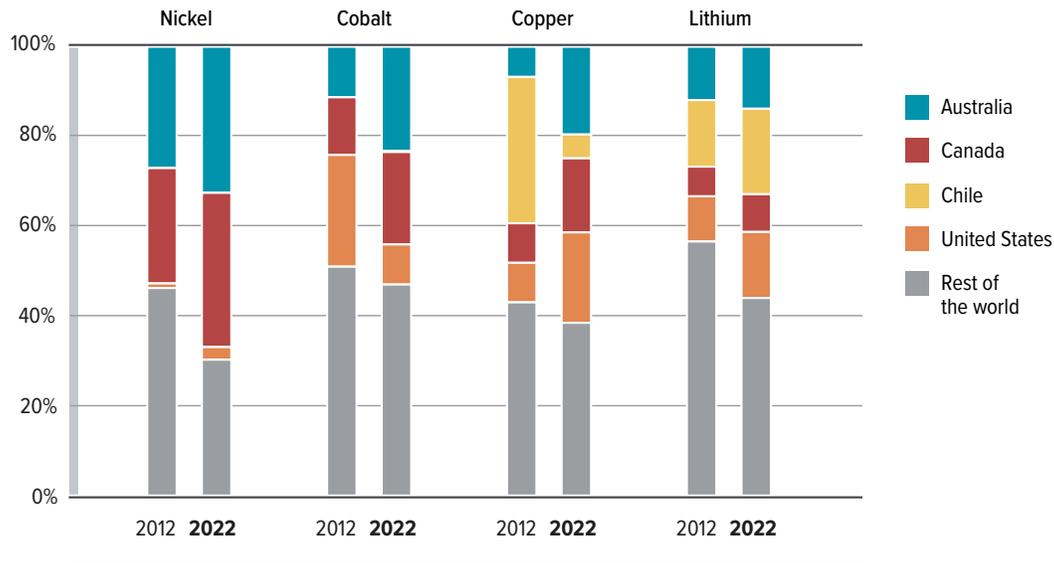
<sup>167</sup> Assma Maad, “How Dependent Is France on Niger’s Uranium?,” *Le Monde*, last updated August 4, 2023, [https://www.lemonde.fr/en/les-decodeurs/article/2023/08/04/how-dependent-is-france-on-niger-s-uranium\\_6080772\\_8.html](https://www.lemonde.fr/en/les-decodeurs/article/2023/08/04/how-dependent-is-france-on-niger-s-uranium_6080772_8.html).

<sup>168</sup> “Congo’s Kabila Yet to Sign New Mining Code as Deadline Nears,” Reuters, February 20, 2018, <https://www.reuters.com/article/congo-mining-idCNL8N1QA4ZM>.

<sup>169</sup> Keith Bradsher, “China Could Dominate Sodium Batteries, the Next Big Advance in Power,” *New York Times*, April 12, 2023, <https://www.nytimes.com/2023/04/12/business/china-sodium-batteries.html>.

<sup>170</sup> Richard Milne, “Northvolt in New Sodium-ion Battery Breakthrough,” *Financial Times*, November 21, 2023, <https://www.ft.com/content/826fb9bb-b27f-4c68-ad4b-a54ad74713c9>.

**Figure 10: Share of global exploration budget for select materials by country, 2012 and 2022**



Key new players in 2022	Nickel	Cobalt	Copper	Lithium
	Gabon	Bosnia and Herzegovina	Afghanistan	Côte d'Ivoire
	Peru	Chile	Cuba	India
	Poland	Greenland*	Cyprus	Morocco
	Solomon Islands	Spain	Eritrea	Sweden
	Tanzania	Tanzania	Tanzania	United Kingdom

\* Kingdom of Denmark

Based on: (S&P, 2023).

28  
**Ni**  
Nickel

27  
**Co**  
Cobalt

29  
**Cu**  
Copper

3  
**Li**  
Lithium

© IRENA. Source: IRENA, *Geopolitics of the Energy Transition: Critical Materials*, 43-44.

Norway may mean that Europe has more critical raw materials than earlier thought.<sup>171</sup>

Moreover, diplomacy is a means of minimizing the prospect of cartelization.<sup>172</sup> The expected sums to be raised from mining critical materials are far smaller than fossil fuels, which means that major mining operations are unlikely to make these nations metals-based versions of petrostates with the power to support their societies with welfare and revenue from dividends.<sup>173</sup> Furthermore, the high capital requirements for mining advantages rich allies and partners of the EU such as Australia and Canada in this race. Already half of the exploration budgets for nickel, cobalt, copper,

and lithium are spent by Australia, Canada, and the United States. For the European Union, however, this grouping still carries deep geopolitical concerns of its own. These powers—at least minerally—do not need Europe for their new economies. The United States is moving to cement anglophone power with the Australia-United States Climate, Critical Minerals and Clean Energy Transformation Compact, which if approved by Congress will designate Australia as a “domestic source” for US subsidies under Biden’s subsidy regime, with the objective of switching its critical materials exports from China to the United States.<sup>174</sup> The United States is starting to build a mineral AUKUS-type pact with Australia against China that is more important than its 2021 nuclear

171 Frédéric Simon, “Great News: EU Hails Discovery of Massive Phosphate Rock Deposit in Norway,” *Euractiv*, updated July 14, 2023, <https://www.euractiv.com/section/energy-environment/news/great-news-eu-hails-discovery-of-massive-phosphate-rock-deposit-in-norway/>; Aleksí Teivainen, “Significant Deposit of Rare Earth Metals Discovered in Finnish Lapland,” *Finland Times*, February 17, 2023, <https://www.helsinki-times.fi/finland/finland-news/domestic/22982-significant-deposit-of-rare-earth-metals-discovered-in-finnish-lapland.html>; and Phelan Chatterjee, “Huge Rare Earth Metals Discovery in Arctic Sweden,” *BBC News*, January 12, 2023, <https://www.bbc.com/news/world-europe-64253708>.

172 Hook, Dempsey, and Nugent, “The New Commodity Superpowers.”

173 Hook, Dempsey, and Nugent, “The New Commodity Superpowers.”

174 Daniel Hurst, “How Big a Deal Is US and Australian Cooperation on Climate and Energy?,” *Guardian*, May 22, 2023, <https://www.theguardian.com/australia-news/2023/may/23/how-big-a-deal-is-us-and-australian-co-operation-on-climate-and-energy>.



World leaders and finance bosses attend the closing session of the New Global Financial Pact Summit, Friday, June 23, 2023 in Paris, France. The aim of the two-day climate and finance summit was to set up concrete measures to help poor and developing countries whose predicaments have been worsened by the devastating effects of the COVID-19 pandemic and the war in Ukraine better tackle poverty and climate change. Lewis Joly/Pool via REUTERS

AUKUS pact with Australia and the United Kingdom, which plans to endow Canberra with nuclear submarines to face China over the long term. Although there is great anticipation in what circular economies of recycling and energy saving can achieve with critical resources, but the reality is that the geopolitics of minerals are and will remain central to this century's great power rivalry. Again, this risks a new minerals version of Europe's *permanent Suez*.

## FUNDING A GLOBAL TRANSITION

The advanced economies cannot decarbonize alone. Even if they complete the process itself, advanced economies will need less-developed states to decarbonize to ensure overall global climate security. This means decarbonization funding is not Euro-American charity but a Euro-American appeal. Decarbonization is fundamentally a matter of long-term investment. Less-developed states—unlike China, the United States, and Europe—lack the fiscal tool kit, regulatory influence, supply chain linkages, and/or manufacturing capacity to engage in a full-on green industrial policy

revolution. This is where less-developed states will need advanced economies to supply it with the markets, technology, and financing for the transition.

As climate change worsens, geopolitics will play out around this funding gap. Currently, global funding for the transition is \$3.5 trillion short of the up to \$9.2 trillion in annual spending needed through 2050, according to McKinsey & Company.<sup>175</sup> Meanwhile, the World Bank argues that on average, lower- and middle-income states will need to quadruple their existing total investments in the clean energy sector from the 2016-2022 average of \$240 billion to \$1 trillion by 2030.<sup>176</sup> Above all, less-developed states need financing for the transition and their socio-economic development.

The United Nations Conference on Trade and Development (UNCTAD) estimated in June 2023 that external debt stocks owed by low- and middle-income (LMIC) countries have ballooned to \$11.4 trillion dollars.<sup>177</sup> LMIC debt held by foreign residents has more than doubled in the last decade. Three-quarters of that \$11.4 trillion is issued by just eleven countries

175 McKinsey Global Institute, *The Net-zero Transition: What It Would Cost, What It Could Bring*, McKinsey & Company, January 2022, 10, <https://www.mckinsey.com/~/media/mckinsey/business%20functions/sustainability/our%20insights/the%20net%20zero%20transition%20what%20it%20would%20cost%20what%20it%20could%20bring/the-net-zero-transition-what-it-would-cost-and-what-it-could-bring-final.pdf>.

176 *Scaling Up to Phase Down*, World Bank, April 2023, <https://www.worldbank.org/en/topic/energy/publication/scaling-up-to-phase-down>.

177 "Escalating Debt Challenges Are Inhibiting Achievement of the SDGs," UNCTAD, June 20, 2023, <https://sdgpulse.unctad.org/debt-sustainability/>.

including China. Because they rely on short-term loans denominated in foreign currency, which are largely issued by private creditors, indebted countries have been subject to high debt servicing costs as Western central banks have raised interest rates to combat inflation.<sup>178</sup> Even when the inflation fight is won, interest rates are projected to remain significantly higher over the next decade—which will be decisive for climate prospects—than during the last decade.<sup>179</sup> Most governments are devoting their scarce hard-currency reserves to pay back their external loans—not to make climate or health investments. Worse still, now that the pandemic has receded, the IMF and higher-income states are advocating in favor of austerity measures, undercutting many modernization, health, and education-related investments.<sup>180</sup>

However, development financing is increasingly a zone of great power competition, primarily between the United States and China. China has an emerging lead in financing sustainable development ahead of the United States and Europe, and outside of the norms promoted by advanced economies for climate financing. Beijing has provided an estimated \$962 billion cumulatively since 2013 under its Belt and Road Initiative, a substantial portion of which was for green infrastructure investments.<sup>181</sup> Between 2007 and 2020, China’s lending for African infrastructure projects was twofold more than the combined comparable lending of the United States, Britain, Japan, and Germany.<sup>182</sup> Additionally, between 2016 and 2021, China lent approximately \$185 billion in debt forgiveness to twenty-two countries, raising criticisms from the World Bank and other multilateral development banks of debt trap diplomacy and hidden loan terms.<sup>183</sup>

In June, France sponsored the two-day Summit for a New Global Financial Pact, which aimed at providing fiscal relief to states facing short-term economic difficulties and expanding special drawing rights (SDRs) to encourage

private-sector development in lower-income states, green infrastructure investments, and new fiscal tools for sustainable economic development. The summit had tabled discussion of the proposed Bridgetown Initiative, part of which would expand lending by multilateral development banks like the World Bank to governments for up to \$1 trillion for developing green infrastructure.<sup>184</sup> In terms of policy delivery, the summit was underwhelming: it revealed the depth of the rift between advanced and developing economies, and no breakthrough was in the cards.<sup>185</sup> In reality, it has made little impact so far; the work on SDR reallocation and new taxes, for example on maritime shipping, to finance developments is in its infancy. It is clear that the geopolitics of decarbonization will play out around these questions:

- Can critical raw materials be freely and amply accessed?
- Will leading clean technologies provide a wider economic competitiveness edge?
- Can the transition funding gap be bridged in aggregate?
- Will compensation of developing economies take place and, if so, how?
- On what terms will debt restructuring and relief occur?
- And to what extent will less-developed states coalesce around the United States, Europe, or China?

The European Union now has an opportunity to shape this outcome, but the path to a settlement is unclear and resistance is likely to be strong.

178 *International Debt Report 2022*, World Bank, December 6, 2022, [https://www.worldbank.org/en/programs/debt-statistics/ldr/products?intcid=ecr\\_hp\\_headerB\\_en\\_ext](https://www.worldbank.org/en/programs/debt-statistics/ldr/products?intcid=ecr_hp_headerB_en_ext); and *US Dollar Funding and Emerging Market Economy Vulnerabilities*, Financial Stability Board, April 26, 2022, <https://www.fsb.org/wp-content/uploads/P260422.pdf>.

179 Charles Goodhart and Manoj Pradhan, “The Great Demographic Reversal: Ageing Societies, Waning Inequality, and an Inflation Revival” (London: Palgrave Macmillan, 2020).

180 Kate Mackenzie and Tim Sahay, “The Gigantic Austerity Drive Underway,” *Phenomenal World*, April 20, 2023, <https://www.phenomenalworld.org/analysis/the-gigantic-austerity-drive-underway/>.

181 Christoph Nedopil Wang, “China Belt and Road Initiative (BRI) Investment Report 2022,” Green Finance and Development Center, February 3, 2023, <https://greenfdc.org/china-belt-and-road-initiative-bri-investment-report-2022/>.

182 Jeremy Gaines, “New Study: China Lends 2.5x as US, UK, Japan, Germany Combined for Infrastructure in Sub-Saharan Africa,” Center for Global Development, February 9, 2022, <https://www.cgdev.org/article/new-study-china-lends-25x-us-uk-japan-germany-combined-infrastructure-sub-saharan-africa>.

183 Jonathan Josephs, “China’s Loans to Africa Worry World Bank President David Malpass,” BBC News, April 2, 2023, <https://www.bbc.com/news/business-65140363>.

184 “The 2022 Bridgetown Initiative,” Ministry of Foreign Affairs and Foreign Trade of Barbados, September 23, 2022, <https://www.foreign.gov.bb/the-2022-barbados-agenda/>.

185 Patrick Bigger and Federico Sibaja, “Feasibility Pact?,” *Phenomenal World*, June 21, 2023, <https://www.phenomenalworld.org/analysis/feasibility-pact/>.

# CONCLUSION AND RECOMMENDATIONS: EUROPE'S RESPONSE TO THE GREEN WORLD ORDER

The challenge facing European statesmen in Brussels institutions and national governments is immense, even though there are grounds for optimism in the actual speed of the transition given rapid technology adoption and transition. The EU will nonetheless have to overcome crippling fiscal conservatism and, fundamentally, this means persuading Germany to accept what it has so far resisted: much greater fiscal federalism. Leaders will have to find ways to induce carbon-intensive sectors—oil, agriculture, transport—and players to come on-board at a time when some of these entities, show record profits and are walking back from their net zero commitments.<sup>186</sup> Leaders will have to not only ensure the burden of the transition is fairly distributed between countries but also between social classes. And finally, they will need to get the hard task of industrial policy right across the EU, avoiding picking white elephants and managing complex supply chains in a degrading climate that will throw up new and unprecedented problems. This will require courageous decision-making for which there has been a shortage when it comes to Europe's political leadership.

## MAKING THE UNION FIT FOR PURPOSE

The realization that current policy instruments are insufficient to address this era of climate breakdown prompts expectations among many EU officials that Europe will be battered into action by repeated shocks and social upheaval.<sup>187</sup> It is not an entirely new concept: “Europe will be forged in crisis, and will be the sum of the solutions adopted for those crises,” EU founding father Jean Monnet famously said. His words remain as apt today as then, and the climate crisis is only in its early stages. The fiscal problem is where the bloc needs to start with urgent action in

three directions: more resources for the EU budget, a clear collective borrowing capacity, and new fiscal rules that are fit for the urgencies of the climate transition.

Following the passage of the US IRA, the European Commission announced the Green Deal Industrial Plan (GDIP). This EU industrial policy aims to accelerate the bloc's clean energy transition by scaling up EU manufacturing capacity. This is an impressive plan for the new economy that Europe needs to compete with the United States and China and be a pole in the green world order. But it is not a collectively funded one in any meaningful way. Critically, the GDIP lacks the common resources that are necessary for a cohesive and coherent industrial strategy. Instead, the EU GDIP aims to simplify the regulatory framework through fast-track permitting of clean energy across the continent; loosen state aid rules over the course of two years to ensure financial aid is granted to producers of clean energy technology and clean energy supplies; develop ambitious plans to train and retain skilled workers; and ensure the security of supply chains and sourcing of critical raw materials at the national level. The GDIP was followed by the NZIA, which promotes private investment in green industries and adjacent technologies like batteries and heat pumps. But without a revolution in how this plan is supposed to be funded, these measures constitute too little of a genuine pan-European effort and are liable to fail in their current incarnation, principally because they are not centralized enough and lack the necessary fiscal support.<sup>188</sup>

Moreover, the extra funds raised by these new instruments should also be directed toward two crucial agendas intimately bound up with the future of Europe and its economy. The first is the reconstruction of Ukraine. Authorities in Kyiv have signaled they wish to be a supplier of green

186 Kate Yoder, “Why Are BP, Shell, and Exxon Suddenly Backing Off Their Climate Promises?,” *Grist* (online magazine), February 16, 2023, <https://grist.org/economics/bp-exxon-shell-backing-off-climate-promises/>.

187 Kate Mackenzie and Tim Sahay, “Global Boiling,” *Phenomenal World*, August 3, 2023, <https://www.phenomenalworld.org/analysis/global-boiling/>; Umair Haque, “The End of the Age of Abundance (and the Beginning of the Age of Scarcity),” *Eudaimonia and Co.*, August 28, 2022, <https://eand.co/the-end-of-the-age-of-abundance-and-the-beginning-of-the-age-of-scarcity-9222a316c8e1>; “EU Ambassadors Annual Conference 2022: Opening Speech by High Representative Josep Borrell,” *European Union External Action*, October 10, 2022, [https://www.eeas.europa.eu/eeas/eu-ambassadors-annual-conference-2022-opening-speech-high-representative-josep-borrell\\_en](https://www.eeas.europa.eu/eeas/eu-ambassadors-annual-conference-2022-opening-speech-high-representative-josep-borrell_en); and Jamie Kendrick and Mark Blyth, “The Carbon Divide: The Material Basis of Polarisation,” *Green European Journal*, March 11, 2020, <https://www.greeneuropeanjournal.eu/the-carbon-divide-the-material-basis-of-polarisation/>.

188 “The Green Deal Industrial Plan,” *European Commission*, February 1, 2023, [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan_en).



President Joe Biden greets President of the European Commission Ursula von der Leyen, Friday, March 10, 2023, in the Oval Office of the White House. (Official White House Photo by Adam Schultz)

hydrogen to the EU and a major metals refining location.<sup>189</sup> The reconstruction of the Ukrainian economy from the ground up provides Europeans with the opportunity to lay the groundwork— as done with post-WWII reconstruction in Germany—for a new green economy that serves the needs of both Europe and Ukraine. Tied into this and to the broader question of how European electorates view the justice of the transition is the question of skilled jobs. This new economy, in the EU and Ukraine, will require not only investment but a major training program for a new generation of technicians and specialists without whom, as Germany has discovered trying to install heat pumps, even a well-funded program can run into difficulties.<sup>190</sup> This problem can be avoided and a viable future launched.

## MAINTAINING GLOBAL COOPERATION

The EU will also have to look beyond its continent, and the stakes could not be greater. New policies are not only required for Europe's economy but for its security—if it wishes to avoid another *permanent Suez* and find a more stable future. This work will define Europe's entire place in the world and could help reshape the world altogether.

Europe finds itself in a world defined by five predicaments. First, China is in the driver seat of this new industrial revolution. Neither the investments made on either side of the Atlantic are sufficient. In 2024, China is projected to install eight times more onshore wind capacity

189 Kate Abnett, "EU, Ukraine Plan Cooperation on Renewable Energy, Hydrogen: Draft," Reuters, January 31, 2023, <https://www.reuters.com/business/energy/eu-ukraine-plan-cooperation-renewable-energy-hydrogen-draft-2023-01-31/>.

190 Melissa Eddy and Patrick Junker, "Germans Turn to Heat Pumps to Replace Gas Furnaces," *New York Times*, December 2, 2022, <https://www.nytimes.com/2022/12/02/world/europe/germany-heat-pumps.html>.

and five times more solar PV capacity than the United States—more than double that of the EU and the United States combined.<sup>191</sup> Second, the United States, crippled by divisive domestic politics as illustrated by both the Trump and Biden administrations, has become an erratic if essential partner, lacking the necessary bipartisan consensus on long-term decarbonization. Third, neither the United States nor the European Union can control their respective climatic futures alone or as a bloc. They need to persuade and enable the developing world to reduce emissions too. Fourth, international cooperation will be essential to achieve decarbonization because great power conflicts have the potential to derail all the transition efforts. Indeed, on the current path, the United States and China risk confrontation. Fifth and finally, great power competition has only been made worse by the green transition. What could have been an agenda for international cooperation is turning into a competitive race for green industrial capacity cum military-grade technologies like semiconductors.

## EUROPE, THE UNITED STATES, AND CHINA

The risk of Europe shrinking and failing to influence geopolitics holds tremendous danger for a continent that would feel powerless in the event of a US-China conflict spiraling out of control with catastrophic climate impacts. Europe can only meet this complex challenge if it succeeds in a few critical areas.

Europe must do all it can to revive multilateral cooperation. The Paris Agreement gave the illusion of a global climate policy cooperation framework, but the since-broken US-China concord has made the clean energy transition a competitive and almost zero-sum game. Now Europe needs to discourage both China and the United States from straying into direct confrontation and encourage the current détente following the November Xi-Biden meeting in November 2023.

Europe must navigate its complex transatlantic cooperation, which offers both opportunities and risks. The European Commission President von der Leyen and the

President Biden signed an important joint communique in March 2023, in this regard, but many of the steps announced in it are yet to become policy and they will all require far more financing than the EU seems capable of putting together at this point in time. Simultaneously, US-EU cooperation on clean energy technologies is potentially growing under the Trade and Technology Council (TTC), including the formation of the US-EU Clean Energy Incentives Dialogue, coordination on acquiring critical materials, and development of sustainable transatlantic trade practices.<sup>192</sup>

These negotiations matter and should be encouraged: a serious transatlantic pact would have far-reaching global consequences and especially in the area of critical raw materials, whose rules of origin are central to the IRA. The EU's proposed Critical Raw Materials Act aims to establish an EU-led buyers' club for EV battery materials. It would ensure the EU would negotiate as a bloc with its allies, particularly the United States, when securing trade deals with critical raw materials exporters, and work together to placate countries in the developing world with concessions to stave off an OPEC+-style cartel.<sup>193</sup>

As it stands, the EU is building its own global mining web. This has taken the form of a whistlestop tour of mining states across the world. One of the aims of these bilateral deals with countries like Vietnam or Chile is to reduce the chances of an OPEC+-like cartel forming that might challenge European interests.<sup>194</sup> The EU is now looking to secure a similar agreement with Australia for its lithium, cobalt, manganese, tungsten, vanadium, and other critical materials.<sup>195</sup> Additional strategic partnerships with Canada, Ukraine, Kazakhstan, and Namibia for other critical materials round out the EU's efforts toward a full trade posture on such materials.<sup>196</sup> The central issue is the extent to which this European effort is coordinated with the United States—where elections loom—and whether or not China sees such coordination as direct and open confrontation.

But there is still considerable transatlantic friction. This centers on the EU's flagship carbon tariff project, CBAM, which attempts to set global norms. It came into operation

<sup>191</sup> *Renewable Energy Market Update: Outlook for 2023 and 2024*, IEA.

<sup>192</sup> "U.S.-EU Joint Statement of the Trade and Technology Council," White House, May 31, 2023, <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/31/u-s-eu-joint-statement-of-the-trade-and-technology-council-2/>.

<sup>193</sup> Andrew Duerhren, "U.S. and EU Advance Buyers' Club for EV Battery Minerals," *Wall Street Journal*, February 15, 2023, <https://www.wsj.com/articles/u-s-and-eu-advance-buyers-club-for-ev-battery-minerals-5288287e>.

<sup>194</sup> Aarup and Moens, "EU Ties Trade Bow with Chile."

<sup>195</sup> Daniel Hurst, "Australia Closer to a Free Trade Pact with EU but Minister Warns There Won't Be a Deal 'for the Sake of It,'" *Guardian*, February 14, 2023, <https://www.theguardian.com/australia-news/2023/feb/15/australia-closer-to-a-free-trade-agreement-with-eu-but-minister-warns-there-wont-be-a-deal-for-the-sake-of-it>; and "Critical Minerals," Department of Industry, Science, and Resources of the Commonwealth of Australia, accessed August 9, 2023, <https://www.industry.gov.au/mining-oil-and-gas/minerals/critical-minerals>.

<sup>196</sup> "COP27: European Union Concludes a Strategic Partnership with Namibia on Sustainable Raw Materials and Renewable Hydrogen," European Commission, November 8, 2022, [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_6683](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6683).

from October 2023, but even before coming into force, it threatened to open a rift between Washington and Brussels. So far, the United States has suspended tariffs on steel and aluminum in the hope that the EU would not subject US steel and aluminum to the CBAM mechanism in return, but an agreement is unlikely.<sup>197</sup> These tariffs are an indirect form of industrial policy and will render products produced with more carbon-intensive methods abroad—e.g., iron and steel, cement, fertilizers, aluminum, electricity, and hydrogen<sup>198</sup>—more expensive in the EU marketplace. Therefore a US-EU bilateral agreement on steel could potentially unravel the entire CBAM effort globally. Specifically, the US-EU talks to create a Global Arrangement on Sustainable Steel and Aluminum would in theory set transatlantic standards on less carbon-intensive steel and aluminum and promote them in trade with other countries.<sup>199</sup> The outcome could, therefore, fundamentally undermine Europe’s ability to impose a border adjustment on countries that do not introduce a carbon price.

More than Europe’s carbon model will be affected by the negotiations. There would be domestic consequences: a bilateral agreement would undermine Europe’s own efforts to tax and price carbon under its Emission Trading Scheme (ETS), thereby tremendously undermining Europe’s ongoing efforts to achieve industrial decarbonization at home. In addition, it would affect the EU’s ability to impose or export this model abroad. Despite this, the EU should take diplomatic initiative regardless of the United States on decarbonization. For example, it should seek to build a spending target coalition out of likeminded partners.

However, several signs indicate that becoming a singular pole in the green world order will be a very tall order for Europe. Though battery production was prioritized through the European Battery Alliance, for example, the

IRA is hobbling its nascent battery production efforts and the majority of planned European factories are now at risk of cancellation.<sup>200</sup> Even though 20 percent of the European car fleet is composed of EVs and EV sales remain high in the European Union, European car makers remain behind compared to Chinese manufacturers. Automakers focused on combustion engines, particularly those in Germany, face declining sales worldwide, difficulties adapting their manufacturing practices,<sup>201</sup> and sagging market shares in China.<sup>202</sup> Worse still, European targets for ending combustion-engine car sales in Europe aren’t backed by financial incentives or real resources, so the decarbonization plan for European companies to build in Europe is instead resulting in many makers shifting auto production to China.<sup>203</sup> For solar energy technology production, China has already managed to secure a strong foothold in Europe and only radically and unlikely protectionist measures would be able to dislodge China’s existing dominance.<sup>204</sup> This response would be counterproductive to Europe’s own decarbonization goals.

This harsh reality makes Europe’s NZIA objectives to limit China imports somewhat unrealistic given China’s current dominance and the paucity of European resources assembled against it. As it stands, wind energy technology is perhaps the main exception to the difficult circumstances facing Europe’s clean energy industries, as it is traditionally harder to transport and Europe has an existing strong offshore wind farm capacity.<sup>205</sup>

With China, the EU could offer to reduce its NZIA requirements and sectoral targets to limit its exports in exchange for genuine greater global cooperation on climate change and decarbonization. China may be a superpower in green industry, but it is far from a green actor. At COP27, it worked with Saudi Arabia to block a key proposal to phase out all fossil fuels, not just coal, and while it agreed to move away from fossil fuels at the following COP28, it conspicuously

- 197 Andy Bounds, “EU Rejects US Offer to End Steel Tariff Dispute,” *Financial Times*, June 28, 2023, <https://www.ft.com/content/42d968e5-cb13-4ccb-9f93-b1a321303a14>.
- 198 Bond et al., “The EU Agreement.”; and Sufia Alam, Emily Becker, and Ryan Fitzpatrick, “A US CBAM: A Win for US Manufacturing,” *Third Way*, November 7, 2023, <https://www.thirdway.org/memo/a-us-cbam-a-win-for-us-manufacturing>.
- 199 “Joint Statement by President Biden and President von der Leyen.”
- 200 *How Not to Lose It All*, European Federation for Transport and Environment.
- 201 Niels Dau et al., “New EV Entrants Disrupt Europe’s Automotive Market,” McKinsey & Company, December 22, 2022, <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/new-ev-entrants-disrupt-europes-automotive-market>; Colin McKerracher, “Carmakers Can Kiss Pre-Pandemic Combustion Car Sales Goodbye,” *Bloomberg*, March 9, 2023, <https://www.bloomberg.com/news/articles/2023-03-09/carmakers-can-kiss-pre-pandemic-combustion-car-sales-goodbye>.
- 202 Joshua Posaner, “The Death of Das Auto: Can German Cars Survive the End of the Engine?,” *Politico*, September 15, 2022, <https://www.politico.eu/article/death-of-das-auto-electric-vehicles-germany/>.
- 203 Ardissino, interview with the authors; Sebastian, “The Bumpy Road Ahead in China,” 5; “European Investment in China Concentrates More on Handful of Large Firms: Report,” *Reuters*, September 14, 2022, <https://www.reuters.com/markets/europe/european-investment-china-concentrates-more-handful-large-firms-report-2022-09-14/>; and Bown, “Industrial Policy for Electric Vehicle Supply Chains,” 20.
- 204 “Strengthening the Competitiveness of the EU’s Clean Energy Sector,” *Innovation News Network*, March 8, 2023, <https://www.innovationnewsnetwork.com/strengthening-the-competitiveness-of-the-eus-clean-energy-sector/29320/>.
- 205 “How to Succeed in the Expanding Global Offshore Wind Market,” McKinsey & Company, April 20, 2022, <https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/how-to-succeed-in-the-expanding-global-offshore-wind-market>.

avoided committing to phasing out fossil fuels once again.<sup>206</sup> Europe should seek a genuine change in China's stance at future COP negotiations and elsewhere in exchange for a shift on the NZIA. This is the sort of quid pro quo that would allow Europe to play constructive climate geopolitics. But Europe's position is tenable only to the extent that it helps preserve and uphold the multilateral order, which both the United States and China in different ways have undermined. This is perhaps Europe's greatest challenge.

The United States—with its abundant natural resources and global reserve currency—has had an easier hand to play in the hydrocarbon age than Europe. Much of its geographic and political advantages will persist into the post-carbon age. Europe, in contrast, will continue to play a hard hand in the green world order. When it comes to competitive industrial policy, the bloc is disadvantaged by the fiscal space of the United States and China, and risks losing a place in key value chains. When it comes to competing in the global mining webs that will support decarbonization, the bloc is disadvantaged by a lack of domestic resources and will be compelled to navigate a tricky situation internationally with mining states. And when it comes to the challenge of the fiscal distress of less-developed states, the bloc faces the challenge of both producing the funding and convincing other states to act. In every aspect, Europe enters the new global green order from a position of weakness.

Core features of the green world order are now being defined by US-China competition. This is a risk to the world—yet an opportunity for Europe to play the role of the moderating force in this confrontation. The current détente between Washington and Beijing is to be encouraged. However the EU can only avoid the *permanent Suez* of the hydrocarbons era extending into the green era if it takes resolute actions at home and courageous ones abroad (see our recommendations below). This means making significant and often painful changes to its existing economic model and political economy, and living up to its geostrategic ambition. The choice of whether or not to seize—or to ignore—this historical moment is on the shoulders of the European leadership as they begin to plan for the new European Commission and the agenda to be formed after the 2024 European parliamentary elections. The question they need to be asking themselves is an existential one: Is Europe to be—or not to be—a pole in the green world order?

## POLICY RECOMMENDATIONS

### Internal EU Actions

- Abide by the 2030 carbon emission targets set out under the European Green Deal and the REPowerEU plan. This action applies to each EU member. It will require greater funding and public-private investment commitments into clean energy infrastructure across multiple sectors by all EU members.
- Reform EU fiscal rules such that public spending for decarbonization-related investments and development are not curtailed. Align energy and transition plans to national fiscal plans to ensure coherence through multilateral surveillance.
- Reform the EU budget process to be based on qualified majority voting instead of under the current system of unanimous consent for spending and ensure that sufficient funds are allocated to the climate and energy transition.
- Reform EU tax policies to grant partial and limited autonomous taxing capacity for the EU budget (e.g., corporation tax, value-added tax, plastic tax, CBAM).
- Enable the EU budget to undertake common borrowing on a long-term basis to finance its green, industrial, and energy policies.
- Scale up the EU budget to triple its current size for the coming seven-year period (2027-2035) so that any post-European Green Deal decarbonization commitments can be correspondingly increased in scope.
- Provide funding for the long-term reconstruction of Ukraine into a green economy.
- Provide funding for a mass program of training skilled specialists for the transition.

### External Relations

- Reduce mid-term reliance on Chinese manufacturing capacity for electric vehicle, battery, and clean energy technologies by encouraging the growth of clean energy manufacturing in the United States, EU, and the UK.

206 Ivana Kottasová, Ella Nilsen, and Rachel Ramirez, "COP27 Summit Agrees to Help Climate Victims. But It Does Nothing to Stop Fossil Fuels," CNN, November 21, 2022, <https://www.cnn.com/2022/11/19/world/cop27-egypt-agreement-climate-intl/index.html>; and David Stanway, "China Says Fossil Fuels Deal 'Not Perfect' but Key to COP28 Success," Reuters, December 10, 2023, <https://www.reuters.com/business/environment/china-says-fossil-fuels-deal-not-perfect-key-cop28-success-2023-12-10/>.

- Offer to reduce NZIA requirements limiting Chinese imports of such goods in the short term in exchange for greater tangible cooperation on climate change and decarbonization beginning with but not exclusive to future COP negotiations.
- Form a critical raw materials club with the United States, but only if the club can be built in a manner that is not weaponized against China.
  - Ensure this club outreach has strong incentives for exporting states to increase production such as long-term purchase agreements and royalty- and value-sharing provisions in their trade with the United States, EU, and others.
  - Engage exporting states with favorable trade agreements for the increased manufacture of electric vehicles and clean energy technologies.
- Recognize that given potential political shifts in the United States following the US presidential election, the feasibility of US membership may change and may require Europe to proceed alone.
- Develop reforms in international financial institutions to enable climate financing for less-developed states, such as easing regulations outlining borrowing restrictions for climate financing including and unlocking IMF SDRs.
- Pledge a set percentage of annual GDP for decarbonization and climate change-related mitigation, and build a coalition of states committed to it.

## ABOUT THE AUTHORS

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**Ben Judah** is director of the Transform Europe Initiative and a senior fellow at the Atlantic Council's Europe Center. His current research focus is on the European consequences of Russia's invasion of Ukraine, transnational kleptocracy, European energy and decarbonization politics, Europe in the Middle East and Britain's attempts to reset its diplomatic posture after Brexit. He has advised progressive politicians and campaigns on both sides of the Atlantic.

He was previously a fellow at the Hudson Institute in Washington, DC, leading research on the institute's Kleptocracy Initiative. He was also previously a fellow at the European Council on Foreign Relations in London and the European Stability Initiative in Istanbul.

He has interviewed and profiled global figures including French President Emmanuel Macron, former Pakistani Prime Minister Imran Khan, UK Chancellor of the Exchequer Rishi Sunak, and former First Lady Melania Trump. As a journalist, he has reported on the Russo-Georgia War; unrest in Central Asia, the Arab Spring, and elections in the United Kingdom, France, and United States.

He is the author of three acclaimed books: *Fragile Empire*, a study of Vladimir Putin's Russia, *This is London*, a book on the British capital, and *This Is Europe*, a book on various European cities.

He has been commended as British Feature Writer of the Year at The Press Awards (formerly known as the British Press Awards), has been selected as a Forbes 30 Under 30 Europe, was a finalist for the 2019 Ryszard Kapuściński Award for Literary Reportage, and most recently was awarded a Travelling Scholarship by the Society of Authors.



**Shahin Vallée** is a senior research fellow in DGAP's Center for Geopolitics, Geoeconomics, and Technology. Prior to that, he was a senior fellow in DGAP's Alfred von Oppenheim Center for the Future of Europe.

Until June 2018, Vallée was a senior economist for Soros Fund Management, where he worked on a wide range of political and economic issues. He also served as a personal advisor to George Soros. Prior to that, he was the economic advisor to Emmanuel Macron at the French Ministry for the Economy and Finance, where he focused on European economic affairs. Between 2012 and 2014, Vallée was the economic advisor to President of the European Council Herman Van Rompuy. This experience has put him at the heart of European economic policy discussions since 2012, in particular on issues related to the euro area and international policy coordination (IMF, G20). Having started his career working for social investment vehicles and entrepreneurship in Africa, he has also worked as a visiting fellow at Bruegel, a Brussels-based economic think tank, and as an economist for a global investment bank in London.

Vallée holds a PhD in political economy from the London School of Economics and Political Science. He holds a master's degree from Columbia University in New York, a degree in public affairs from Sciences Po in Paris, and an undergraduate degree in econometrics from the Sorbonne.



**Tim Sahay** is a nonresident senior fellow at the Atlantic Council’s Europe Center and co-director of the Net Zero Industrial Policy lab at Johns Hopkins University, where he analyzes clean energy supply chains and industrial policies to catalyze strategic collaborations between government and industry. He has worked over the past decade across physics, clean tech, and consulting.

He previously worked at the Green New Deal Network between 2020 and 2023, a coalition of labor and environmental justice organizations, and advised Congressional offices designing investment, trade, procurement and industrial policies. Tim is also the co-editor of *The Polycrisis*, a publication at Phenomenal World that focuses on the political economy of climate, with an emphasis on the global south and geopolitics.

While completing a PhD in physics at the Massachusetts Institute of Technology, he organized the campus fossil divestment movement. As the Blue-Green Cities fellow at the Charles River Watershed Association, he organized housing advocates to lobby for climate resiliency in Boston. He has also worked as a consultant on projects ranging from pollution in India to energy transition in China.

Originally from Mumbai, he lives in New York City.

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