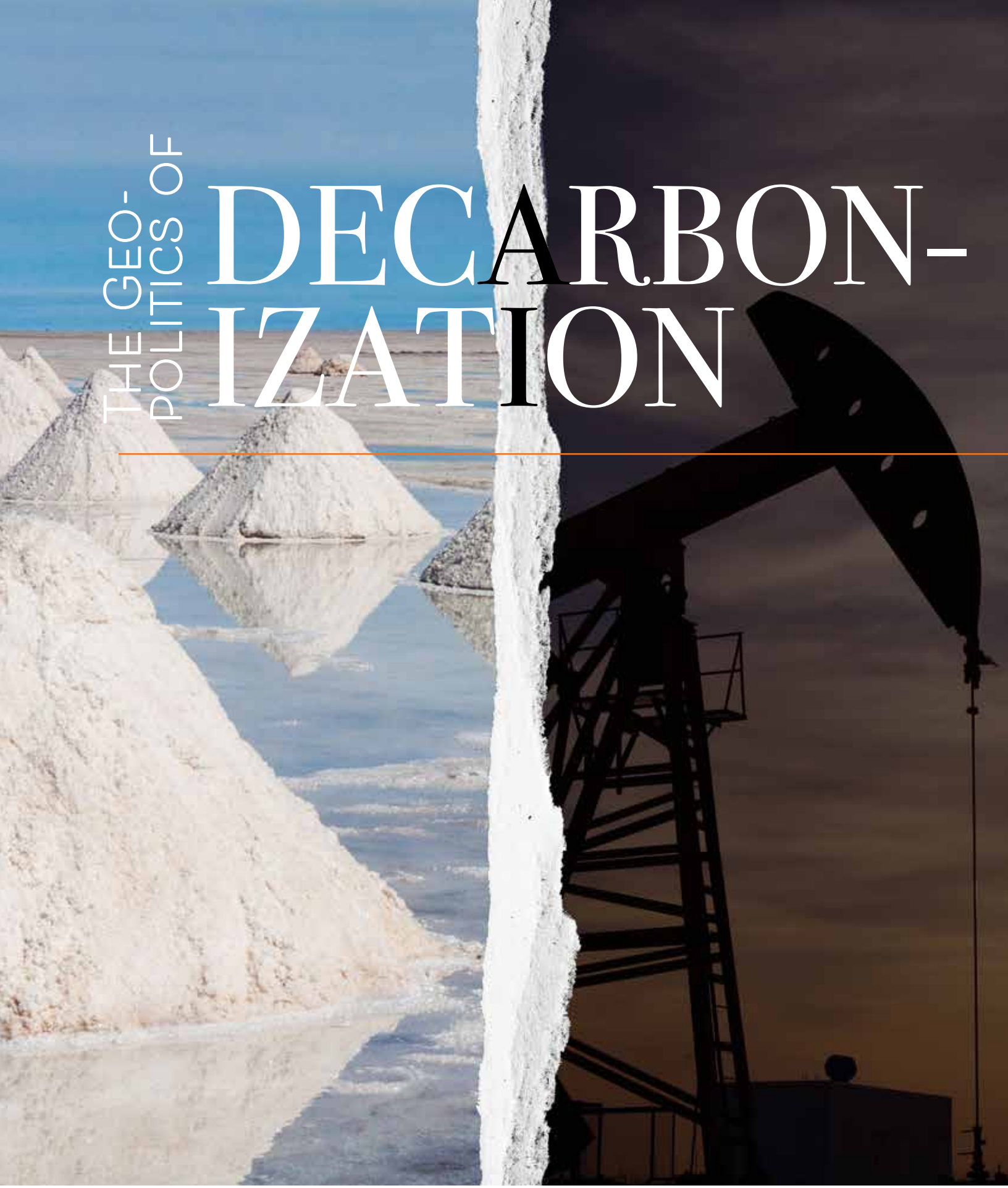

THE GEO-POLITICS OF

DECARBON-IZATION

21st Century DIPLOMACY

Wilson Center

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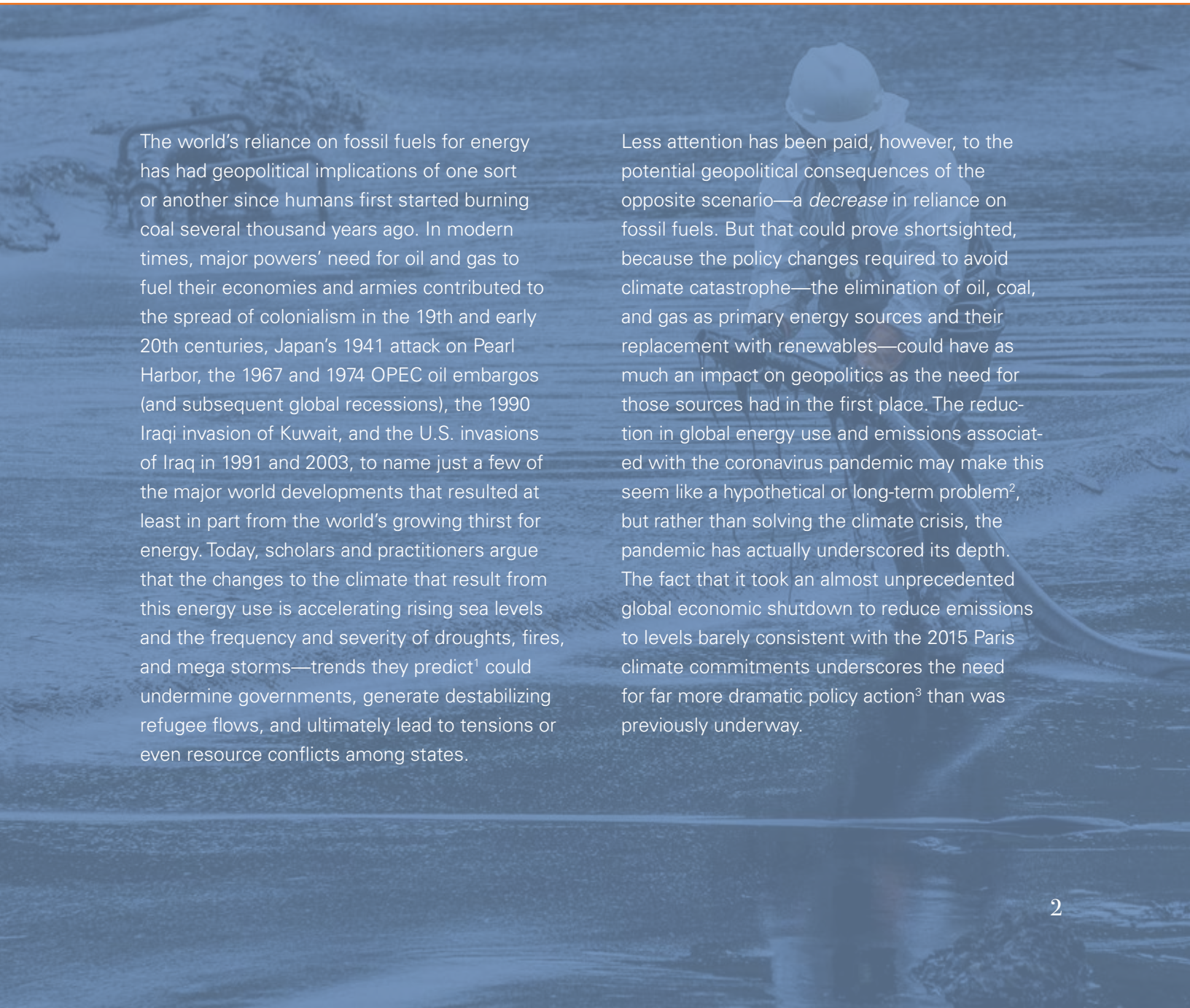
How Curbing Reliance on Fossil Fuels Will Change the World

Strategists rightly focus on the geopolitical consequences of climate change. The consequences of action to stop it could be just as profound.

Philip H. Gordon



The world's reliance on fossil fuels for energy has had geopolitical implications of one sort or another since humans first started burning coal several thousand years ago. In modern times, major powers' need for oil and gas to fuel their economies and armies contributed to the spread of colonialism in the 19th and early 20th centuries, Japan's 1941 attack on Pearl Harbor, the 1967 and 1974 OPEC oil embargos (and subsequent global recessions), the 1990 Iraqi invasion of Kuwait, and the U.S. invasions of Iraq in 1991 and 2003, to name just a few of the major world developments that resulted at least in part from the world's growing thirst for energy. Today, scholars and practitioners argue that the changes to the climate that result from this energy use is accelerating rising sea levels and the frequency and severity of droughts, fires, and mega storms—trends they predict[1] could undermine governments, generate destabilizing refugee flows, and ultimately lead to tensions or even resource conflicts among states.

Less attention has been paid, however, to the potential geopolitical consequences of the opposite scenario—a *decrease* in reliance on fossil fuels. But that could prove shortsighted, because the policy changes required to avoid climate catastrophe—the elimination of oil, coal, and gas as primary energy sources and their replacement with renewables—could have as much an impact on geopolitics as the need for those sources had in the first place. The reduction in global energy use and emissions associated with the coronavirus pandemic may make this seem like a hypothetical or long-term problem[2], but rather than solving the climate crisis, the pandemic has actually underscored its depth. The fact that it took an almost unprecedented global economic shutdown to reduce emissions to levels barely consistent with the 2015 Paris climate commitments underscores the need for far more dramatic policy action[3] than was previously underway.

If countries do reduce their reliance on fossil fuels, how could that transform the world? At least three likely trends are worth considering:

Political instability in oil-dependent states. The shift to a decarbonized world—in which global reliance on fossil fuels for energy production is dramatically reduced and virtually all remaining carbon dioxide emissions are captured, stored, utilized, or compensated—will have a major impact on the political systems of oil and gas producing states. According to the International Energy Agency[4], those states could lose US$7 trillion in revenues by 2040. Countries that rely on oil revenues for large shares of government revenue[5] include Libya (96%), Iraq (89%), Kuwait (70%), Nigeria[6] (65%), Saudi Arabia[7] (61%), Venezuela[8] (50%), Russia[9] (40%), UAE[10] (46%), and Iran[11] (29%). Declining oil revenues[12] will oblige these countries to cut subsidies (including for utilities such as electricity and water), raise taxes, and in many cases diminish their reliance on expatriate workers, forcing citizens to take menial jobs they are not used to doing. The world's leading oil exporter, Saudi Arabia[13], is particularly vulnerable: a booming youth population and the need to create millions of jobs will require deficit spending of up to US$100 billion per year, eroding reserves that could be exhausted within just a few years. Russia, too, would lose considerable income in a decarbonized world, which could lead its government to become even more repressive to hold its grip on power. The potential upside of such changes is that these states will be compelled to reform their economies and invest in education, industry, human capital, and other non-energy sectors, as Riyadh is seeking to do in its Vision 2030[14] plan. But such transitions are difficult and disruptive, and could also be a source of domestic instability, as citizens used to an implicit social contract with their government —security and prosperity in exchange for loyalty— find governments unable to uphold their end of the bargain.

U.S. disengagement from the Middle East. Declining U.S.—and global—dependence on oil from the Middle East will likely accelerate U.S. disengagement from the region. After the failure of President George W. Bush's efforts to "transform" the Middle East in part through the invasion of Iraq, President Barack Obama sought gradually to "pivot" away from the region, in part due to the diminishing U.S. need for energy imports from the region.[15] President Donald Trump has taken that view to an extreme, boasting about American energy "independence"[16] and claiming previous presidents had wasted US$7 trillion[17] trying to stabilize a region allegedly no longer a vital interest of the United States. A growing number of Americans agree with former top official Martin Indyk, who recently asserted in the *Wall Street Journal* that the Middle East just "isn't worth it anymore,"[18] in large part because "the United States no longer relies on imported petroleum." The strategic importance of American energy "independence," of course, can be exaggerated[19], because even if the United

What is certain, however, is that decarbonization—whenever it happens—

will have a profound impact on world politics, in predictable and unpredictable ways.

States doesn't import oil directly from the Persian Gulf, it has a stake in the free flow of oil from the region so long as other countries—including many close U.S. partners and allies—do. And the United States will continue to have other national interests in the region, including containing Iran, supporting Israel, counter-terrorism and nonproliferation. Still, the perception that securing imports from the region might no longer be worth American blood and treasure makes future U.S. engagement in the region less likely, increasing the prospects of a security vacuum, conflict among states, and competition among outside actors such as Russia, China, and Turkey.

A U.S.-China "Cold War." Decarbonization will require significant and binding emissions reductions by all major industrial powers, in particular by the two largest emitters, the United States and China. But getting such an agreement will be exceedingly difficult, as China argues that developed countries (such as the United States) who have contributed the most to the current problem should bear a disproportionate share of that burden[20], while the United States wants China to play a role commensurate with its current contribution to emissions. With the two countries already at loggerheads over trade[21], Taiwan, the South China Sea, intellectual property, human rights, responsibility for the COVID-19 crisis and much more[22], disputes over climate could poison this critical relationship further, especially as the costs and consequences of climate change become increasingly apparent in both countries. Imagine the debates that will result if large numbers of deaths are caused by climate developments in either country that its citizens' attribute to irresponsible policies pursued by the other. U.S.-China disputes over climate burden-sharing could contribute to a new Cold War that will affect all aspects of international relations in the decades to come.

It is easy to imagine plenty of other geopolitical developments beyond the three listed above, from strains in the transatlantic relationship to global competition for clean-energy jobs. What is certain, however, is that decarbonization—whenever it happens—will have a profound impact on world politics, in predictable and unpredictable ways. To adapt, governments around the world will have to take into account the geopolitical consequences of their climate policies. This will mean incorporating geopolitical impact assessments into intelligence assessments[23], bureaucratic adjustments that elevate climate change to the same level as more traditional national security concerns[24], and developing diplomatic approaches designed to mitigate the negative impact of decarbonization on other states and the relations between them. The world's gradual addiction to fossil fuels transformed international relations over the past century and more. Leaders in all countries must start thinking now about the political consequences of withdrawing from that addiction.

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Small States and Climate Change: The Case of Qatar

H.E. Lolwah R Al-Khater

Climate change is posing increasingly formidable challenges to all humankind and has been identified as the most pressing global environmental problem, with potentially catastrophic consequences for human development. Today, the focus is on strategies for mitigation and adaptation, involving national action and international cooperation.

It's a problem with unique characteristics. It is a global challenge that necessitates collective solutions. Further, it is a long-term problem with cumulative outcomes. Addressing it is a cross-generational, cross-border exercise. The current generation cannot solve the problem alone, but it has the responsibility to take urgent action on behalf of posterity.

The Challenge of Decarbonization

Interestingly, the key pillar of the response to climate change—decarbonization—will also be a major force that will change the power and influence of regions and states.

Some nations may require support as the global decarbonization effort accelerates. The decline in the use of fossil fuels may profoundly destabilize countries that have not prepared their economies for the transition. In countries with weak governance, reduced revenue could create political instability, and increased fragility in fossil-exporting countries can have strong effects beyond the respective regions.

The development of clean energy technology, meanwhile, could also result in the technological dominance of a handful of nations. If a small number of countries and companies dominate clean energy technology, concentration could stifle innovation and suppress competition. Countries that do not develop domestic clean energy sources and technologies will remain vulnerable to foreign suppliers.

Further, decarbonization is by no means resource-neutral. Scaling-up low-carbon technologies creates greater demand for certain metals, for example. This may give rise to geopolitical

dynamics similar to those experienced in the modern economy.

Just as fossil fuels have shaped the geopolitical map over for the past 200 years—altering international relations, affecting political alliances, and informing national defense strategies—decarbonization and the global transition to renewable energy sources will have profound consequences and alter the international geopolitical landscape. It is therefore important for the world's superpowers to play an essential role when it comes to leading the initiative against climate change. In order to accelerate the healing, the biggest contributors to the problem to start must be the biggest contributors to the healing.

The Qatari Approach

As a small nation, our contribution is limited. However, as both a producer of fossil fuels and a country especially threatened by sea-level rise, we are very attuned to the challenges and potential benefits of decarbonization.

At the UN Climate Action Summit 2019, His Highness the Amir of Qatar stated, "The phenomenon of climate change is undoubtedly one of the serious challenges of our time. It is a problem that is continuously exacerbating and causing many problems which intertwine in their economic, environmental and social dimensions and have very serious negative repercussions on all forms of life including human life and on both developed and developing countries alike, especially on the tracks of the sustainable development which all peoples aspire to."

To ensure commitment across government agencies and overcome institutional rivalry and inertia, there must be high-level political engagement to address climate change. In some countries, the responsibility for sustainable development issues is given to environmental ministries and departments—which tend to be under-resourced and insufficiently influential in government—thus hindering the necessary process of cross-sector policy integration. In Qatar, the Qatar National Vision 2030 names Environmental Development as one of its four main pillars, aiming to manage rapid domestic expansion to ensure harmony among the priorities of economic growth, social development, and environmental protection. Although climate change is a global problem, its impacts will vary. Small states and less developed states often stand on the frontline of climate change and bear its burden. Qatar lacks arable land and water resources for the development of carbon sinks, forests, and green areas and is therefore especially vulnerable to global warming's impacts. If sea levels rise, coastlines and marine life will be affected, land degradation will occur, and freshwater levels will fall. If temperatures rise, rising underground water salinity and falling freshwater levels will threaten water security and reduce the efficiency of the region's vital desalination plants. Qatar is among the 10 countries that would be most impacted by sea level rise in terms of percentage of land area and wetlands affected.

In addressing the challenge, all countries, including Qatar, need to reconcile multiple priorities, from economic growth to environmental management to human and social development. For Qatar, as a consumer and key producer of fossil fuels, these priorities can at times be conflicting, especially against a backdrop of increasing local and global demand for energy.

A holistic and integrated approach is essential to address the range of environmental, economic, social, educational, and behavioral issues involved.

Qatar is actively working toward the management of risks associated with climate change. There are a number of significant and positive developments:

- Qatar, as the host nation for FIFA World Cup 2022, is committed to organizing an environmental-friendly tournament and the first carbon-neutral tournament through the use of solar-powered stadiums and the use of cooling and lighting technology that is water- and energy-saving.
- In October 2019, Qatar announced the commissioning of a carbon storage plant, the largest of its kind in the region. It aims to capture over five million tons of CO_2 per year from Qatar's LNG industry by 2025.
- In March 2019, during the seventh International Agricultural Exhibition and the first Qatar International Environmental Exhibition, Qatar announced an initiative to plant one million trees by 2021 in order to enhance biological diversity, improve air quality, and reduce the country's carbon footprint.
- The Qatar Investment Authority is a founding member of the "One Planet" Global Sovereign Wealth Fund, which has been established to promote green investments and accelerate efforts to consider environmental issues in the investment sector and management of sovereign wealth funds. Zero-emission investments represent 44 percent of the fund's infrastructure projects.

Education and Adaptation

Qatar also recognizes education as a key element in addressing climate change. A highly skilled workforce is required to plan, manage, and execute the transition to a diversified and competitive economy away from oil and gas, and to plan and implement adaptation measures, as well as the corresponding transitions of infrastructure. Qatar's educational system is focused on preparing students to collaboratively address the complexity of our pressing environmental challenges.

Changes in global markets will create new opportunities for Qatar in emerging fields, such as emission reduction approaches, energy efficient technologies, green buildings, agricultural management in arid regions, innovative education, and financing of low carbon activities. Qatar is motivated by good global citizenship to support adaptation in developing countries through increased support for low-carbon power generation.

Qatar is involved in several initiatives to this end:

- In 2012, Qatar joined a consortium of founding member countries to establish the Global Green Growth Institute (GGGI). The Institute provides developing countries with the tools to build institutional capacity and develop green growth policy, strengthen peer learning and knowledge sharing, and engage private investors and public donors. Qatar's disbursement of $10 million toward the GGGI has enabled direct work to be conducted on sustainable energy, water and sanitation, sustainable landscapes, and green cities.

- One-third of the world's population lives in drylands, which make up approximately 40 percent of the Earth's land surface. Drylands face many environmental challenges, including water scarcity, temperature extremes, droughts, and floods. At the UN General Assembly in 2013, His Highness the Amir of Qatar described the newly created Global Dryland Alliance (GDA), an organization of dryland countries now headquartered in Doha, as "an initiative created to establish an international organization to face food insecurity consequences and negative environmental and economic impacts associated with climate change." GDA also offers its members mutual assistance in times of extraordinary need such as national or manmade disasters.

- In 2019, Qatar made a $20 million contribution to the UNDP Accelerator Labs network in 60 developing countries to tackle the world's most pressing sustainable development challenges.

- Also in 2019, His Highness the Amir of Qatar announced a contribution of $100 million to support small island developing states and the least developed countries in dealing with climate change, natural hazards, and environmental challenges. This support is consistent with the UN priority of "preserving tangible and intangible cultural heritage and promoting culture for island sustainable development."

The State of Qatar will continue to promote international cooperation and action to achieve inclusive and sustainable development in order to meet the challenges of climate change.

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The Geopolitics of Decarbonization: The Russian Case

Tatiana Mitrova

Global efforts to combat climate change and to decarbonize the world economy will have a tremendous impact on geopolitics and foreign policy. Climate discussion itself creates leaders and outsiders: countries that resist this global transition away from carbon are losing credibility, whereas those leaders promoting a climate agenda are gaining stronger positions in the international arena and using carbon restrictions to help reshape the rules of international trade and relations between different economies (like with EU ambition to introduce cost-benefit analysis and other restrictions on carbon-intensive imports). This dynamic will be at work despite the economic decline caused by COVID-19. There are also some strong sector-specific implications related primarily to the energy sector, the biggest carbon emitter.

According to the UN's *Emissions Gap Report 2019*[1], fossil CO_2 emissions from energy use and industry dominate total greenhouse gas (GHG) emissions, making fossil fuels use the primary target for reduction. Many approaches have already been developed to move towards zero-carbon development pathways: energy efficiency; massive deployment of renewable energy for electrification; coal phase-out for rapid decarbonization of the energy system; decarbonizing transport with electric vehicles; hydrogen and other alternative fuels; decarbonizing energy-intensive industries through recycling; materials substitution and dematerialization; deployment of carbon capture, utilization, and storage; and fundamental transitions in the industrial process itself. Implementing these measures will affect the geopolitical positions of the hydrocarbon producing and importing countries, as well as the positions of countries which are not reserve holders but technological leaders in new energy. Energy superpowers' leverage in this world of energy transition will be decreasing dramatically, together with their resource rent. Their comparative negotiating power is already changing, resulting in a profound reconfiguration of the global energy market landscape.

More Inventory than Customers

Russia is one of the more glaring examples of the potential losers in this geopolitical transformation. Indeed, countries like Russia, heavily dependent on hydrocarbon export revenues, will need to adapt their foreign policy to a world economy less reliant on their supplies. Hydrocarbon exports will no longer be a bargaining chip in international negotiations, and "geopolitical" energy projects (like many gas pipelines) will not be able to provide additional geopolitical arguments and power to the reserve holders.

The recent turmoil on the global oil and gas markets—which began when a production agreement between Russia and Saudi Arabia collapsed and became much more serious due to the COVID-19 lockdowns—was a sort of stress-test for all hydrocarbon exporting economies. The shrinking demand and fierce competition has led to an unprecedented drop in the oil and gas revenues for producing nations and significantly destabilized their economies. Given the inevitable path of the energy transition, this episode has illustrated in a couple of months what will happen to the oil and gas exporters over the next decade or so as the world approaches peak oil demand. The Russian Federation, for instance, faces the equivalent of a 50 percent loss in expected energy export revenues (as gas prices are halving and oil prices reducing by one third, while volumes of Russian exports of oil, gas, and coal are decreasing by 20–25 percent). For the national budget, this decline means a sharp fall in income of about 25 percent, just as the public and business are in most need of state support.

This is a real wake up call for the resource-rich countries. Fossil-fuel exporters that refuse to accept the energy transition are most exposed to decarbonization and least resilient to its economic effects.

So far Russia, which ranks fourth in the world for primary energy consumption and carbon dioxide emissions and third in global primary energy production, has adhered to a strategy of "business as usual." Huge new investments were made during the last decade in new expensive infrastructure for hydrocarbon exports—not only to the traditional European markets ("Turk Stream", NS, and NS-2) but also to the North-East Asia (ESPO, "Power of Siberia"), which Russian leadership regards as the most promising market for Russian oil and gas. Energy exports are critical for the state budget, for the key energy companies, and for many regions in the country that rely strongly on hydrocarbon revenues. But the changing global environment and the decarbonization agenda pose an existential threat to all key Russian stakeholders, challenging the very sustainability of the economic (and political) system in the country. In 2016, according to the OECD, oil and gas revenues accounted for 36 percent of the country's federal budget, and Russia's main export market, the EU, is working fast to reduce its imports.

Although Russia joined the Paris Agreement in September 2019, domestic decarbonization of the energy sector is not yet on the agenda—a skeptical attitude about the problem of global climate change prevails among stakeholders. GDP energy intensity remains high, constrained by relatively low energy prices and high capital costs. The share of solar and wind energy in the Russian energy balance is insignificant and,

according to the official forecasts, is not expected to exceed 1 percent by 2035. The challenge for Russia in the coming years will be to develop a new strategy for developing the energy sector (at least for energy exports) in the absence of a significant domestic climate change agenda—and in response to increasing global competition, growing technological isolation, and financial constraints.[2]

The Green Recovery

The coronavirus crisis will create new momentum for energy transitions, especially in the countries that are Russia`s major energy trading partners: the European Union, Japan, South Korea, and to a certain extent China. National governments in these countries are increasingly vocal in their calls for low carbon economic recovery. The EU has confirmed its commitment to a green path of 100 percent climate neutrality by 2050, which will require colossal funds—between €175 and €290 billion of investments annually. In addition to €1 trillion of public funding for the next 10 years, the EU envisages a number of initiatives to develop green private financing. Such investment projects will get privileged access to money.

Against the background of excessive and extremely cheap hydrocarbon supply, importing country governments are now moving to introduce the long-discussed Carbon Border Adjustment Mechanism—the European Commission will put forward its proposal for one in 2021. This duty would mean additional costs for some carbon-intensive imported goods. It is intended to eliminate the competitive advantage currently enjoyed by countries that export to regions with tough eco-standards, where local industry faces higher costs. This is another disruption for hydrocarbons, metallurgy, and chemical industries. At the same time, oil market volatility has aggravated skepticism among investors, who even before the crisis had shifted massively from fossil fuel assets to low carbon and energy efficient projects.

Demand for energy will gradually recover in the wake of the COVID-19 lockdowns. But there are two trajectories for this recovery: the traditional one and that of an accelerated energy transition. In the first scenario, spurred by low oil prices, hydrocarbon demand will recover quickly and markets will inevitably be exposed to a deep investment gap, which will result in a new price hike. Rising hydrocarbon prices, in their turn, will once again stimulate interest in alternative energy sources and energy efficiency.

In the accelerated energy transition scenario, massive state support will be channeled into a green recovery. The EU has taken a step in

this direction with a pledge to spend 30 percent of its €1.8 trillion budget from 2021-2027 on climate action. Such state support will advantage the industries competing with the oil and gas sector, creating pressure for those dependent on demand for fossil fuels. In short, importing countries have every opportunity to emerge from the crisis with transformed energy systems, strict carbon footprint limitations on imported raw materials, and irreversibly curtailed demand for hydrocarbons.

Going Down with the Ship?

An energy transition appears unavoidable; the only question is the speed of the process. Despite this, Russian regulations assiduously ignore the trend towards decarbonization. Combatting climate change is not mentioned in the Goals and Strategic Objectives of the Russian Federation to 2024. The Energy Security Doctrine defines "increasing international efforts to implement climate policies and accelerate transition to a green economy" as an external political challenge to Russia's energy security. The term 'energy transition' and related external market changes are not mentioned in the text of the new "Energy Strategy for the Period to 2035," which envisages a significant scaling-up of coal, oil, and gas exports.

Strategically, however, the Russian economy currently has an opportunity to make fundamental reforms that could provide the country with a long-term trajectory to a different, more innovative development track. In Russia, energy is utilized very inefficiently, particularly in heating. This problem has been discussed for several decades. Today might be the ideal time for measures that have long been urgent, namely support for energy efficiency projects. A breakthrough in this sphere would not only strengthen global competitiveness dramatically and reduce the global carbon footprint but also create a significant number of new localized production facilities and jobs.

The promotion of high-tech sectors could focus on a program of overall energy efficiency enhancement, localization of services and equipment production, promotion of renewable energy systems, establishment of a state fund for targeted investments in technology with low greenhouse gas emissions (hydrogen, etc.), and provide an opportunity to exit the crisis with a better, more modern structure for the economy. This means new highly qualified jobs, development of high value-added production, and faster growth, instead of catching-up. And it does not require eliminating hydrocarbons. A transformed oil and gas sector could continue to play the role of the national economic driver, while aligning with the green agenda perfectly well. However, this requires new solutions (e.g., carbon capture, storage, and utilization technologies, methane emission control, hydrogen, use of the whole spectrum of offsetting mechanisms) and, importantly, a strategic choice.

It is a complex, expensive process that requires new technologies and skills that Russia and the Gulf countries currently do not have. For now, however, there are no other options in sight for securing the long-term stability of its export-focused resource-based economy.

What the International Community can do

In this respect, the international community could take some steps to encourage a smooth energy transition for fossil fuel resource rich economies like Russia's.

First of all, a clear and transparent communication of the long-term decarbonization strategies and schedules of the importing countries is an important signal for producers, so that they can adjust their strategies and investments accordingly. This would require high-level coordination and synchronization, which would be quite a challenging exercise. But without understanding it, producers inspired by calls for additional investments and exports in the short-term will find themselves with enormous stranded assets and shrinking revenues.

The second important component is technological cooperation and joint development of the new supply chains and of the appropriate regulation and certification mechanisms—for decarbonized oil and gas supplies, as well as for blue and green hydrogen and renewable electricity exports. This will be achieved and tested only with bilateral pilot projects, which are lacking at the moment.

And, of course, the interests of the producer economies should not be ignored during the global discussion: the rapid destabilization of any of these hydrocarbon producing countries could have extremely dramatic consequences for their regions and, potentially, for the whole world.

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The New Geopolitics of a Decarbonizing World

Dennis Tänzler & Noah Gordon

The world has transitioned to new energy sources before, from wood to coal to oil to natural gas. And each transition has reshaped the geopolitical map in countless ways, creating hard-to-imagine realities. British colonialists from the bygone Empire would be shocked to discover that not only is Newcastle receiving instead of exporting coal in the 21st century, but that the descendants of their former subjects on the Arabian Peninsula would use oil revenue to bid for the Newcastle football team.

The current transition to low-carbon energy sources —known broadly as decarbonization—will affect geopolitics and foreign policy at least as much as did its predecessors, and it will require a response from the foreign policy community. This essay examines those effects and the needed response.

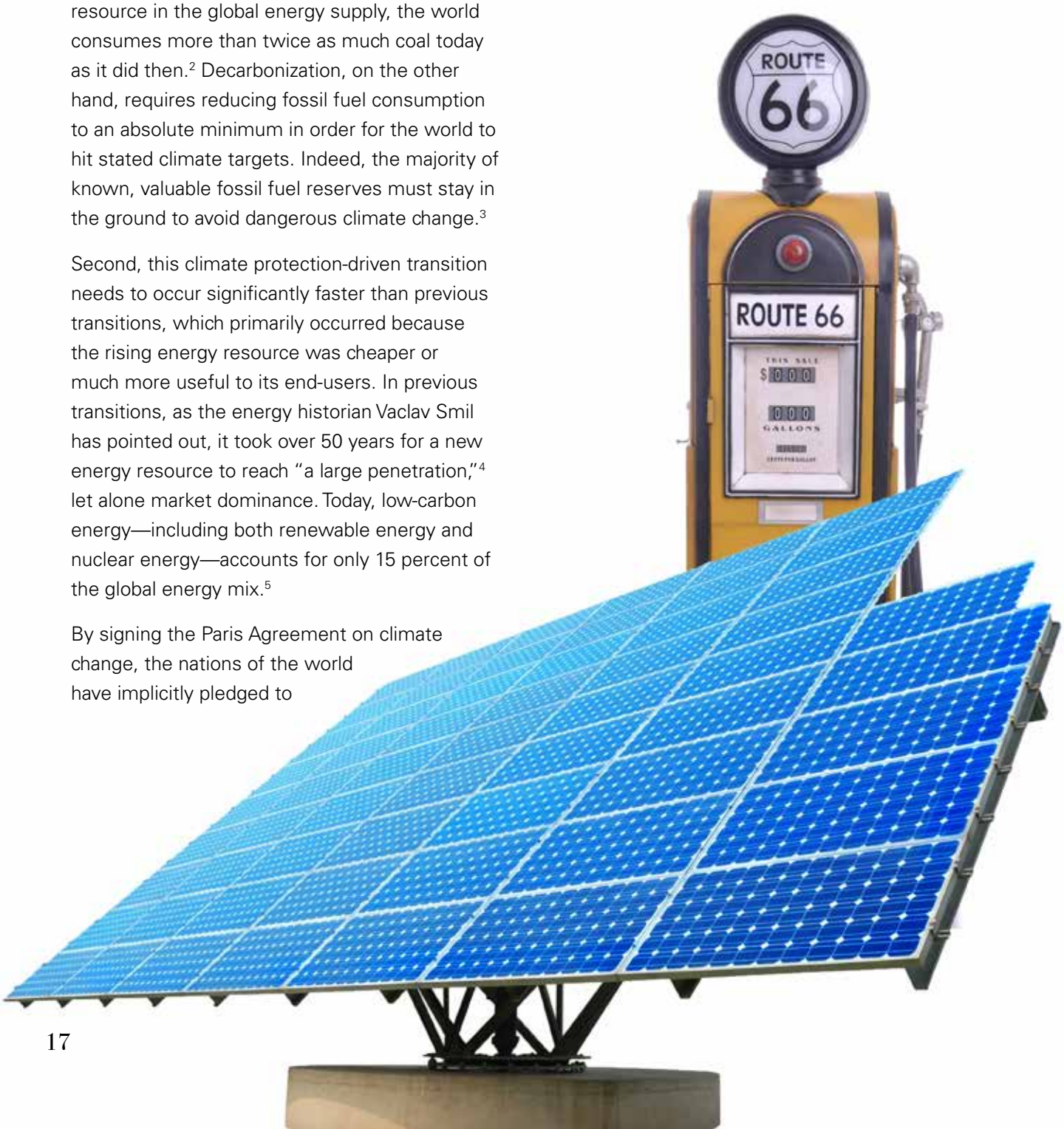
First we note how this transition is different from previous ones, in speed and scope. We then summarize the role of energy in various areas of current foreign policy: in modern geopolitics, fossil fuels are a strategic resource that affect money, power, and diplomatic relationships. Finally, we examine the impacts that decarbonization is having on these policy areas, using a diverse group of countries as illustrative cases and offer recommendations for how the foreign policy community can ensure a smooth transition to new energy sources.

A New Type of Transition

Our current transition differs from previous ones in two main ways. First, decarbonization must be an energy replacement, not merely an energy addition. In past global energy transitions, the new energy source has tended to surpass rather than replace the existing one[1]: for instance, while oil displaced coal in the 1960s as the dominant resource in the global energy supply, the world consumes more than twice as much coal today as it did then.[2] Decarbonization, on the other hand, requires reducing fossil fuel consumption to an absolute minimum in order for the world to hit stated climate targets. Indeed, the majority of known, valuable fossil fuel reserves must stay in the ground to avoid dangerous climate change.[3]

Second, this climate protection-driven transition needs to occur significantly faster than previous transitions, which primarily occurred because the rising energy resource was cheaper or much more useful to its end-users. In previous transitions, as the energy historian Vaclav Smil has pointed out, it took over 50 years for a new energy resource to reach "a large penetration,"[4] let alone market dominance. Today, low-carbon energy—including both renewable energy and nuclear energy—accounts for only 15 percent of the global energy mix.[5]

By signing the Paris Agreement on climate change, the nations of the world have implicitly pledged to achieve this more comprehensive transition in record speed. According to the UN Intergovernmental Panel on Climate Change, in order to have a better than 66 percent chance of limiting warming to 1.5°C or less, the world must achieve net-zero greenhouse gas emissions by 2050, i.e. in 30 years.[6] Even pathways based on slower emissions reductions entail net-zero emissions



by around 2070 or 2080 to limit warming to 2°C, and thus rapid declines in oil and gas consumption by the middle of the century. In historical terms, stakeholders will not have long to adjust.

This is not to say that decarbonization on this ambitious timeframe is unachievable. Certain countries and sectors have transitioned more quickly, from Kuwait shifting its economy to run on oil in the late 1940s, to the French electricity sector going nuclear in the 1970s, to Brazilian automakers switching to flex-fuels cars (that can run on either gasoline or ethanol) in the 2000s.[7] Moreover, the expansion of renewable energies has also already made significant progress in recent years in countries such as Costa Rica, Iceland, Denmark, and Uruguay. Policymakers hope to use the lessons of previous efforts to accelerate the spread of clean energy. They must also be aware of the political effects of such transitions.

Geopolitics of Fossil Fuels in the Modern World: What Role Does Energy Play Today?

Money: Energy is big business. It is not just a commodity but a basic resource required to exploit all other resources. Energy expenditures account for over 3 percent of global GDP, even without taking into account energy subsidies, energy transport costs, and energy efficiency measures.[8] Fossil fuel imports alone make up over 10 percent of global merchandise import costs.[9]

Accordingly, energy is a key revenue source for governments who tax energy transactions, sell drilling rights, or own shares in energy companies. Fossil fuels are in fact the most important source of revenue for the governments of Nigeria, Russia, Iran, Venezuela, and Saudi Arabia. They are also a vital source of income and jobs in certain regions and sectors, whether oil and gas extraction in the Canadian province of Alberta, freight transport in India, or coal mining in Southern Poland.

Power: National control over or access to fossil fuels has long been key to international power. The availability of domestic coal was essential to Britain's industrial revolution and imperial strength, and great powers have gone to great lengths to secure energy resources ever since. The oil-exporting nations of OPEC discovered in the 1970s that their energy resources gave them the ability to put major pressure on larger, richer energy importers.

Although securing resources has seldom been the primary cause for a war, it has been a factor in many military conflicts and diplomatic spats, from the Nigerian Civil War of 1967-70, to the 1991 Gulf War, to the current tensions over drilling rights between Greece, Turkey, and Cyprus. Interestingly, research suggests that petrostates—those where oil exports constitute more than 10 percent of GDP—have been more likely to engage in military conflict than non-petrostates.[10]

Governments can use fossil fuel revenues to develop and diversify their economies, expanding their influence on foreign affairs, and they can funnel them into social spending to improve lives and maintain stability. Yet the presence of substantial fossil fuel reserves can also lead to negative outcomes if the "resource curse" strikes. In fact, because trade in fossil fuels is so important to both importers and exporters, merely being located along key trade routes can give a country more geopolitical weight. A good example is Ukraine's role as a transit country for sales of Russian gas to Europe.

Relationships: Fossil fuels can be a key determinant of diplomatic relationships. Saudi Arabia's position as the top oil exporter on the planet, as well as its location near the world's most important oil transit chokepoint, the Strait of Hormuz, is largely responsible for its close security relationship with the United States. Venezuela has sold refined oil products at a discount to Caribbean allies, while most Azerbaijani exports to the EU are fossil fuels, which informs that diplomatic relationship. This dimension of diplomacy has long been linked to the question of energy security, understood as assured access to reliable energy supplies. Exporters of fossil fuels have often been able to ensure a favourable negotiation position vis-à-vis importing countries, even compensating for deficits in other areas such as good governance and the rule of law.

Relatedly, the fact that fossil fuels are important in so many areas makes them a favored *strategic resource* of politicians seeking to achieve other ends. Countries can enforce embargos (as the UN did against apartheid South Africa in 1987), impose sanctions (the P5+1 against Iran in the late 2010s), or seek to prevent the construction of fossil fuel infrastructure, as the United States did with the Brotherhood pipeline built in the 1980s to connect Soviet gas fields with European consumers.

What Impacts Will Decarbonization Have in These Areas?

Decarbonization will change the landscape of money, power, relationships, and strategic resources in a way that offers new pathways to peace and stability. Yet it also requires managing energy transitions to avoid the sudden destabilization of existing relationships.

Some countries will likely enjoy geopolitical benefits. Those countries that currently import large quantities of fossil fuels will become less dependent on exporters, improve their balance of trade—and perhaps enjoy new economic opportunities if they can seize the initiative and dominate the technologies required for a decarbonized energy system. Firms from China to California are racing to file clean energy patents.

The flip side is that decarbonization represents a real challenge for oil- and gas-producing states. The International Energy Agency has argued that economies that produce oil and gas could lose US$7 trillion by 2040 in a low oil price environment.[11] States that have failed to diversify their economies are particularly exposed and may slide into instability. Meanwhile, states that face high production costs in the oil sector or rely on high oil prices to balance their budget will suffer more immediate negative impacts—especially if the oil-richest nations decide to "panic and pump," i.e., to sell their buried treasure while they still have customers. Fossil fuel exporters may also have to contend with trade restrictions imposed by customers should these customers move to tax imported products based on their embedded carbon emissions. The EU already plans to implement such a carbon tax at its borders.

Just as decarbonization transforms geopolitics, geopolitical considerations can in turn influence decarbonization—think of China's Belt and Road Initiative, which is financing high-carbon infrastructure (coal-fired power plants, oil pipelines) in part for geopolitical reasons and in the process may lock in a high-carbon economy.[12]

Decarbonized geopolitics will, however, resemble current geopolitics in certain ways. There will still be cross-border trade in electricity and hydrogen

in a decarbonizing world, which means there will still be security and transit risks. There will still be energy technologies that require certain natural resources: the EU estimates that it will need up to 16 times more lithium and five times more cobalt—both are used for batteries—by 2030 to meet its climate neutrality goal.[13]

Like fossil fuels, these resources are distributed unevenly, which raises concerns about access. China, for instance, has the largest deposits of rare earth metals (used for magnets for e.g., wind turbines) and, alongside Chile, it is the main producer of lithium. It already reduced exports of rare earth metals in 2010 amid rising tensions with Japan.[14]

The leading producer of cobalt, meanwhile, is the unstable Democratic Republic of the Congo.[15] A race to exploit clean energy resources in poorly governed countries could have negative environmental and human rights impacts if not guided by appropriate resource governance. Careful planning, e.g., supporting recycling systems and the efficient use of resources, can help avoid future scarcities, though technological breakthroughs may be also key to reducing future dependencies on all these materials. Finally, the decarbonized world map will still have some countries whose natural energy resources boost their geopolitical position: Algeria, Australia, and others could use solar and wind power to produce energy carriers such as hydrogen.[16]

Fragile Decarbonization

What does this mean on the national level? It is useful to focus here on fossil-fuel exporting states[17] who potentially have a lot to lose from the energy transition. Here we break them down into three categories: the "Relatively Prepared," the "Facing Risks and Opportunities," and the "Fragile."

- **Relatively prepared**
  Wealthier, politically stable exporters are relatively prepared to deal with the repercussions of a global decarbonization process. Canada, for example, is a stable, highly developed democracy with a diversified economy and a well-educated workforce, although the oil industry remains economically important. The country has already started to establish institutions, such as a Task Force on Just Transition for Canadian Coal Power Workers and Communities, that are responsible for providing knowledge, options, and recommendations to guide a just transition process in the country. Qatar, as another example, is a rich petrostate with stable governance structures and one of the highest per capita incomes in the world. It has used the wealth generated by its oil industry to develop its gas sector, as well as other areas of the economy and its external relations.

- **Facing Risks and Opportunities**
  A second set of countries faces both major risks and opportunities. In Colombia, revenues from coal and oil exports are economically significant, but the economy increasingly aims at diversifying into low-emission areas—for example by expanding the creative industry and other service-oriented sectors. However, the country is still in the process of emerging from decades of internal conflict. Indonesia, as another example, is a rapidly developing economy that is experiencing huge growth in the demand for goods and energy. This growth is highly dependent on the exploitation of its abundant hydrocarbons, primarily coal and oil, as well as other carbon-intensive assets, such as palm oil. A global shift away from fossil fuels, like a ban on unsustainable palm oil, would have major repercussions for its economy.

- **Fragile**
  Finally, some countries are highly vulnerable to deep decarbonisation processes—especially where their main trade partners are already working towards achieving climate-neutral economies. In Nigeria, the economy is highly dependent on gas and particularly oil. These two commodities account for almost all the country's export revenues. The country also scores poorly on indexes assessing state fragility, human development, strength of governance, and preparedness for climate change impacts, weaknesses that the COVID-19 pandemic and ensuing recession have only made more acute in fragile countries around the world. Another example of a fragile country is Azerbaijan, which faces an ongoing conflict with Armenia over disputed territory and whose economy is highly dependent on oil and gas trade with the decarbonizing EU.

Foreign policy actors know how problems in a distant, fragile state can quickly land on their desks, whether the trigger is a coup, migration flows, or a virus. Unlike pandemics that strike suddenly, though, with decarbonization it is relatively easy to predict which exposed sectors in which fragile countries will fall into disarray.

The sooner the international community acts to manage the fallout, the better.

How Can We Make the Transition Less Bumpy?

In order to manage the effects of this energy transition, which is already in progress, foreign policy actors must ensure that decarbonization goes hand in hand with the further development of robust bilateral relations. This approach requires a climate-informed foreign policy that acknowledges the shifting flows of money and of power, as well as the changing landscape of diplomatic relations and strategic resources. Different policy areas can contribute to a stable and peaceful transition process.[18]

- **Climate and energy policies**
  Low-carbon development, including renewable and clean energy technologies, is a particularly promising field for developing future cooperation, transforming existing relations, and promoting enhanced action worldwide through the increased use of diplomatic resources.

  Many fossil fuel-exporting countries have great potential to enhance cooperation around expanding sustainable energy. Renewable energy enjoys increasing price advantages, is becoming an internationally recognized prime energy resource, and can be linked to established programs and strategies for economic diversification. Renewable energy also yields co-benefits, like good jobs, increased energy access via decentralized energy systems, and improved livelihood security and living standards in rural areas. These advantages are especially clear in developing countries like Nigeria, where only around 60 percent of the population are connected to the electricity grid, and 80 percent of those with grid access rely on generators running on expensive imported diesel fuel to cope with frequent outages.

- **Trade and investment**
  Foreign policymakers need to consider a wider variety of potential entry points to move countries beyond fossil fuels and

other carbon-intensive products. Trade, investment, and more generally, economic cooperation with countries facing risks from global decarbonization, such as Nigeria or Colombia, can play an important role. As seen in the EU, partnership and cooperation agreements or free-trade agreements can provide a strong basis for such economic cooperation. A starting point could be cooperation between countries that have strategies or plans for economic diversification; these could build more strongly on and connect to priority sectors and industries independent of the fossil fuel business. Such activities should also help enhance these countries' resilience against stability risks arising from their dependence on oil and gas in a world that is beginning to move beyond fossil fuels.

- **Science and education**
  Poorer fossil fuel exporters in particular face significant challenges in developing a knowledge-based economy, which is itself closely linked to aspirations of economic diversification. Countries with established educational and research programs should recognize that these capacities are a strategic resource with which to encourage and shape diplomatic relations and international cooperation. By cooperating with fossil-fuel exporters, they can help to enhance their education and skills development as well as their research capacities. Such cooperation on education, research, and training can be intensified both bilaterally and in interregional frameworks. Renewable energy and other aspects of a low-carbon economy have particular potential in this respect (e.g., university partnerships or joint university degrees).

- **Finance and development**
  Diplomatic relations can put a focus on realigning finance and development cooperation to support decarbonization. Ongoing debates in Europe and beyond center on designing external finance and development cooperation so that a significant share of overall finance is reserved for climate and low-carbon development purposes. In addition, governments need to work to phase out or prohibit finance that is not aligned with low-carbon development objectives. China's Belt and Road program fails to do this.[19] On the other hand, Japan has announced it will slash its support for coal power in Asia[20], the UK government's overseas development bank is cutting support for fossil fuel projects[21], and the European Investment Bank pledges more than 25 percent of its financing to climate action. An important element of such reformed policies on external finance and cooperation is financial support for a just transition.[22] Incorporating strategies for a just transition would heed the lessons from internal debates, like those in Europe or Canada, on the importance of supporting regions particularly reliant on high-carbon industries and activities.

- **Security and peace**
  The geopolitics of decarbonization are also closely related to issues of peace and security. Many fossil fuel exporters face serious internal and/or external security challenges. This dynamic is as true

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for relatively prepared countries as it is for fragile ones. For example, Nigeria faces both serious internal and regional security threats, whereas the main security challenges are primarily domestic for Colombia and Indonesia. Qatar and Azerbaijan in particular are embedded in precarious regional security contexts. In addition, these countries are—to varying extents—challenged by weaknesses of their governance systems. Partners such as the EU can build on and intensify cooperation with fossil-fuel exporters on these security matters.

Conclusion

This vital energy transition is not just a matter of concern for climate and energy policymakers. Nor should the foreign policy community expect the decline of fossil fuels to cause energy issues to recede into the background. On the contrary, it will create new geopolitical dynamics around low-carbon energy. In order for the transition to go relatively smoothly, it is essential that policy-makers consider decarbonization in every aspect of their work, whether trade relations or education policy or development aid. Decarbonization will redraw the geopolitical landscape; diplomacy must be leveraged to ensure a smooth transition.

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