For several decades, energy security has been defined and pursued in a multilateral world with relatively open markets and technology transfer, where energy relations have become increasingly commodified. But that world may soon disappear—energy relationships might become more political, open trade might give way to friction, and great powers might leverage energy relations or energy technology to gain an edge over each other.

For decades the United States has promoted a rules-based, multilateral order, supported by shared gains from free trade and deeper economic and political integration within and among countries. Energy security, the ability to secure affordable and reliable supplies of energy, has been widely recognized as common good promoted by this system. As the world’s largest consumer and importer of energy, it was squarely in the United States’ national interest to support this approach through domestic and international energy policy as well as foreign policy.

Today, this multilateral order is being challenged. The world is experiencing a new era of competition for greater geographic and economic power driven by the shifting center of gravity of the global economy, the realignment of relationships between and among countries, and rapid technological change. Energy is poised to play an important role in this upheaval and will be affected by these changes. The United States is no longer the largest consumer or importer of energy. Instead, it is now the largest producer of oil and natural gas and will soon be a net exporter of energy. The energy world also is changing rapidly, with renewable energy resources like solar and wind making up the fastest growing and largest source of new supplies and global imperatives like climate change challenging the role of status quo fuels. These changes have heralded a reexamination of the United States’ national interest regarding energy in this changing global system.

The United States has important decisions to make about its position in this new environment. Can energy play an influential role in achieving U.S. foreign policy objectives in various regions of renewed geopolitical competition? Is any country or group of countries poised to dominate a given energy market or fuel and might that negatively affect U.S. national security interests? How does this changing global dynamic in which countries are vying for greater geographic and economic spheres of influence affect our approach to global energy security? Will the energy sector become fundamentally more mercantilist, and will the United States be competitive if it does? Greater insight about each of these questions is a prerequisite to the formulation of U.S. foreign and energy policy.
So far, the United States has grappled with these questions by pursuing “energy dominance,” a strategy in which energy represents (1) a tool for gaining geopolitical influence in a given region and (2) an area of competitive and strategic economic advantage for the United States. But other global powers, like China and Russia, pose strong competition for this U.S. strategy. Energy features prominently in the economic, foreign, and national security strategies of all three countries but in different ways. And although all three recognize the importance of maintaining affordable and reliable energy supplies for the good of the global economy as well as their own economic well-being, they also recognize the influence of energy in the execution of foreign policy at the global and regional level. The issue for the international energy community is whether the multilateral approach to shared energy security, supported by the promotion of free and integrated markets, is breaking down into regional and economic spheres of influence more mercantile in nature—and if so, how the United States should respond.

**Shifting Balance of Power**

Power structures within and among nation-states are shifting. A decade ago, Zbigniew Brzezinski foreshadowed the upheaval as the result of a “global political awakening” in which “for the first time in history almost all of humanity is politically activated, politically conscious and politically interactive” and the result is a “quest for cultural respect and economic opportunity in a world scarred by memories of colonial or imperial domination.”1 Much of this awakening is enabled by technology, which has connected and informed society in ways previously not possible.

Today, this struggle is playing out at multiple levels, including the great power politics of nation-states. In 2016, Henry Kissinger spoke about the nature of the changing world order, saying that for the first time in decades: “Practically all the actors in the Middle East, China, Russia, and to a certain extent Europe are facing major strategic decisions. . . . to settle some fundamental directions of their policies. China, about the nature of its place in the world. Russia, about the goals of its confrontations. Europe, about its purpose, through a series of elections. America, about giving a meaning to its current turmoil in the aftermath of the election.”2

The balance of power is shifting, the global order is being renegotiated. The culmination of both has led to an era of intense competition. Within countries, political competition has brought new parties to power. Widespread displeasure over inequality and an unlevel playing field threaten to disrupt the global trading regime and have led to intensified economic competition among firms and strategic economic competition among states. The advent of new technological horizons and the rise of developing countries have sparked new frontiers of competition. Against this backdrop, great powers are looking to expand their reach and refresh their strategies to achieve geostrategic gains.

As countries look to expand their spheres of influence, energy can play a role as both a target and tool of that expansion. Although much of the world’s energy development and trade occurs in the sphere of normal commerce, energy infrastructure, investment, and control over resources can also play a role in establishing or challenging the relationships between and among countries. For the first time since the end of the Cold War, there is genuine strategic rivalry among the world’s great powers. China’s rise has created a web of economic and political relationships in all continents. Russia is reasserting itself in places from which it had retreated. The United States is aggressively renegotiating its existing relationships with allies

and adversaries. New areas of strategic competition have opened up in resource-rich areas like the Arctic and the emerging economies of Africa.

**Changing Energy Landscape**

At the same time, the energy sector is experiencing several important upheavals with the potential to reorder the world’s energy markets. The current energy system predominantly comprises fossil fuels—oil, coal, and natural gas—though in recent years, renewables (wind, solar, and bioenergy) have grown the most (albeit from a lower base). The mix of fuels in the power sector varies among countries, with some now experiencing a high (more than 25 percent) share of renewables in the generation mix. Coal still dominates the power sector and oil has almost entirely been worked out of the mix except for a few countries where it is still used for power generation. Transportation is dominated by oil, but efficiency gains and the declining cost of batteries mean that electric and more efficient vehicles will limit oil use, even though demand for oil for heavy-duty vehicles, shipping, planes, and petrochemicals will remain robust. Nuclear power, once the domain of developed economies in Europe, North America, and Japan, as well as Russia, has experienced a resurgence in China and will grow in parts of the Middle East. Elsewhere nuclear energy has struggled to maintain cost-competitiveness for its existing plants, restart operations in the wake of post-Fukushima security concerns and build new plants on budget and on time.

In geopolitical terms, the energy map has changed a great deal as well. Developing economies assumed the largest share of energy demand several years ago and currently make up the majority of total energy demand and nearly all demand growth. China, which has had the largest growth in energy demand each year for the last decade and half and is now the largest energy consumer in the world, has seen a slowdown in energy demand growth in recent years because of moderating economic growth, measures to improve energy efficiency, and structural economic reforms. The United States, once the world’s largest energy consumer, is now the largest producer of oil, natural gas, and hydrocarbon gas liquids. The rapid rise in U.S. oil and gas production, along with other factors, helped bring about a collapse in oil and natural gas prices in 2014, causing financial stress for the world’s oil and gas exporting economies and led to an alliance between OPEC and Russia to manage production to stabilize world oil prices.

All of these shifting market and geopolitical dynamics are occurring in the context of important technological and societal change. The rising share of renewable energy means that energy systems not only are becoming more diversified but, in some locations, electric power systems are more distributed, flexible, and responsive, incorporating elements like two-way power flow, demand-response, and distributed storage options. The energy system is gradually becoming more digitally enabled even outside the electric power sector, including digital applications for drilling operations, pipeline functioning and maintenance, refinery optimization, and transportation technologies.

From a policy perspective, countries and companies are working to create new strategies to survive and compete in this new market environment while meeting a broader suite of societal goals and commitments. Countries and multilateral organizations have established a number of global and regional priorities, chief among them the United Nations’ Sustainable Development Goals, several of which address the provision of energy services to alleviate energy poverty and to meet other development needs like education, health care, and basic nutrition. Many countries and subnational entities continue to orient their policies and regulations to transitioning to a low-carbon and more resilient future for the purposes of combating and withstanding the effects of climate change. These policies would mean a profound transformation for the world’s energy system if they were realized.
U.S. policymaking in this landscape is complicated. There are new players and realignments in traditional fuels, chiefly because of the rise of the United States as the largest producer of both crude oil and natural gas, which has led to closer collaboration between the Organization of the Petroleum Exporting Countries (OPEC) and Russia on oil, and could, in time, produce a similar response in natural gas. But the United States and the West are retreating or failing to lead in other energy sectors—the nuclear industry in a few decades is likely to be decidedly non-Western, while China has doubled down on new technologies, ranging from solar panels to electric vehicles, and likely will become a leader in the products essential for transitioning to a low-carbon world. There is, in short, a realignment in old markets, just as the battle is intensifying in new ones.

Energy Spheres of Influence

Influence is a multifaceted and often nebulous concept; energy is visible, tangible, and hence often acts as a proxy for influence—because it in fact confers influence or because we assume it does. It was China’s search for resources that first prompted its overseas strategy, commonly known as the “Go Out Policy,” at the turn of the century. Even today, despite a broader set of commercial and strategic interests, energy is a major component of Chinese investment and trade around the world. For Russia, energy is one of two strategic commodities, along with arms, that enable it to court other countries; and it is energy that is providing a foundation for its expansion into the Arctic. Recent years also have seen a significant expansion of Russian state-owned investment in energy projects overseas, particularly through Rosneft. Even for the United States, energy has become part of bilateral relations with allies (The North Atlantic Treaty Organization or NATO, South Korea) and adversaries (Russia, China).

Domination is a similarly nebulous concept, but one paramount foreign policy objective for the United States has been to prevent any country or group of countries from dominating an energy market, a fuel, or a region; or to prevent political concessions from whatever market power exists. It was this impulse that led President Jimmy Carter to threaten military force against any adversary looking to dominate the Persian Gulf. It was a similar urge that prompted President Ronald Reagan to impose sanctions on European companies looking to advance Russian gas projects in the early 1980s, or subsequent administrations to support pipeline projects to diversify European gas supplies. Or to promote civilian nuclear power while tightly controlling proliferation since President Eisenhower’s “Atoms for Peace” speech. Today’s energy landscape has changed: the United States is no longer thinking merely in denial terms; it is examining whether it can dominate energy markets.

The foreign and energy policy communities have made broad assumptions and assertions about but have not adequately investigated (1) the role energy plays in the contemporary competition for influence among the United States, China, and Russia in specific regions of the world; (2) whether any one country or groups of countries might be able to exert preponderant influence over a specific type of energy or fuel; and (3) the implications for U.S. foreign policy objectives and global energy security.

Geopolitical Influence

Energy factors into several examples of the contemporary struggle over geopolitical spheres of influence. One very timely example is Venezuela. Over the past 15 years of Venezuela’s political, economic, and social decline, China and Russia have come to own much of its oil resources and debt. Once one of the world’s largest oil producers and ally of the United States, Venezuela is widely considered a criminal state and is the source of the biggest migration crisis in the history of the hemisphere. Although the world oil market has adjusted to the decline of Venezuelan production, a further collapse could directly affect U.S. energy security by interrupting flows of oil from Venezuela to the United States. And yet the
Trump administration feels confident enough in U.S. and global supplies of oil to effectively sanction trade in Venezuelan oil to bring about regime change from Nicolás Maduro to the interim president Juan Guaidó. The U.S. government has identified the instability in Venezuela and the presence of foreign powers as threats to U.S. national security, harkening back to the principles of the Monroe Doctrine. Given that energy is the reason for foreign presence in Venezuela, many foreign policy analysts have suggested that energy will be a key to its future. This means the United States will need to forge some sort of resolution with China and Russia over the leadership in Venezuela and over ownership over its oil resources.

Another often cited example of geostrategic competition is that for an influential role in the Indo-Pacific. With varying degrees of success, China has sought to expand its sphere of economic and soft power influence through the Belt and Road Initiative (BRI). After the collapse of the Trans-Pacific Partnership (at least the version that included the United States) the United States and its regional allies now seek to counter with the Free and Open Indo-Pacific Strategy. Energy plays a role in these agendas, such as the financing and construction of coal-fired power generation units by China and the efforts by the United States and Japan to create natural gas import facilities throughout the region. Implementation varies greatly on both strategic initiatives, as does the line between commercial versus strategic objectives. Whether building energy infrastructure or trade links translate into geopolitical connections remains to be seen. However, an economic (versus military) counterweight to China’s ambitions in the region is of increasing strategic importance to the United States.

Relationships throughout the Middle East are shifting as well, with Middle Eastern countries increasingly looking to Asia to secure future markets for their oil. Russia has taken a revanchist stance on the global stage and, through its partnership with OPEC and energy investments in the Middle East, appears to be forging closer, though not uncomplicated, ties with more countries in the region. Energy trade has not been affected by the several country economic embargo against Qatar but trade flows throughout the region have been affected by the renewed U.S. sanctions on Iranian oil exports. The U.S. presence in the region is long and complicated but it seems that alliances in the region are diversifying and energy is playing a big role in communicating and solidifying those shifts.

Further north, the Arctic’s natural resources are abundant and more accessible as the Arctic summers are ice-free for longer periods of time. Russia and China have staked aggressive territorial claims in the Arctic and are seeking to expand commercial and military activity in the region. The oil and gas resources in the region remain on the edge of commerciality and yet provide one of the few economic justifications for a greater and sustained presence in the Arctic. Countries with strategic justification will pursue development whereas others driven by purely commercial interests will be farther behind.

Finally, energy also provides a foothold for investment in Africa on both the supply and demand side of the market. African economies are believed to hold a great deal of promise for future growth in the global economy and a source of energy supply and demand. The first area of strategic competition is in resources extraction. Several countries in Africa have oil and natural gas resources that have historically and recently attracted attention from international oil and gas companies. Chinese national oil companies also have long operated in Africa—a 2015 working paper by the International Energy Agency pointed out that Africa was the top source of overseas equity oil production for Chinese companies. The second area of strategic competition is on the energy demand side of the equation. Soft power

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influence in Africa through the provision of power generation and other basic infrastructure fits into the strategic architecture of both U.S., Chinese, and to a lesser extent Russian foreign policy. China’s overall Africa strategy has grown in recent years whereas the United States has struggled to catalyze significant investment in the region.

It is far from clear that energy determines any of these struggles for influence but at the very least it is a defining feature of the dynamics in each region. Competition in energy plays out much more directly in several of the fuel or technology sectors themselves.

**Fuel or Technology Spheres of Influence**

In this rapidly changing landscape, countries also look to exert influence over specific types of energy. One recent example is the resurgent presence and expansion of OPEC in oil markets. OPEC’s ability to influence markets has been called into question for many years and for different reasons.4 Many analysts now argue that cooperation between Russia and Saudi Arabia is essential for OPEC to influence the market and in turn prices.5 Together the two countries produce a fifth of the world’s oil and OPEC+ (a loose organization of 24 oil producing nations led by Saudi Arabia and Russia) accounts for 50 percent of global production. Although Russia has had a patchy history of cooperation, some of its recent actions suggest a greater commitment to market management.

Another growing area of strategic competition is in natural gas. The United States historically has been isolated from the global gas market. Insofar as analysts were worried about gas, they either worried about Soviet/Russian gas into Europe or about the prospect that the United States might become vulnerable because of dependence on liquefied natural gas (LNG) imports. In the past ten years, the market for gas has changed—and so has the United States’ position and its priorities. As the gas market continues to change, it is unclear whether the normal presumption about the path toward larger markets with more suppliers and increased trade making gas a more secure fuel will hold true in reality or perception. This question has recently come to the fore as the United States, as a growing gas exporter, talks openly about the economic and foreign policy benefits it hopes to derive from its natural gas exports.

Nuclear energy also is an area where one set of dominant players has shifted to another. The United States, France, Japan, and Korea are struggling to build reactors at home and abroad whereas Russia and China are making significant headway. In light of a marginal slowdown in domestic demand, Russia and China are pursuing export opportunities. Moreover, seeing the export of nuclear goods and services as a strategic undertaking, the Russian and Chinese governments are aiding their nuclear industries financially and diplomatically as they approach new and existing markets. Russia already is an established supplier of nuclear power goods and services, with ongoing projects in Bangladesh, Hungary, India, and Turkey. But China appears to be fast emerging as an aspiring leader in the global nuclear commerce after its Thirteenth Five-Year Plan identified advanced nuclear technologies as a key area for development and commercialization. Whether these changes pose a threat to the United States depends on whether you think having a vibrant nuclear industry is important. Many supporters of nuclear energy argue it is a vitally important technology we relinquish at our peril and yet this assertion has done over the years to motivate sufficient domestic support to revitalize the industry.

Technologies once on the horizon appear poised to make important penetration into the market. Electric vehicles and batteries are expected to be two new pillars of the future clean energy economy. Many countries around the world from Europe to Asia have established policies and objectives to compete in these markets. China has set a number of strategic technology goals, supported by robust state subsidies. One is to dominate in the development of electric vehicles (EVs), of which it has the largest market and already is the largest producer. Whether China is on track to dominate this sector is still an open question (as is what domination would look like). To date, China has spent a great deal of money and created a large number of car companies. China has shown its willingness to change policies as needed to cultivate a given market and some sort of consolidation in China’s EV production market is likely. Whether China’s EVs can compete outside China is a critical question. China’s progress so far has been strong enough to lead to speculation about potential strategic consequences. For example, if China is, in fact, able to exert market power, what might be the consequences of China’s control? Does this market give China a platform over many of the world’s critical minerals necessary for battery development and the value chain of this important and potentially transformative new technology? In any event, strategic competition from China in EVs has captured the attention of U.S. policymakers in the executive branch and in Congress.

In truth, China is not the only competitor in this and other important emerging energy technology areas with whom U.S. industry will compete. All of this speculation about competition in regional and technological energy spheres of influence may be overplayed. The academic and policy communities often insinuate connections between energy and foreign policy influence that may or may not exist in practice, or at the very least are difficult to measure. Similarly, notions of energy dominance over a fuel or technology often are vastly overstated or underappreciated. A critical factor to determine the nature of U.S. or any other country’s decisive influence over a fuel or technology is the degree to which the market for that technology or fuel operates in a market environment or if it is dominated by long-term contract structures or state-to-state arrangements. In all of these cases it is important to investigate the ability of any one country or group of countries to influence or dominate an energy sector by controlling the resource base, value chain, or simply through competitive means including those executed through industrial strategy. Indeed, industrial policy, a term that used to be most often preceded by “the U.S. does not have,” is gaining momentum as many lawmakers and private sector participants raise concerns about the United States’ long-term ability to compete across a variety of technologies and industries. Many of these are in the telecommunications realm but EVs, batteries, and nuclear power increasingly are part of this discussion.

The Future of Energy Security

What does all of this mean for the future of global energy security and U.S. interests relative to those of other countries? There has been little analysis of the future of global energy security across a range of potential geopolitical and energy futures. The Center for Strategic and International Studies (CSIS) conducted its own analysis of the topic in 2014 in light of resurgent U.S. oil and natural gas production but the world has changed a great deal since then, with both energy and geopolitical forces reshaping the landscape far faster than has been envisioned. In 2014, the G7 created an Energy Security Initiative to strengthen, reconstitute, and recast principles for the promotion of energy security. This action was taken in response to Russian aggression in Ukraine and the perceived need to bolster the energy security of

Europe but also to refocus international energy policy efforts toward collective threats to energy security. It has not been followed up with any additional multilateral initiatives of similar scope and scale. Instead, the current administration has focused efforts on regional foreign policy strategies such as the Asia EDGE strategy (which seeks to accelerate the development of energy markets in the Asia-Pacific region) and more targeted efforts in relation to European energy security. Although both of these strategies purportedly aim to thwart the impact of non-market-oriented energy and infrastructure projects in Asia and Europe, some foreign governments and companies see these as strategies designed to support the sale of U.S. energy resources, particularly natural gas, in these markets. This view has been supported by the way in which the Trump administration approaches negotiations within the context of its bilateral and multilateral trade agreements, its statements about the global trade agenda, and the actions it has taken on other commodities such as steel and aluminum.

On the domestic front, the United States is arguably in a much stronger position with regard to its own energy security. There are more diversified supply sources for the electric power sector, cheaper and greater quantities of domestically sourced natural gas for industrial input and export, and abundant supplies of oil, reducing net import volumes and the negative trade balance associated with it. The United States is not, however, immune to the negative effects of energy supply or demand disruptions, which can put downward pressure on economic growth, affect oil and natural gas prices, and disrupt supply chains in terms of costs and availability for energy-related goods and services. In addition, U.S. energy infrastructure is aging, vulnerable to cyber-attacks and natural disasters, and arguably lacks resilience.

Several analyses have examined energy and geopolitics in a low-carbon future and one of the major scenarios is of more geopolitical turbulence. None of these analyses, however, explores how a more mercantilist global energy arrangement would affect specific fuels or how we think about global energy security as a common good today. The predominant approach is bifurcated, with multilateral institutions seeking to incorporate major new energy producers and consumers into the dialogue about shared approaches to energy security while countries compete more aggressively in regional and sectorial domains. Much of the old understanding of energy security emanated from the development of a global oil market whereas the future of energy security may depend much more on the security and reliability of the electric power system and the security of information systems.

Competition and the struggle for influence are likely to be hallmarks of the global energy landscape for the future but that does not mean shared interests and principles of energy security have disappeared. These are massive technological and geostrategic considerations that the energy security community has not coherently addressed but it must do so sooner rather than later.

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