America's Energy Edge: The Geopolitical Consequences of the Shale Revolution

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The Geopolitical Consequences of the Shale Revolution

Robert D. Blackwill and Meghan L. O'Sullivan

Only five years ago, the world's supply of oil appeared to be peaking, and as conventional gas production declined in the United States, it seemed that the country would become dependent on costly natural gas imports. But in the years since, those predictions have proved spectacularly wrong. Global energy production has begun to shift away from traditional suppliers in Eurasia and the Middle East, as producers tap unconventional gas and oil resources around the world, from the waters of Australia, Brazil, Africa, and the Mediterranean to the oil sands of Alberta. The greatest revolution, however, has taken place in the United States, where producers have taken advantage of two newly viable technologies to unlock resources once deemed commercially infeasible: horizontal drilling, which allows wells to penetrate bands of shale deep underground, and hydraulic fracturing, or fracking, which uses the injection of high-pressure fluid to release gas and oil from rock formations.

The resulting uptick in energy production has been dramatic. Between 2007 and 2012, U.S. shale gas production rose by over 50 percent each year, and its share of total U.S. gas production jumped from five percent to 39 percent. Terminals once intended to bring foreign liquefied natural gas (LNG) to U.S. consumers are being reconfigured to export U.S. LNG abroad. Between 2007 and 2012, fracking also generated an 18-fold increase in U.S. production of what is known as

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light tight oil, high-quality petroleum found in shale or sandstone that can be released by fracking. This boom has succeeded in reversing the long decline in U.S. crude oil production, which grew by 50 percent between 2008 and 2013. Thanks to these developments, the United States is now poised to become an energy superpower. Last year, it surpassed Russia as the world's leading energy producer, and by next year, according to projections by the International Energy Agency, it will overtake Saudi Arabia as the top producer of crude oil.

Much has been written lately about the discovery of new oil and gas deposits around the world, but other countries will not find it easy to replicate the United States' success. The fracking revolution required

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more than just favorable geology; it also took financiers with a tolerance for risk, a property-rights regime that let landowners claim underground resources, a network of service providers and delivery infrastructure, and an industry structure characterized by thousands of entrepreneurs rather than a single national oil company. Although many countries possess the right rock, none, with the exception of Canada, boasts an industrial environment as favorable as that of the United States.

The American energy revolution does not just have commercial implications; it also has wide-reaching geopolitical consequences. Global energy trade maps are already being redrawn as U.S. imports continue to decline and exporters find new markets. Most West African oil, for example, now flows to Asia rather than to the United States. And as U.S. production continues to increase, it will put downward pressure on global oil and gas prices, thereby diminishing the geopolitical leverage that some energy suppliers have wielded for decades. Most energy-producing states that lack diversified economies, such as Russia and the Gulf monarchies, will lose out, whereas energy consumers, such as China, India, and other Asian states, stand to gain.

The biggest benefits, however, will accrue to the United States. Ever since 1971, when U.S. oil production peaked, energy has been construed as a strategic liability for the country, with its ever-growing thirst for reasonably priced fossil fuels sometimes necessitating incongruous alliances and complex obligations abroad. But that logic has been upended, and the newly unlocked energy is set to boost the U.S. economy and grant Washington newfound leverage around the world.

THE PRICE IS RIGHT

Although it is always difficult to predict the future of global energy markets, the main effect the North American energy revolution will have is already becoming clear: the global supply of energy will continue to increase and diversify. Gas markets have been the first to feel the impact. In the past, the price of gas has varied greatly across the three largely distinct markets of North America, Europe, and Asia. In 2012, for example, U.S. gas prices stood at $3 per million BTU, whereas Germans paid $11 and Japanese paid $17.

But as the United States prepares to generate and export greater quantities of LNG, those markets will become increasingly integrated. Already, investors have sought government approval for more than 20 LNG export projects in the United States. However many end up

being built, the exports flowing from them will add to major increases in the flow of LNG that are already occurring elsewhere. Australia is soon set to surpass Qatar as the largest global supplier of LNG; by 2020, the United States and Canada together could export close to Qatar's current LNG capacity. Although the integration of North American, European, and Asian gas markets will require years of infrastructure investment and the result, even then, will not be as unified as the global oil market, the increased liquidity should help put downward pressure on gas prices in Europe and Asia in the decade ahead.

The most dramatic possible geopolitical consequence of the North American energy boom is that the increase in U.S. and Canadian oil production could disrupt the global price of oil—which could fall by 20 percent or more. Today, the price of oil is determined largely by the Organization of the Petroleum Exporting Countries, which regulates production levels among its member states. When there are unexpected production disruptions, OPEC countries (primarily Saudi Arabia) try to stabilize prices by ramping up their production, which reduces the global amount of spare production capacity. When spare capacity falls below two million barrels per day, the market gets jittery, and oil prices tend to spike upward. When the market sees spare capacity rise above roughly six million barrels a day, prices tend to fall. For the past five years or so, OPEC's members have attempted to balance the need to fill their public coffers with the need to supply enough oil to keep the global economy humming, and they have managed to keep the price of oil at around $90 to $110 per barrel.

If oil prices fall and stay low, every government that relies on hydrocarbon revenues will find itself under stress.

As additional North American oil floods the market, OPEC's ability to control prices will be challenged. According to projections from the U.S. Energy Information Administration, between 2012 and 2020, the United States is expected to produce more than three million barrels of new petroleum and other liquid fuels each day, mainly from light tight oil. These new volumes, plus new supplies coming on line from Iraq and elsewhere, could cause a glut in supply, which would push prices down—especially as global oil demand shrinks due to improved efficiency or slower economic growth. In that event, OPEC could have a hard time maintaining discipline among its members,

few of which are willing to curb their oil production in the face of burgeoning social demands and political uncertainty. Persistently lower prices would create shortfalls in the revenues they need to fund their expenditures.

WINNERS AND LOSERS

If oil prices fall and stay low, every government in the world that relies on hydrocarbon revenues will find itself under stress. Countries feeling the pinch will include Indonesia and Vietnam in Asia; Kazakhstan and Russia in Eurasia; Colombia, Mexico, and Venezuela in Latin America; Angola and Nigeria in Africa; and Iran, Iraq, and Saudi Arabia in the Middle East. These countries' abilities to endure such fiscal setbacks vary and would depend in part on how long low prices lasted. Even with a more moderate drop in prices, the increased volume and diversity of the oil supply would benefit energy consumers worldwide. Countries that like to use their energy supplies for foreign policy purposes—usually in ways that run counter to U.S. interests—will see their influence shrink.

Of all the governments likely to be hit hard, Moscow has the most to lose. Although Russia possesses large reserves of shale oil that it could eventually develop, the global supply shift will weaken the country in the short term. The influx of North American gas to the market will not entirely free the rest of Europe from Russia's influence, since Russia will remain the continent's largest energy supplier. But additional suppliers will give European customers leverage they can use to negotiate better terms with Russian producers, as they managed to do in 2010 and 2011. Europe will gain most from the change if it further integrates its natural gas market and builds more LNG terminals to import gas; such moves could help it ward off crises like those that occurred when Russia cut off gas supplies to Ukraine in 2006 and 2009. The development of Europe's own considerable shale resources would help even more.

A sustained drop in the price of oil, meanwhile, could destabilize Russia's political system. Even with the current price near $100 per barrel, the Kremlin has scaled back its official expectations of annual economic growth over the coming decade to around 1.8 percent and begun to make budget cuts. If prices fall further, Russia could exhaust its stabilization fund, which would force it to make draconian budget reductions. Russian President Vladimir Putin's influence could diminish,

creating new openings for his political opponents at home and making Moscow look weak abroad.

Although the West might welcome the thought of Russia under such strain, a weaker Russia will not necessarily mean a less challenging Russia. Moscow is already trying to compensate for losses in Europe by making stronger inroads into Asia and the global LNG market, and it will have every reason to actively counter Europe's efforts to develop its own resources. Indeed, Russia's state-run media, the state-owned gas company Gazprom, and even Putin himself have warned of the environmental dangers of fracking in Europe—which is, as *The Guardian* has put it, "an odd phenomenon in a country that usually keeps ecological concerns at the bottom of its agenda." To discourage European investment in the infrastructure needed to import LNG, Russia may also preemptively offer its European customers more favorable gas deals, as it did for Ukraine at the end of 2013. More dramatically, should low energy prices undermine Putin and empower more nationalist forces in the country, Russia could seek to secure its regional influence in more direct ways—even through the projection of military power.

Energy producers in the Middle East, meanwhile, will lose influence, too. As the longtime regulator of OPEC's spare capacity and a regional leader, Saudi Arabia merits special attention. The country is already facing growing fiscal constraints. It responded to the Arab Spring by boosting public spending at home and offering generous economic and security assistance to other Sunni regimes in the region. As a result, since 2008, the kingdom's fiscal breakeven oil price (the level needed to ensure its budget balances) jumped over $40 per barrel to nearly $90 in 2014, according to the International Monetary Fund. At the same time, more pressure is coming from the country's extremely young population, which is demanding better education, health care, infrastructure, and jobs. And as its enormous domestic energy demand continues to grow, the country will begin consuming more energy than it exports by around 2020, should current trajectories hold. Riyadh is already trying hard to diversify its economy. But a prolonged decline in the price of oil would test the regime's ability to maintain the public services on which its legitimacy rests. Other Middle Eastern countries—including Algeria, Bahrain, Iraq, Libya, and Yemen—are already living beyond the limits of their fiscal breakeven prices.

Iran, already staggering under the weight of economic sanctions and years of economic mismanagement, could face even more severe challenges. The country ranks fourth in the world in oil and gas production, and it depends on its energy supplies to project regional influence. But of all OPEC's members, it has the highest fiscal break-even price: over $150 per barrel. Although it is possible that lower prices might further diminish the legitimacy of the regime and thereby pave the way for more moderate leaders, the fate of the recent revolutions in the Middle East, as well as Iran's own ethnic, religious, and other cleavages, caution against such optimism.

The net implications for Mexico are less clear. Given its declining oil production and heavy reliance on oil revenues for its budget, the country could well suffer if the price of oil drops. The recent push for energy reforms could allow Mexico to increase production enough to outweigh the effects of lower global prices. Doing so, however, would require the government to follow up on the reform law passed in December. It would have to implement legislation more conducive to private investment in Mexico's energy sector—including its own shale resources—and accelerate its reform of Pemex, the state-owned oil company.

Unlike energy producers, consumers should welcome the energy revolution. Increased North American production has already helped buffer markets by providing much-needed additional production during recent disruptions of exports from Libya, Nigeria, and South Sudan. Lower energy prices will be a particular boon for China and India, which are already major importers and which, according to the International Energy Agency, will see their demand for oil imports grow by 40 percent (for China) and 55 percent (for India) from 2012 to 2035. As the two countries import more energy from the Middle East and Africa, they will take ever-greater interest in these regions.

China also stands to benefit in another way: its relations with Russia could improve markedly. For decades, history and ideology have kept these two countries from finding common cause, despite the obvious benefits that would accrue from a closer partnership between the world's largest energy producer and its largest consumer, which happen to share a 2,600-mile border. But as more and more North American energy comes on line, energy demand in the developed world remains flat, and demand continues to increase in the developing economies of Asia, Russia will increasingly seek to secure markets in the East.

Moscow and Beijing could well move closer together on long-stalled energy deals and pipelines and collaborate more on energy issues in Central Asia. Once clinched, such arrangements could form the basis for a more extensive geopolitical relationship—one in which China would have the upper hand.

As for India and other Asian economies, the benefits will also go beyond the purely economic. A surge in the quantity of gas and oil transported through the South China Sea will provide common cause to all countries seeking to combat piracy and other risks to the free flow of energy shipments, giving China greater incentives to cooperate on security matters. At the same time, U.S. allies in East Asia, such as Japan, the Philippines, and South Korea, will have the opportunity to increase their energy imports directly from the United States and Canada. Their ability to rely on North American partners, shipping oil and LNG via shorter, more direct sea routes, should also give these countries greater peace of mind.

THE U.S. ADVANTAGE

The biggest beneficiary of the North American energy boom, of course, will be the United States. The most immediate effect will be the continued creation of new jobs and wealth in the energy sector. But beyond that, since U.S. gas is among the cheapest in the world, U.S. industries that rely primarily on gas for feedstock, such as petrochemicals and steel, will continue to see their competitive advantages grow. The energy boom is also providing an economic fillip by fueling investments in U.S. infrastructure, construction, and services. The McKinsey Global Institute estimates that by 2020, unconventional oil and gas production could boost the United States' annual GDP by between two and four percent, or roughly $380–$690 billion, and create up to 1.7 million new permanent jobs. Furthermore, since energy imports account for roughly half of the more than $720 billion U.S. trade deficit, declining energy imports are already leading to a more favorable U.S. trade balance.

A diminished reliance on energy imports should not be confused with full energy independence. But the U.S. energy windfall should help put to rest declinist thinking about the United States. Moreover, the end of U.S. dependence on overseas energy supplies—and on the producer countries with which Washington has often had prickly relations—will grant the United States a greater degree of freedom in

pursuing its grand strategy. But the United States will remain firmly linked to globalized energy markets. Any dramatic disruption of the global oil supply, for instance, would still affect the price at the pump in the United States and derail growth. Washington will therefore maintain an interest in preserving the stability of international markets. Nowhere is that truer than in the Middle East, where vital U.S. interests—in preventing terrorism, countering nuclear proliferation, and promoting regional security to protect allies such as Israel and ensure the flow of energy—will endure. So will the need to police the global commons, such as the major sea-lanes through which trade in energy and other goods flows.

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These truths remain poorly understood, however. U.S. policymakers need to start explaining to both domestic and foreign audiences that although the energy landscape is changing, U.S. national interests are not. Newfound oil and gas will not cause Washington to disengage from the world. To be sure, the United States will remain, by almost any measure, the most powerful country on the planet. Yet it will never be able to insulate itself from shocks to the global economy, and so it will remain deeply involved overseas. This message requires particular emphasis in the Middle East, given Washington's exit from Afghanistan and Iraq and its announced pivot toward Asia.

U.S. policymakers will also need to make sure they protect the sources of the country's energy wealth. Even though private-sector players have driven nearly all the advances that unleashed the boom, their success has depended on a supportive legal and regulatory environment. Leaders at both the state and the federal levels will have to strike the right balance between, on the one hand, addressing legitimate concerns over the environmental and other risks associated with fracking and, on the other hand, securing the economic benefits of production.

Likewise, leaders in the U.S. energy sector should work with public authorities to establish standards of transparency, environmental protection, and safety that can help build public confidence and address the risks of developing shale resources. And the country as a whole will have to update and expand its energy infrastructure to fully harness developments in unconventional oil and gas—a transformation

that will require substantial investments in building and modifying pipelines, railroads, barges, and export terminals.

OIL AND GAS DIPLOMACY

In addition to bolstering the U.S. economy, the energy boom promises to sharpen the instruments of U.S. statecraft. When it comes to levying economic sanctions, a diversified energy supply confers distinct advantages. It would have been nearly impossible to put in place the unprecedented restrictions on Iran's oil exports, for example, absent the increase in North American supply. Unlike the sanctions against Iran, Iraq, Libya, and Sudan in the recent past, which were imposed during global oil gluts, the current sanctions on Iran were put in place when the oil market was tight and prices were high. Getting the support of other countries reluctant to impose such strict measures on Tehran required Washington to make a credible case that removing Iranian oil from the international market would not cause a price spike. The sanctions that Congress passed in December 2011 conditioned the imposition of certain strictures on the administration's determination that there was enough oil in the global market to ask other countries to reduce their imports.

While this provision gave the White House an effective waiver, it never used it, thanks to steadily increasing U.S. production of light tight oil, which compensated for the more than one million barrels a day of Iranian oil that the sanctions forced off the market. That U.S. oil allowed Washington to assuage other governments' fears of a price spike and thereby win international support for rigid and exacting sanctions. These measures did major damage to the Iranian economy and helped push Tehran to the negotiating table. Absent new U.S. supplies, the sanctions would likely never have been approved.

The energy revival is also providing U.S. trade negotiators with newfound leverage as other countries compete for access to U.S. LNG. Washington is currently negotiating two major multilateral trade deals: the Transatlantic Trade and Investment Partnership (with the 28 countries of the EU) and the Trans-Pacific Partnership (with 11 countries in the Asia-Pacific and the Americas). When it comes to LNG exports, U.S. law grants automatic approval to applications for terminals intended to ship gas to countries that have signed free-trade agreements with Washington. Applications for LNG terminals designed to send gas elsewhere, by contrast, must go through a review process

that determines whether such trade is in the U.S. national interest. For the many countries in Asia and Europe that want to add U.S. natural gas imports to their energy mix, achieving this special trade status holds extra value. In fact, this incentive proved crucial in convincing Japan—hungry for gas in the wake of the Fukushima disaster, which took its entire nuclear power infrastructure offline—to join the talks for the Trans-Pacific Partnership.

The shift in global energy also gives Washington a new way of reinforcing its alliances. Many countries now hope to follow the United States' lead and start tapping their own unconventional gas and oil resources, and the U.S. government has started to integrate the country's energy experience into its diplomacy. Two State Department projects—the Unconventional Gas Technical Engagement Program and the Energy Governance and Capacity Initiative—are bringing technical expertise from across the government to help other countries (so far, small developing ones) build up their own oil and gas industries.

The spread of shale technology across the globe will be good news for the climate.

The government should expand on these initial efforts and link them to its broader alliance strategy by supporting such countries as Poland and Ukraine as they work to capitalize on their domestic shale reserves. New production in these and other countries would not only lessen the risk of conflict over scarce resources but also help states produce and consume more climate-friendly energy without sacrificing the economic growth they need. Washington should work to help them understand the particular policies that allowed the boom to occur on U.S. soil and, where welcome, offer advice on how to create similar environments.

The United States should also begin using its new energy resources to prevent allies from being bullied by less friendly suppliers. As it reviews applications for LNG export licenses and assesses their national security implications, the Department of Energy should consider whether the proposed projects support U.S. allies—a move that could encourage U.S. energy companies to export to such countries, helping those countries resist pressure from Russia or elsewhere. The U.S. government and its partners should also support regular forums that bring together private-sector energy experts and investors to help

other countries develop their own shale resources. Although such expanded public-private dialogues would not result in increased production right away—even in the most favorable environments, development takes years—they would nonetheless serve as a public symbol of American solidarity.

In a similar vein, the U.S. government should use its own expertise on unconventional energy to engage directly with foreign governments—especially Beijing. The United States shares many diverse interests with China. Both countries are massive energy consumers. Both desire a stable and growing global economy, which depends on the reliable flow of reasonably priced energy. Both want to minimize climate change. And both want to diversify their energy supplies.

Such an overlap of interests between the world's top two energy consumers creates ample room for collaboration. In December, the United States and China reaffirmed their shared interest in "secure and well-supplied energy markets" and discussed cooperating to develop China's energy resources, including shale gas. Chinese companies are already investing billions in shale developments at home and in the United States. But Washington and Beijing should accelerate progress on this front by broadening the U.S.-China Strategic and Economic Dialogue to include light tight oil and by committing real resources to the joint development of techniques for exporting shale oil and gas in an efficient and environmentally responsible manner. If U.S.-Chinese relations improve, the two sides could work together with other energy consumers to enhance global energy security—for example, by extending antipiracy operations around the Horn of Africa.

Finally, the shale gas revolution can enhance U.S. leadership on climate change. Natural gas emits up to 40 percent less carbon than coal, and the United States is now meeting its climate goals not thanks to bold decision-making in Washington but simply because the economics of gas have proved so much more favorable than those of coal. The resulting downward trend in U.S. carbon emissions has given Washington greater credibility in climate talks than it once had; the U.S. government should use it to assume a more forceful stance toward countries that have resisted reining in their emissions.

The spread of shale technology across the globe will be good news for the climate in other ways. Some environmentalists fear that the widespread replacement of coal with gas, while reducing emissions in the short term, will lessen the pressure for more far-reaching reforms.

But even though shifting from coal to gas would not solve the problem of greenhouse gas emissions, it could buy enough time for the next generation of technological and policy innovations to take hold, and these innovations could cut emissions even more dramatically.

ENERGY AND INFLUENCE

The North American energy revolution is here, it is big, and it will only increase in importance as the United States comes close to becoming a net energy exporter, which is set to happen around 2020. The resulting shift in global energy supplies will benefit consuming countries and erode the power of traditional producers. These developments could also undercut OPEC's traditional role as the manager of global energy prices, perhaps to the extent that energy prices plummet. Such a disturbance could, in turn, cascade through all countries that depend on hydrocarbons for their public finances. Even without such a dramatic drop in prices, the global flow of energy will continue to be transformed—and, with it, economic and geopolitical relationships.

The United States, meanwhile, will be uniquely positioned to profit from the shift and seize new opportunities. The energy boom will add fuel to the country's economic revitalization, and the reduction of its dependence on energy imports will give it some measure of greater diplomatic freedom and influence. The energy boom will not solve all the challenges facing U.S. policymakers: Washington still must manage the aftermath of more than a decade of war in Afghanistan and Iraq, its own fiscal profligacy, hyperpartisanship along the Potomac, the erosion of trust among many allies in the wake of revelations about U.S. surveillance, and the rise of China. That said, the huge boom in U.S. oil and gas production, combined with the country's other enduring sources of military, economic, and cultural strength, should enhance U.S. global leadership in the years to come—but only if Washington protects the sources of this newfound strength at home and takes advantage of new opportunities to protect its enduring interests abroad.