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DISCUSSION PAPER

Managing a Smaller
U.S. Strategic Petroleum
Reserve

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July 2017

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This discussion paper is a product of the Program on Energy Security and Climate Change at the Maurice R. Greenberg Center for Geoeconomic Studies, and was made possible through the generous support of the Alfred P. Sloan Foundation.

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Introduction

Comprising roughly 700 million barrels of crude oil stored in caverns throughout Texas and Louisiana, the U.S. Strategic Petroleum Reserve (SPR) was established by Congress in the mid-1970s in response to the 1973–74 Arab oil embargo and ensuing oil price shocks. Its purpose was to insulate the United States from crude oil supply disruptions. In the decades since, despite significant changes in global oil markets, the basic logic and design of the SPR have remained largely unchanged.

The Barack Obama administration initiated a broad review in April 2015 intended to optimize the SPR to serve its stated mandate of “prevent[ing] serious economic harm to the United States in case of energy supply emergencies.” The final report to Congress, released in the fall of 2016, analyzed questions of capacity, size, distribution, composition, and location.¹ However, the report did not address a more fundamental question surrounding the SPR: whether the United States should tailor its reserves to the needs of a global market, where supply risks remain high, or simply to U.S. exposure, as U.S. vulnerability to those risks is diminishing.

The SPR originated at a time when the United States imported most of its oil through long-term supply contracts, so risks to U.S. imports were confined to interruptions in supply from its contracted suppliers. Now, importers have greater capacity to purchase oil on the global spot market, which means buyers can easily secure alternative sources. An integrated market also means that supply shortages or disruptions anywhere can now translate into higher prices everywhere. Moreover, overall global oil reserves have not kept pace with rising consumption. China, India, and other large developing countries have made progress in building reserves of their own but not in keeping with their rising demands. As a result, global reserve cover held in government stocks as a percentage of global consumption currently hovers below historical baselines.

Although the risk of a price spike remains high, the U.S. economy today is considerably less vulnerable to a supply interruption than it was a decade ago because surging domestic oil supply has reduced U.S. oil imports. Even so, U.S. reserves now stand at roughly 374 days (counting private reserves) or 148 days (counting only publicly held stocks), well in excess of the ninety-day threshold required by the International Energy Agency (IEA).²

With U.S. exposure to a direct interruption in supply reduced, the Donald J. Trump administration has signaled comfort with a smaller reserve—the 2018 White House budget proposes liquidating some 270 million barrels. This proposed downsizing comes on the heels of an earlier decision under President Obama to sell 58 million barrels as part of an October 2015 budget deal.

Yet the economic and foreign policy consequences of a smaller U.S. reserve have not been fully considered. Downsizing the SPR will exacerbate the current global shortfall in reserve cover, potentially leaving global markets more exposed to supply disruptions than what today’s largest oil consumers, including China, can comfortably tolerate. If China were to replace the United States as the main source of buffer stocks, Beijing could gain an important new source of global influence, because the SPR effectively protects the global market, not just the United States, from a supply interruption.

Thus, managing the consequences of a smaller U.S. reserve should be a U.S. foreign policy priority. U.S. policy should aim for a scenario in which all large oil consumers—China, Europe, India, and Japan—step up to restore global reserve cover back within historical baselines. The United States should also use its newfound producer status to usher in new patterns of energy security cooperation between major consumers and traditional producers.

The History and Evolving Mandate of the SPR

The operating logic behind the SPR and its counterparts in other oil-importing nations is simple: governments with strategic reserves can mitigate unexpected interruptions in oil supplies by releasing some of their stocks on the market, thereby dampening the effects of crises in oil-exporting regions or along critical supply routes. These reserves also reduce the leverage of major suppliers that are inclined to use oil as a geopolitical bargaining tool when spare capacity is low.

Yet, the U.S. Congress never intended the SPR to serve as a total insurance policy. When the SPR was created, consumption levels were such that even Congress's original target—a one-billion-barrel reserve by 1982—would have not have provided full protection against an international coordinated withdrawal of supply by major oil exporters.³ In fact, the SPR never grew beyond its 727 million-barrel capacity levels that would protect the United States from a disruption similar to the 1973 embargo, which lasted six months, causing imports to decline by 2.2 million barrels per day (mbd)—at a time when U.S. consumption was 16.5 mbd—and quadrupling U.S. oil prices.⁴

Nor did Congress intend the reserve to be used lightly. The SPR's original authorizing legislation granted the president the authority to order a release only in cases of "severe energy supply disruption"—initially defined as "reduction in [U.S.] supply . . . of significant scope and duration" that leads to "a severe increase in the price of petroleum"—which "is likely to cause a major adverse impact on the national economy."⁵ These criteria proved too strict. Frustrated by President George H.W. Bush's reluctance to deploy the SPR—after he initially declined to tap it during the 1989 Exxon Valdez spill and later ignored widespread calls to tap it early in the first Gulf War—Congress passed an amendment in 1990 granting new presidential discretion to authorize a release in cases of international (as opposed to domestic) supply disruption and disruptions affecting only a given region of the country, as well as in advance of a potential disruption.⁶ The SPR took on yet another role beginning in 1996, when Congress authorized the sale of \$227.6 million worth of oil from the SPR to reduce the federal deficit. For many, the sale marked "a dramatic shift in the purpose of the SPR—instead of a strategic asset, [it] was used as a piggy bank that could be tapped during fiscal hard times."⁷ Congress subsequently tapped SPR stocks to meet budget aims on three other occasions.

More recent releases highlight the difficulty in differentiating between an active disruption in supply and the lingering aftereffects of a supply disruption at a time when oil markets are tight. The most recent release, in June 2011, occurred after a reduction in Libyan supply—notably of light sweet crude oil—led to a rise in global oil prices. Yet at the time of the release, Saudi output had already replaced much of the lost crude from Libya and private crude stocks were at near record highs.⁸ Months later, as sanctions began to limit Iranian oil output and speculation mounted about a potential attack on Iran's nuclear program, the United States and other International Energy Agency (IEA) countries signaled a willingness to tap strategic stocks if prices rose too high. In March 2012, President Obama and UK Prime Minister David Cameron indicated that their governments were considering a joint release; months later, leaders from both the Group of Twenty (G20) and Group of Seven (G7) issued statements indicating a similar willingness to release SPR crude if necessary.⁹ Numerous analysts began cautioning that the Obama administration might follow through on a release should the withdrawal of Iranian supply lead to oil prices exceeding roughly \$120 per barrel.¹⁰

Repurposing the Reserve

For all that has changed since the 1990s—the emergence of a single global oil market, sharp demand increases, and a rise in U.S. production—the world remains exposed to the risks associated with a disruption to global supply. At the same time, the United States’ direct vulnerability to an interruption in supply is shrinking.¹¹ Rightsizing U.S. stocks, then, becomes a matter of deciding whether to tailor the country’s reserves to the needs of a global oil market or merely to shrinking U.S. exposure.

A RESERVE FITTED TO GLOBAL NEEDS

As oil markets have become fully globalized, the primary risk consumer countries face is less a shortage of oil than the economic shock from price spikes. Oil markets are currently oversupplied, but that is hardly a given going forward. Domestic political instability—in Iran, Kuwait, Libya, and Venezuela, to name a few—or geopolitical tensions could cause a sharp swing from an oversupplied to an undersupplied market. In fact, these risks grow as low prices destabilize critical oil exporters and undermine the ability of governments in oil-exporting countries to buy off restive domestic populations (such as in Saudi Arabia) or fend off military threats (such as in Nigeria with regard to Boko Haram).

Were a disruption to occur, global markets would be more exposed today than in previous decades, thanks in large part to sharp declines in global spare capacity. Current IEA estimates place the Organization of the Petroleum Exporting Countries (OPEC) spare capacity at roughly 2.7 mbd, although many oil analysts believe OPEC’s spare capacity to be lower. Even the IEA estimate represents less than 3 percent of global demand, well below recent historical averages (OPEC spare capacity hovered around 5 percent of demand throughout the 1990s).¹² Saudi willingness to make the infrastructure investments needed to maintain a buffer of unused capacity is also subject to question; certainly, such investments do not appear in either Riyadh’s recent Saudi Vision 2030 economic blueprint or its plans to issue an initial public offering (IPO) of Saudi Aramco. Without the cushion of spare capacity, small changes in supply can have outsized effects on prices. One study finds that a supply shortfall of even 5 percent can increase oil prices by 50 percent.¹³

Worldwide strategic reserves no longer provide the cover they once did. As global consumption has risen in recent decades—powered by growing oil demand from China, India, and other large developing countries—reserve stockpiles have failed to keep pace. China and India have begun building strategic oil reserves of their own, but those are not on par with rising demand. As a result, global reserve cover as a percentage of global consumption is falling (currently between forty-seven and fifty-two days of coverage, down about 10 percent from 1993), while U.S. reserves now amount to just seven days of global consumption, down roughly 23 percent from 1990.¹⁴ Not only is global reserve cover thinner than it once was but also many IEA member countries are meeting their reserve commitments through industry-held rather than publicly held reserves. Although IEA rules allow countries to fulfill their ninety-day net import cover commitments using either commercial or publicly held reserves, the two types do not have the same effect. Commercial stocks ebb and flow

over time, and releases involving commercial stocks have not tended to lower oil prices as effectively as releases of publicly held stocks.¹⁵

Moreover, even though U.S. vulnerability to a supply disruption has diminished in recent years, the United States remains exposed to a price shock from an interruption in global supply. As long as the United States sources its marginal barrel of oil from abroad (primarily from Canada and Mexico), the market clearing price in the United States depends on the price imported oil can command on the open market. And even if domestic oil production matched domestic oil consumption, a sharp rise in the price of oil would hurt the economy. Far more Americans would lose out from higher oil prices than would profit from them. Sudden increases in energy prices are regressive: they hit low- and middle-income Americans who have little savings and, thus, little capacity to offset price volatility, the hardest.

In short, even though oil consumption has fallen as a share of U.S. gross domestic product (GDP) since the 1970s and net oil imports have gone from nearly half of total U.S. demand to about a quarter, the global price of oil still matters for the U.S. economy. An SPR sized to mitigate the price effects of any global supply disruption on the U.S. economy would need to benchmark reserve cover to overall global consumption—ideally, indexed to the U.S. share of global consumption—not just to U.S. imports.

A RESERVE FITTED TO SHRINKING U.S. EXPOSURE

Even as global risk of supply disruptions remains high, U.S. exposure is undeniably falling: imported oil accounted for 27 percent of petroleum consumed in the United States in 2015, the lowest average since 1985, and the U.S. Energy Information Administration predicts that the share of imported oil could fall to 14 percent of total consumption by 2020.¹⁶ As the U.S. exposure to potential global supply disruption shrinks, so too should its reserve.¹⁷ Therefore, maintaining an SPR sized to a past era of greater U.S. import reliance is an unnecessary expense and a subsidy to other large oil-consuming countries that essentially free ride on the U.S. reserve.

Moreover, the United States' emergence as a marginal swing producer—able to ramp production up or down quickly once the oil price changes—arguably acts as insurance against sustained oil price spikes. As Ed Morse, Citibank's global head of commodity research, has noted, \$50 to \$60 per barrel is enough to “incentivize U.S. shale producers to rebound strongly . . . to the point of not just growing one million barrels a day for one year, but seeing sustained growth for several years—and gaining market share at OPEC's expense.”¹⁸ This growing clarity around U.S. production levels at various price points allows for a different, more modest view of the SPR: as long as policymakers can be reasonably confident that U.S. output averages roughly 12 mbd at \$60 per barrel and drops to 8 mbd at \$40 per barrel, the SPR can be understood as a bridge to known U.S. production levels within a given price range.¹⁹ Of course, precise U.S. output levels along different price levels and just how quickly U.S. production can respond to price signals remain debatable.

Whatever the relative merits of shrinking or maintaining the SPR, there is no doubt that since 2015, both Congress and the Executive Branch have looked to the SPR less as a foreign policy tool and more as an all-purpose funding source. The Trump administration's call to sell off some 270 million barrels to help fund its 2018 budget proposal is simply the latest in a series of similar proposals. Since 2015, Congress has proposed the SPR as a funding source for legislative priorities ranging from infrastructure to biomedical research. The Obama administration agreed to sell 58

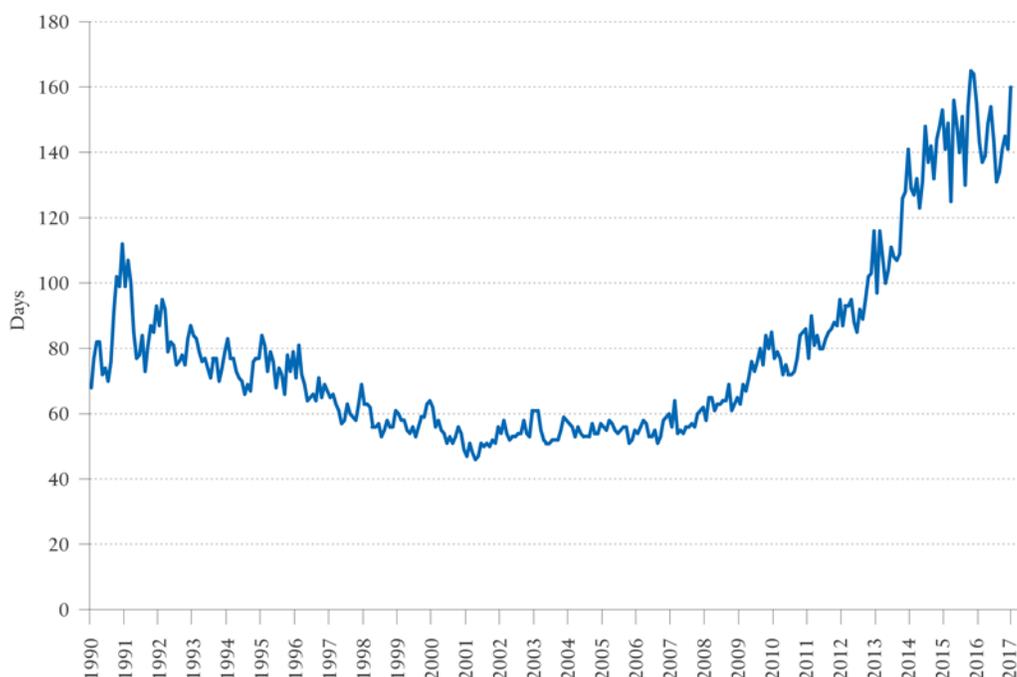
million barrels as part of an October 2015 budget deal. That the fall 2016 review led by the U.S. Department of Energy signaled comfort with a lower bound of 530 million barrels is also telling—the working-level experts charged with directly overseeing the SPR are also apparently coming to terms with a smaller reserve.²⁰ And while early reactions from Democratic and Republican lawmakers alike suggest that Congress is unlikely to grant President Trump’s request to sell off 270 million barrels, the urgency of passing a budget under a Congress controlled by Republicans (who are historically disinclined to finance new spending by raising taxes) could increase pressure to find alternative revenue sources.²¹

Moreover, the Trump administration, with its America First orientation and repeated demands that U.S. allies assume more responsibility over their own security, will likely not be keen for the United States to continue shouldering the burden of providing energy security as a global public good. For decades now, several of the world’s largest consuming countries, including U.S. allies in Europe and Asia, have failed to maintain adequate reserves of their own. Because the benefits of any SPR release, much like the costs of any supply disruption, are inherently global, the United States has been largely unable to prevent other large consuming countries with inadequate reserves from free-riding on the U.S. reserve. For President Trump, eager to see allies assume more of the costs of their own security, downsizing the SPR could prove an attractive option. Yet while significantly downsizing U.S. stocks might alleviate free-riding, if not managed well it could also create larger problems in the process.

The Consequences of a Smaller U.S. Reserve

Assuming that global consumption and production forecasts remain constant, the most immediate consequence of a SPR scaled back to reflect shrinking U.S. exposure would be a further worsening of the global shortage in buffer stocks. The United States could shed around 35 percent of its current publicly held stocks—some 240 million barrels of oil, raising \$12 billion at current oil prices (\$50 per barrel)—while remaining within its historical range of import coverage and within the current ninety-day IEA guidelines (see figure 1). This 240 million-barrel surplus, currently just shy of the Trump administration’s call to shed 270 million barrels, will grow as U.S. net imports continue to fall.²²

Figure 1. SPR Coverage of U.S. Net Imports (in Days)



Source: U.S. Energy Information Administration.

Even a downsizing of this magnitude, however, would carry economic and foreign policy consequences for U.S. interests. Because the United States has historically accounted for a large share of the world’s overall buffer stock, a reduction in U.S. strategic reserves would add to the global shortfall in global reserve cover (relative to the IEA ninety-day guideline). Reduced spare capacity of the world’s traditional low-cost producers in OPEC also structurally reduces a historical source of resilience in the face of many supply shortfalls, increasing the odds that even minor disruptions could produce outside price increases. In fact, some evidence suggests that this sort of

oil price volatility may actually be far more damaging to U.S. and global economic health than high prices alone.²³

The fall in global reserve cover poses two broad risks to U.S. foreign policy. The first is that a smaller U.S. reserve would leave U.S. allies in Europe and Japan even more vulnerable to supply disruptions, potentially making them more cautious. Even under the most optimistic progress on their respective energy security agendas, neither the European Union (EU) nor Japan will likely reduce overall consumption or oil imports soon. Whether out of fear of retaliation or of perceived necessity, the EU and Japan could be reluctant to join the United States in future sanctions against major energy producers. During 2012, for example, at the height of U.S.-EU efforts to coordinate sanctions on Iran, the United States enjoyed 173 days of import cover from its reserves but the EU had only thirty days.²⁴ More broadly, without the comfort of large U.S. reserves, leaders in Europe and Japan could become more hesitant in their approach to any foreign policy challenge that risks spiking oil prices, leaving the United States with less reliable allies as it contends with instability across the Middle East and North Africa, a surlier Russia, and a rising China. Meanwhile, oil producers that are not necessarily friendly to the United States or to its traditional allies might be emboldened.

The second risk is that countries like China—oil importers that are not U.S. allies—fill the vacuum, gaining new global influence. Because potential disruptions would grow costlier without the insurance of a large U.S. reserve, a large oil consumer such as China that has more to lose from supply disruptions and price spikes would have a stronger incentive to add to its own reserve, particularly if tensions in the South or East China Sea ratcheted up.²⁵ Nearly 80 percent of China's energy imports pass through contested waters in the South or East China Sea and through the Strait of Malacca. China now has net imports of 2.6 mbd—more than the United States—and depends on imported oil for 62 percent of its consumption.

The addition of new stocks, broadly distributed across the world's leading consumers, alongside reductions in U.S. stocks could force new negotiations on energy security cooperation—potentially on China's terms. The IEA does not represent the world's leading consumer nations, which are already outside its framework. Were the United States to count industry stocks (as Europe does) for IEA purposes, Washington could sell off far more SPR oil—potentially including all 695 million barrels of publicly held SPR stocks—and remain within the IEA's ninety-day minimum requirement. In such a scenario, the IEA would hold just 705 million barrels in publicly held stocks, down from 1.4 billion currently, which—assuming that China and India meet their stated reserve goals—would leave the IEA with less than half of the global publicly held reserves. Even with a more modest reduction in U.S. public stocks—perhaps by 35 percent—IEA countries would hold roughly 1.13 billion barrels of public reserves.

Already, China has taken maximum advantage of the dip in oil prices to fill its SPR, currently thought to be at around 400 million barrels.²⁶ Significant as that number is, Beijing plans to build a 570–600 million barrel reserve by 2020. If China succeeds, it will become the world's largest holder of emergency oil stocks, owning the equivalent of roughly half the combined public stocks of the IEA and roughly 100 million barrels more than the United States.

It is tempting to assume that Chinese leaders would inhabit a situation similar to the current U.S. position in the IEA, in which, by virtue of being the world's largest stockpile, China's reserves would become a public good. Yet for Beijing, cooperation with other countries that hold substantial emergency oil stocks need not imply cooperation within the IEA framework. Thus far in its dealings with the IEA, China has wielded its emerging status as a major consuming nation as a potential

source of both cooperation and competition. It has, for example, considered proposals to form a rival energy security cooperation entity among Brazil, Russia, India, China, and South Africa (BRICS) and has also contemplated a G20 effort to replace the IEA.²⁷ In short, China would gain leverage globally and among consuming countries, while the United States, with diminished reserves of its own, would be less able to influence the shape of China's participation in the existing architecture for energy cooperation.

China's influence would not be limited to the IEA. Certainly for the United States, the ability to coordinate major, multilateral releases in support of crucial U.S. foreign policy objectives has proved to be a powerful strategic asset. The George H.W. Bush administration's success in tapping IEA stocks in the initial stages of the first Iraq war calmed oil markets: the international price of crude oil plunged \$10 per barrel within a day of the announcement.²⁸ The mere ability to execute a large release, unilaterally or in coordination with other IEA members—even when implied rather than exercised—has afforded U.S. policymakers valuable leeway to escalate geopolitical tensions without subjecting allies and other countries to spiking oil prices. Several former U.S. officials have underscored how valuable this flexibility proved in U.S. dealings with Iran during the George W. Bush and Obama administrations.²⁹

There would be consequences beyond global energy security cooperation to mitigate supply shocks. If China became not only the world's largest consumer of oil but also the largest reserve holder, it could begin to see itself as the new steward of oil price stability, at least among consuming countries—a role that could deepen China's relationships with Saudi Arabia and potentially Iran, much in the way that the United States has enjoyed close cooperation with Saudi Arabia on oil prices for years. Such a newfound role could also amplify calls within China for the country's naval buildup. As Serafettin Yilmaz, a Chinese military expert at Shandong University put it, "China's naval rise remains economics-driven and its primary objective is the protection of the sea routes through which oil, natural gas, and other strategic commodities are shipped. Building a blue water capable navy, in this respect, is . . . an obligation for Beijing."³⁰ President Jimmy Carter relied on the same basic argument in committing the United States to protect the Gulf oil-producing region from outside attack. Known as the Carter Doctrine, this security guarantee has formed the basis of U.S. foreign policy toward the Middle East ever since. Eager to secure its own energy supply routes, China is vigilant about any sign that the United States is retreating from its traditional security guarantor role over oil markets. A scaled-down U.S. reserve could provide Beijing with just such a sign.

Recommendations

Since its creation nearly forty years ago, the U.S. Strategic Petroleum Reserve has served as both a form of economic insurance and a valuable instrument of U.S. foreign policy. Unless U.S. policymakers embed any downsizing effort in a broader diplomatic strategy to manage the foreign policy consequences of a smaller reserve, the costs—to U.S. allies and U.S. global influence—could well outweigh the fiscal savings. There are three basic ingredients to any strategy that seeks to manage the foreign policy consequences of a smaller reserve.

First, U.S. officials should induce major consumers to increase their crude stocks, lest reductions in U.S. stocks exacerbate the growing shortfall in global reserves. Any such effort by the U.S. government would have to involve officials from the White House and Departments of Energy, State, and Defense working together. Returning global reserves to within historical baselines of coverage—say, early 1990s levels (global reserves in 1993 covered roughly fifty-seven days of global consumption and 122 days of imports)—would mean adding roughly 960 million barrels to global stocks in addition to replenishing whatever declines come of a smaller U.S. reserve.³¹ In economic terms, these added stocks would help insulate all countries, the United States included, from supply disruption risks yet still enable the United States to reap the fiscal savings associated with downsizing its reserve.

From the standpoint of U.S. interests, it would be better for all major oil consumers—China, India, and other emerging economies in Asia and Europe—to compensate for declines in U.S. stocks by raising their own reserves. Such a move would return global reserve cover back to historical baselines without empowering China. India has so far managed to build only 38 million barrels of its planned 130 million-barrel capacity. In Southeast Asia, a region expected to account for nearly 20 percent of global demand growth in the coming two decades, most countries have no functional reserve stocks. In Europe, the issue is less about rising demand and more a failure to address long-standing shortcomings in EU reserves.

The threat of a sharply smaller U.S. reserve, together with a meaningful diplomatic push led by officials at the U.S. Departments of State and Energy, may be enough to compel major oil consumers to increase their own reserves—especially at a time when oil prices are relatively low compared to recent years. Although the U.S. government has never attempted a concerted diplomatic campaign aimed at getting large consumer nations to increase their reserves, it does have potential leverage. One option would be to condition sales of U.S. energy technology or U.S. oil and gas exports on countries maintaining sufficient reserves. Another option, focused specifically on Europe, would be for U.S. officials to agree to longstanding EU demands to include an energy chapter as part of the proposed U.S.-EU free trade deal known as the Transatlantic Trade and Investment Partnership (TTIP). The Trump administration has signaled willingness to consider resuming TTIP negotiations; if so, the United States could use an energy chapter in TTIP to write new reserve requirements into elements of the economic relationship—promulgating new guidelines on size, composition, and coordination of reserves.

Second, the existing IEA framework should be overhauled to expand its membership ranks and strengthen its reserve management. The effectiveness of global reserves depends on how they are actually used in a crisis and not just on the size of the stockpile.

This overhaul will require reforms to the IEA. Membership in the OECD is currently a prerequisite for IEA membership, impeding membership of India and China. The current benchmark—ninety days of import cover—was simply carried over from the U.S. reserve.³² Beside the apparent arbitrariness of ninety days, there is no clear reason for benchmarking reserves to import levels. The volume of a country's net oil imports matters far less than its overall oil consumption. The United States should prod IEA countries to benchmark reserves to oil consumption, creating new metrics to adjust for a country's exposure to supply and delivery interruptions.³³ This would incentivize countries to invest in securing their energy supply networks, thus ensuring global security of supply and stable prices.³⁴

Moreover, any reform vision should press the IEA to pay closer attention to how countries actually manage their stocks, particularly whether these stocks would be credibly available during crises. Under existing rules, each member nation retains discretion over the amount and type of oil it would make available and how the oil would be released in a crisis. Contingency plans have been drawn up five times and executed thrice under the current framework. These cases proved the IEA to be a valuable forum for cooperation, but it remains unclear if the IEA can be effective in the face of the type of serious shortages it was created to address.

One way to incentivize IEA participation for China and India would be to hold out the possibility of accessing spare U.S. stocks. Instead of liquidating its spare stocks outright, the United States could allow IEA members, or the IEA collectively, to buy drawing rights (akin to the International Monetary Fund's special drawing rights) to a share of its SPR.³⁵ Holding these drawing rights would allow IEA members to tap shares of SPR oil even when the IEA has failed to authorize an IEA-wide release under the agency's collective emergency response mechanism. Moreover, the United States enjoys some of the lowest storage costs in the world—roughly ten to twenty times less than rates that China, India, and several other countries pay for storing their reserves aboveground.³⁶ If IEA membership proved too onerous, any large non-IEA consuming country (such as China or India) that agreed to formally cooperate with the IEA could potentially buy into U.S. stocks as well. Such an approach, most notably championed by David Goldwyn, the U.S. State Department's special envoy and coordinator for international energy affairs, would enable the United States to monetize excess stocks while preserving both U.S. influence and the global capacity to respond to possible supply disruptions.

Third, the United States should use its own growing production to seek ways to bring the traditional producers—many of which are struggling with declining production levels and increasing domestic demands for oil—around to new forms of cooperation.

No matter how well-coordinated and amply stocked global reserves are, energy security depends on the cooperation of producer nations. Traditionally, contingency plans and simulations around tapping U.S. stocks have assumed that the OPEC, led by Saudi Arabia, would pull back production in the face of any SPR- or IEA-coordinated release. But, at least during the three disruption cases when U.S. stocks were tapped—in 1993 (during the first Gulf War), 2006 (during Hurricane Katrina), and 2011 (during the unrest in Libya)—the anticipated Saudi pullback did not materialize.³⁷ If anything, evidence from previous releases points toward tacit Saudi cooperation.

In fact, some shift toward cooperation is unavoidable as Saudi Arabia finds itself less able, or at least less willing, to fulfill its traditional role as the world's swing producer both during high price

periods, when doubts persist about whether Riyadh holds the spare capacity needed to ramp up production and send prices lower, and during low price bouts—such as between 2014 and 2016—when forced to choose between maintaining market share and maximizing receipts, Riyadh kept market share as its priority.

Such cooperation could take several forms, formal and informal. Presumably, it should involve, at a minimum, Saudi commitment not to undermine any U.S. or IEA release aimed at easing a supply disruption and could include coordinating on messaging; burden sharing on holding spare capacity, which is expensive and has at times proved difficult for the Saudis to manage, as the price highs of 2008 and 2011 illustrated; and joint releases when market conditions warrant. Although importing countries are not likely to directly help exporting countries finance new investment in unused capacity, one alternative would be to introduce take-or-pay contracts, modeled on those used by major gas exporters. Customary in gas contracts, take-or-pay clauses could cover the establishment and management of adequate storage capacity to compensate exporting countries for any unanticipated change in demand or supply in the short term, with automatic adjustments to prices and contractual volumes in case of persisting deviations.³⁸ Such an arrangement would incentivize exporting countries to make much-needed investments in their storage capacity, which would in turn benefit global energy security more broadly. Originally proposed by Giacomo Luciani and Francois-Loic Henry of the Gulf Research Center Foundation, the idea of take-or-pay contracts would thus help transform “the purpose of maintaining stocks . . . from being a tool for confrontation to becoming a terrain for cooperation.”³⁹

Conclusion

Despite running complaints about major oil-consuming nations free riding on U.S. stocks, the U.S. government has never invested the time or energy at sufficiently senior levels to compel consumers with inadequate reserves to step up.⁴⁰ Often, the problem is a failure to appreciate the centrality of energy security to a range of foreign policy challenges. Take the EU, for example, where many of the toughest U.S. and EU foreign policy challenges—such as countering Iranian nuclear ambitions and Russian neo-imperialism—trace back to the constraints placed on Europe by its energy security needs. Yet, long assured by the magnitude of U.S. stocks, EU countries have failed to maintain adequate reserves of their own.

The same holds true at multilateral levels. IEA reform has lagged for the main reason that it has never been a sufficient priority for senior U.S. policymakers. Compared with, say, the International Monetary Fund, which has ten times more staff and far higher degrees of authority and autonomy in staff decision-making, the IEA remains a relatively weak institution, still dominated by U.S. allies in Europe and Japan. President Trump has indicated that he wants U.S. allies to assume larger roles in their own security. This role could extend beyond military security to energy security because U.S. allies have long relied on the U.S. strategic buffer stock. At the same time, the United States would have much to lose if a reduction in its own stock left its allies vulnerable and created new opportunities for China to exercise global leadership. Any reduction in the U.S. strategic stockpile should be used as a catalyst for greater cooperation among leading consumer nations to ensure that the fall in the U.S. stockpile does not increase the world's vulnerability to a disruptive supply shock.

About the Author

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Endnotes

1. U.S. Department of Energy, “Long-Term Strategic Review of the U.S. Strategic Petroleum Reserve,” August 2016.
2. See Energy Information Administration (EIA) data. As of 2015, the SPR contains 695 million barrels, while U.S. net oil imports are roughly 4.7 mbd, which equates to roughly 150 days of net import cover (using EIA data). At 4.7 mbd, the U.S. would only need 423 million barrels to achieve ninety days of coverage; thus the SPR could shed 272 million barrels of oil yet remain within the IEA’s current coverage guidelines. See <http://iea.org/netimports>. For days of coverage, see <http://energy.gov/fe/services/petroleum-reserves/strategic-petroleum-reserve/spr-quick-facts-and-faqs>.
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11. Lydia Cox et al., “The Surprising Decline in U.S. Petroleum Consumption,” *Vox*, July 9, 2015, <http://voxeu.org/article/surprising-decline-us-petroleum-consumption>.
12. Jason Bordoff, “The Strategic Petroleum Reserve.”
13. Gilbert E. Metcalf, “The Economics of Energy Security,” Working Paper No. 19729 (Washington, DC: National Bureau of Economic Research, December 2013), p. 12.
14. In 1993, public stocks were 1.25 billion barrels and total stocks were 3.8 billion barrels (IEA and EIA data; see https://iea.org/publications/freepublications/publication/EPPD_Brochure_English_2012_02.pdf and <http://eia.gov/opendata/qb.php?category=2134439&sdid=INTL.5-5-WORL-MBBLA>). Consumption was 67 million barrels per day (see BP Statistical Review, 2016, <http://bp.com/statisticalreview>.) Dividing 1.25 billion by 67 million equals 18.6 days. Dividing 3.8 billion by 67 million equals roughly 57 days. In 2015, IEA public stocks were 1.57 billion barrels and total stocks were 4.1 billion barrels (see presentation by Martin Young, http://csis-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/attachments/150506_Young.pdf). Consumption was 96 million barrels per day. Dividing 1.57 billion by 96 million equals 16.35 days, and dividing 4.1 billion by 96 million equals roughly 43 days. The 1.57 billion and 4.1 billion figures for current global stocks are actually just IEA stocks. Adding in rough estimates for India (40 million barrels) and China (400 million barrels) should add 440 million to these global figures (for a total of 4.54 billion barrels in global total stocks), which, divided by 96 mbd (2015 consumption) equals about 47 days. Furthermore, if we add the 440 million barrels for China and India to OECD total stocks numbers (4.6 billion barrels in 2016) instead of just IEA figures (not all OECD members are IEA members), we get 5.04 billion barrels for current total global stocks. Dividing this by the 96 mbd consumption figure gives us roughly 52 days. Consequently, current global reserve stocks in days of global consumption coverage range from forty-seven to fifty-two days. Meanwhile, U.S. SPR stocks throughout much of the 1990s were around 590 million, and global consumption in 1990 was 63.5 million barrels per day (see EIA global consumption data for 1990, <http://indexmundi.com/energy>), implying that U.S. stocks provided roughly 9.3 days of global consumption coverage in 1990. Today, however, with U.S. stocks at 695 million barrels and global consumption at around 96.6 mbd, U.S. stocks provide just 7.2 days of coverage—a 22.6 percent decline from 1990.
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31. Total OECD stocks in 1993 were 3.8 billion barrels. Consumption was 67 mbd and global total imports were 31 mbd, equating to 57 days of consumption and 122 days of imports. See <http://eia.gov/opa/opa/qb.php?category=2134439&sdid=INTL.5-5-WORLD-MBBL.A>; OPEC Annual Statistical Review, 2014, <http://opec.org/library/Annual%20Statistical%20Bulletin/interactive/current/FileZ/Main.htm>. In 2016, global stocks, public and private, were roughly 4.54 billion barrels (4.1 billion IEA stocks, plus 440 million barrels from India and China, based on current estimates). With current global consumption at 96 mbd, current coverage is roughly 47.3 days, which is roughly ten fewer days of consumption coverage compared to 1990s levels of 57 days. Thus, returning to previous levels of coverage would mean adding 960 million barrels of oil to existing crude stocks (96 million times 10 days), in addition to compensating for potential declines in U.S. stocks.
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