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Lessons Learned From the 2011 Strategic Petroleum Reserve Release

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September 2012

*This report is made possible through the generous support of the Alfred P. Sloan
Foundation.*

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Introduction

On June 23, 2011, the International Energy Agency (IEA) announced plans to coordinate the release of emergency oil stockpiles in an attempt to offset an ongoing loss of crude oil production in Libya. In the six months prior, oil prices had jumped more than 20 percent, as political upheaval in Libya had prevented an estimated 132 million barrels of oil from reaching the market.¹ IEA member country policymakers feared that high oil prices risked undermining a nascent global economic recovery. To combat that threat, twelve IEA member countries made roughly sixty million barrels of crude oil and refined oil products, such as diesel and gasoline, available to the market. The release, which the IEA referred to as the “Libya collective action,” lasted from July 23, 2011, until September 15, 2011. It was only the third time in its nearly thirty-year history that the IEA, which was founded after the 1973 oil crisis, has undertaken a coordinated release, though the United States has unilaterally released strategic stocks on several occasions for reasons that include raising revenue and countering rising heating oil prices.

The 2011 IEA release provided policymakers with valuable lessons about three critical aspects of these emergency interventions: their effect on oil prices and market perception, their implications for international cooperation, and the logistical issues they raise about the U.S. Strategic Petroleum Reserve (SPR). Energy officials in IEA countries should bear in mind those market-imposed constraints when structuring future releases, tailor their cooperation with influential oil-producing and -consuming countries to evolving geopolitical realities, and address potential operational impediments to the U.S. SPR, informed by the experience of the 2011 release.

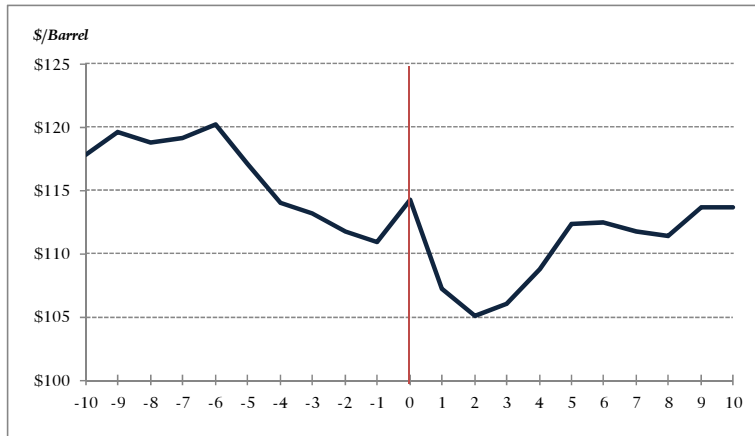
Market Perception and Effect on Oil Prices

EFFECT OF THE IEA RELEASE ON THE OIL MARKET

Policymakers should be modest about expecting an emergency release to lower oil prices in absolute terms. Although oil prices may fall sharply immediately after a release is announced, they are liable to rebound quickly if market conditions warrant a release. That is exactly what occurred following the June 23, 2011, announcement of an impending release. No sooner had the IEA made the media aware that it would be holding a major press conference than prices began tumbling. The price of Brent crude oil, a benchmark for global oil prices, fell 6 percent the day of the announcement and an additional 2 percent the next day (see Figure 1). Policymakers in Washington, DC, who had favored the release were privately delighted by how responsive prices were to the news.²

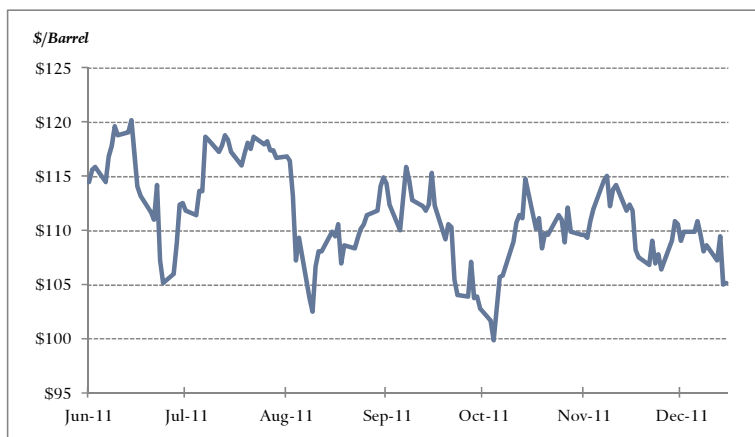
But the immediate collapse in prices proved short lived. By the first week of July 2011, oil prices had reclaimed all their lost ground and then some, closing four dollars per barrel higher than they had the day of the announcement (see Figure 2).

Figure 1. Brent Crude Oil Prices Ten Trading Days Before and After the IEA Announcement on June 23, 2011



Source: Bloomberg.

Figure 2. Brent Crude Oil Prices, June–December 2011



Source: Bloomberg.

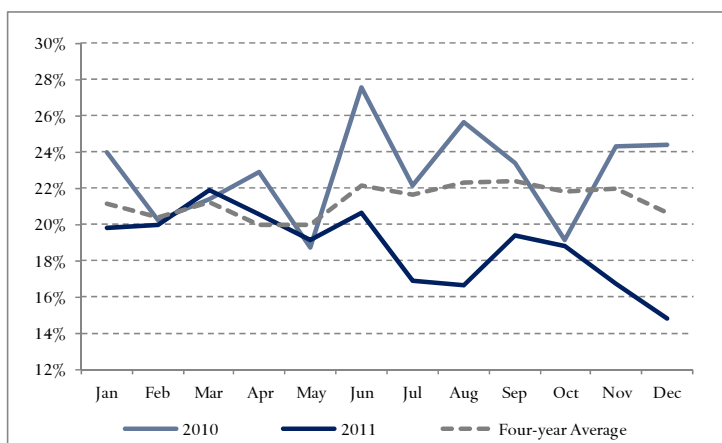
The rally in oil prices in the two weeks following the IEA announcement reflected a surge in economic optimism, propelling oil prices higher alongside financial markets. The Dow Jones Industrial Average leaped more than 6 percent between June 24, 2011, and July 7, 2011, on signs of an improving economic outlook for the United States and China. A decline in the value of the dollar relative to the euro also contributed to the bounce in oil prices, as oil is priced in dollars. Had the market's outlook for the global economy not brightened following the IEA announcement, oil prices may very well have not rebounded to their preannouncement levels so quickly. But that counterfactual only underscores the larger point: broader market forces—in this case, economic data—can quickly overwhelm the immediate price impact of an IEA-coordinated boost to world oil supply.

Yet this does not necessarily mean that the IEA action was unhelpful. Another measuring stick, by which the IEA later justified the release, is what it might have helped to avoid: a large spike in oil prices in the second half of 2011. An IEA statement in July 2011 defended the release as helping to mitigate the risk of a “renewed, damaging and sustained surge in international prices” in the third quarter of the year.³ Later, IEA deputy executive director Richard Jones reiterated this view. Testifying to the U.S. Senate in January 2012, he defended the IEA’s action on the grounds that it “played at least a partial role in helping avoid a damaging price spike during summer 2011.”⁴ Many market analysts agreed. “The SPR releases did help since prices would have been higher without them,” said Olivier Jakob of Petromatrix in September 2011. Edward Morse of Citigroup felt it was “pretty clear” that “things would have been worse without the releases.”⁵

The collapse of Libyan production in the spring of 2011 created a severe shortage, primarily in Europe, of light sweet crude oil—the kind prized by refiners for the ease of processing and generous yield of valuable refined products. No other producers, including Saudi Arabia, were able to provide the market with a suitable replacement for Libya’s light sweet crude oil. Nearly all of OPEC’s spare production capacity is held by Saudi Arabia. At the time of the Libyan disruption, Saudi production stood at around 8.8 mb/d. Even conservative estimates of total Saudi production capacity suggest that the country could come close to making up for the lost Libyan exports.⁶ The problem, however, was that Saudi Arabia’s spare production capacity was too heavy and sour (viscous and high in sulfur) to provide refiners with a like-for-like replacement for Libyan oil. The best available substitute was the light sweet crude oil in the U.S. SPR.

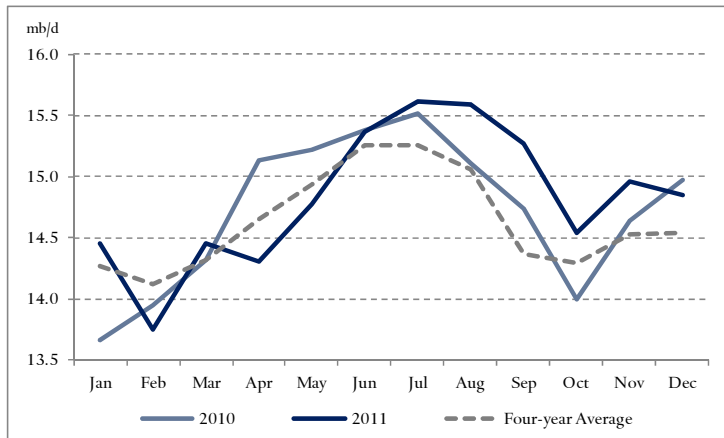
Partial evidence that the release did help keep a lid on prices was the way in which the intervention altered global trade flows. The 30.6 million barrels of light sweet crude oil drawn from the U.S. SPR during the summer of 2011, which stayed within the United States, reduced the country’s need for light sweet crude imports. By releasing light sweet crude to U.S. refiners, the SPR release was able to divert waterborne imports from the Gulf of Mexico to Europe (see Figures 3 and 4). All the while, commercial oil inventories did not decline beyond their normal seasonal patterns (see Figure 5). Light sweet crude imports that ordinarily would have flowed to the United States, typically from West Africa, were freed up for other buyers (see Figure 6).⁷ This rearrangement of global trade flows helped relieve the shortage of light sweet crude oil in Europe and cooled buying in the Brent market.

Figure 3. Percentage of U.S. Light Crude Imports (API gravity over thirty-five degrees)



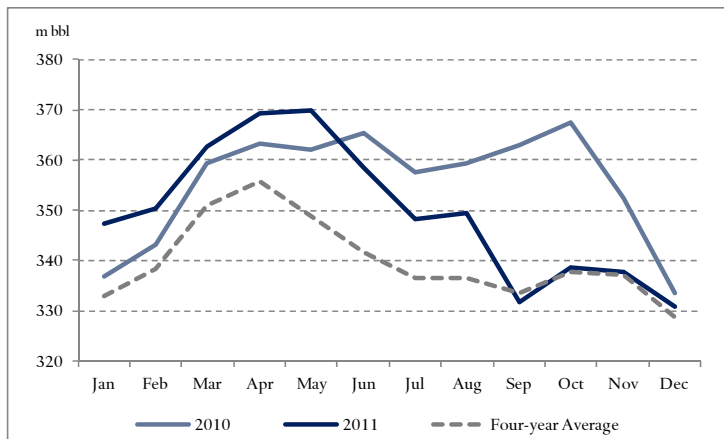
Source: U.S. Energy Information Administration.

Figure 4. U.S. Crude Oil Refinery Runs



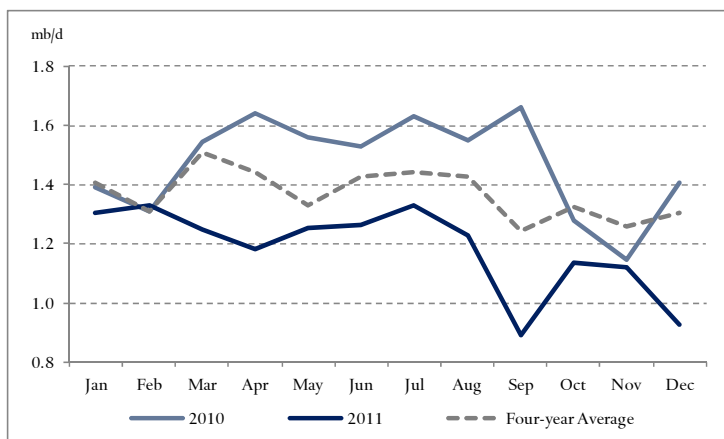
Source: U.S. Energy Information Administration.

Figure 5. U.S. Commercial Crude Oil Inventories



Source: U.S. Energy Information Administration.

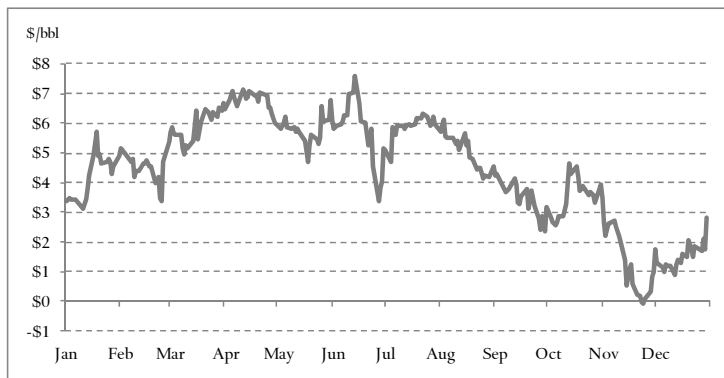
Figure 6. U.S. Crude Imports From West Africa



Source: U.S. Energy Information Administration.

Important indicators in the oil market also suggest that the IEA release helped alleviate supply strain. Libya's crude oil exports are among the lowest in sulfur in the world. When the exports dried up in early 2011, the price spread between low-sulfur Brent crude and high-sulfur Dubai crude oil swelled (see Figure 7), reflecting the growing scarcity of low-sulfur oil in the marketplace. The price gap largely disappeared over the second half of the year, as low-sulfur crude oil from the U.S. SPR and elsewhere helped offset the shortfall. Movement in the forward curve for Brent crude oil also suggested that the IEA action helped quench the market's thirst for oil. By April 2011, the loss of Libyan exports had put a premium on oil for immediate delivery (see Figure 8). That premium all but evaporated when the IEA announced the upcoming release (though it returned with a vengeance once all of the emergency oil had been delivered that fall). Both of these effects were only temporary, yet they are clear evidence that global supplies benefited from greater supplies.

Figure 7. Price Spread Between Brent and Dubai Spot Crude Oil for 2011



Source: Bloomberg.

Figure 8. Price Spread Between One- and Six-Month Brent Crude Oil Futures for 2011

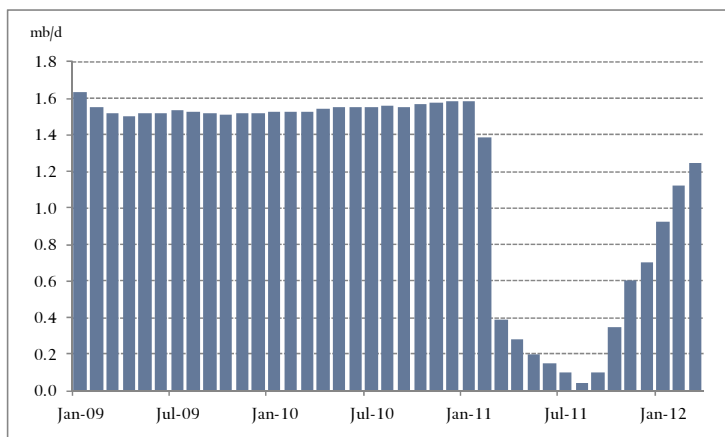


Source: Bloomberg.

It is tempting to attribute the downtrend in oil prices that took place over the second half of 2011 to the IEA release, but, again, larger forces in the market were likely much more responsible for that outcome than the IEA release. On the supply side of the ledger, Libyan oil production, which many analysts thought might stay offline for the remainder of the year, surprised the market by reaching

half its prewar level by December 2011. That flow of oil slowly removed what had been the chief catalyst of rising prices in the spring (see Figure 9). Saudi Arabia also helped by raising production to just under ten mb/d, its highest level in more than three decades.

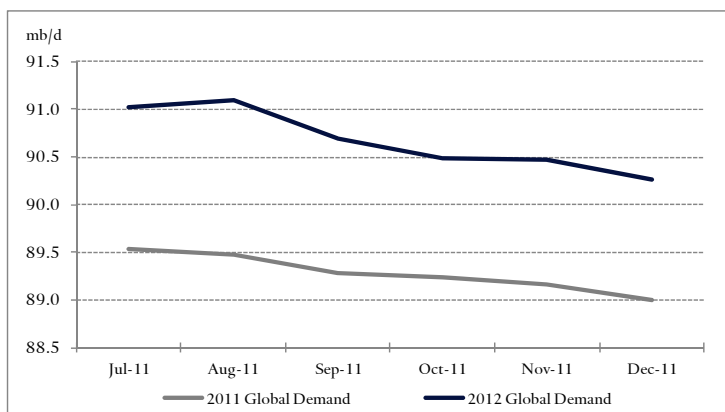
Figure 9. Libyan Crude Oil Production



Source: International Energy Agency.

On the demand side, the market's growing belief in the second half of 2011 that global economic growth—and hence oil demand growth—would prove slower than anticipated also weighed on prices. From July through December 2011, the IEA continually revised down its world oil demand forecasts for 2011 and 2012 in light of the ongoing European economic crisis and worries that emerging market economies were cooling off (see Figure 10). Even a 0.5 mb/d decrease in global demand, maintained over the course of two years, can easily eclipse a onetime sixty-million-barrel addition to supply.

Figure 10. IEA Global Oil Demand Forecasts for 2011 and 2012, July–December 2011

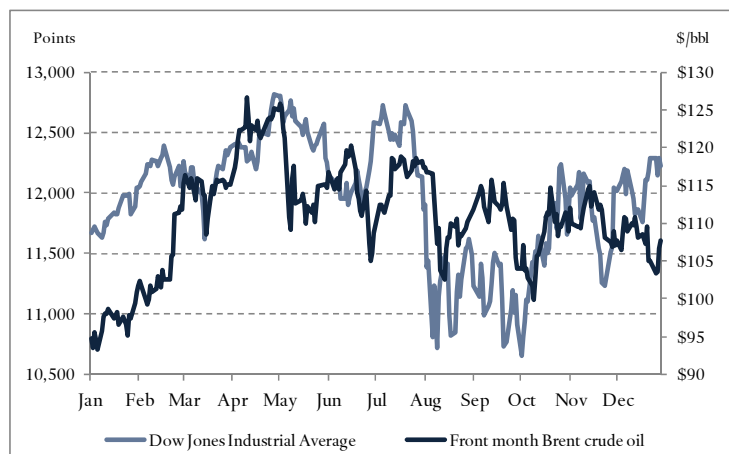


Source: International Energy Agency.

The darkening economic mood in the middle of 2011 was evident in other global financial indicators as well (see Figure 11). The Dow Jones Industrial Average and Brent crude oil prices experienced many of the same fits and starts in the second half of the year, both about 3 percent lower in Decem-

ber than they had been in June. The close correlation between the two market benchmarks has been common during periods of intense macroeconomic uncertainty, as was the case in 2011. This high degree of synchronicity underscores the fact that shifting expectations for global demand likely played a large role in driving oil prices through the summer and autumn of 2011.⁸

Figure 11. Dow Jones Industrial Average and Brent Crude Oil Prices, June–December 2011



Source: Bloomberg.

UNINTENDED CONSEQUENCES OF RELEASING STRATEGIC STOCKS

Policymakers should remember that releasing oil from strategic stocks is hardly a free lunch. Tapping emergency inventories may dampen prices in the short term (though even that effect can be highly transient), but it can cause prices to rise soon thereafter.

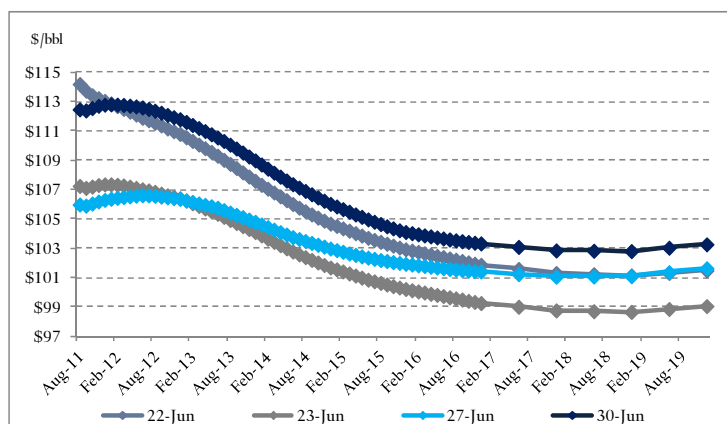
There are two likely reasons why. First, market participants know that national governments will probably buy oil in the future to replace what they just released. Second, an emergency release also tends to increase the market's skepticism that oil producers are well equipped to satisfy global demand. As Lawrence Eagles of JPMorgan explained, a release can “send the message that consumer governments have little faith that there is any spare capacity within the producer group, and/or there are concerns over OPEC's short and long term price aspirations.”⁹ Market participants tend to be highly skeptical of official estimates of countries' spare production capacity. Any signal from IEA countries that appears to reinforce those doubts can send prices higher. As analysts at Pacific Investment Management Company (PIMCO) later wrote, a “temporary release aimed at influencing short-term prices could actually send an unintended bullish signal to the market that long-term spare capacity in OPEC producers is insufficient to meet supply losses.” Because oil prices are a “function of both near-term supply and demand and perceived long-term balances,” concern among market participants that the market may tighten up later can immediately feed back into higher prices.¹⁰

Thus, a release can make markets more anxious, not less, about future conditions in the oil market. Market expectations about higher prices tomorrow can spark higher prices today.

Fluctuations in the forward curve for Brent crude oil around the time of the IEA's June 23 announcement provides support for these views (see Figure 12). Prices all along the curve fell sharply during trading on June 23, the day of the announcement. But by June 27, just two trading days later (June 25–26 was a weekend), long-term prices had already rebounded to their preannouncement lev-

els. Three days later, the price of oil for delivery after January 2012 was higher than it had been prior to the IEA's announcement. This jump in prices, though driven in part by a bounce in economic sentiment, suggests that the market may have indeed interpreted the IEA release as putting upward pressure on longer-term prices. It is also broadly consistent with the notion that market fears about long-term conditions are liable to feed back into near-term prices.

Figure 12. Forward Curve for Brent Crude Oil Around the June 23, 2011, IEA Announcement



Note: The forward curve represents the price of oil for delivery at various dates in the future.

Source: Bloomberg.

NEED FOR PUBLIC UNITY AMONG IEA MEMBER COUNTRIES

IEA member countries should present a unified front after the IEA secretariat announces a release. They failed on this score in the 2011 release. What is more, press leaks about internal dissention among IEA members may have exacerbated oil price volatility that summer.

When the IEA issued a press release announcing the upcoming emergency release, it drew attention to the fact that its governing board would “review the impact of [its] coordinated action and decide on possible future steps” within thirty days.¹¹ This language suggested to the market that the initial sixty million barrels of oil made available could be followed by a second release, should officials decide to act. Many analysts interpreted the statement as an attempt by the IEA to mitigate speculative buying by telegraphing that more oil might be on the way.¹²

Shortly after the press release, however, reports began to surface suggesting that Germany and Italy had gone into the IEA release dragging their heels and were strongly disinclined toward, and perhaps even firmly opposed to, a second one. One French government official leaked to Reuters that “Germany and Italy were not much in favor of the decision back in June.” The decision was unanimous, he conceded, but “not all were committed.” The two European countries, among the world’s top holders of strategic reserves, were “likely” to resist any call for a second release, the source confided.¹³ A senior official at Erdolbevorratungsverband (EBV), Germany’s national petroleum stockholding agency, also let slip that “the word from Berlin is that there won’t be a second release.” Other European officials were reported as making similar remarks.¹⁴

These leaks may have contributed to price volatility in July. When news got out that some countries were opposed to further action, many market participants felt a second release was much less likely, though they did not rule it out.¹⁵ Any IEA member country could still have acted unilaterally,

as some speculated the United States might, but the likelihood of another large-scale release appeared much dimmer. As traders tried to make sense of the leaks, oil prices whipsawed. Some commentators attributed an unusually large jump in oil prices, occurring the same day news broke about Germany and Italy not favoring another release, as due in large part to market guessing about the IEA's next move.¹⁶

Any power the IEA may have to tamp down short-term oil prices by threatening to draw down emergency stocks is undercut by the appearance of divisions among IEA member countries. In practice, the extent to which the IEA is able to discourage market participants from speculative buying is difficult to gauge. Some analysts have suggested that the IEA might be able to discourage speculative buying by credibly threatening to tap emergency stocks if prices go too high. In the words of Amy Jaffe of Rice University, if the IEA shows it is "willing to use the strategic reserves," then speculators "have to worry that extra oil may come if prices reach a certain level."¹⁷ That policy tool is only likely to affect market participants' decision-making if they believe that officials will actually wield it. The more unified IEA member countries appear in their determination to use emergency stocks to contain the market, the more effectual the threat of joint action.

OPTIMIZING THE STRUCTURE OF AN IEA RELEASE

In a joint IEA emergency release, each member country has the prerogative of deciding what form its participation will take (e.g., how much oil the country will make available, what type of oil, and by what means it will be released).¹⁸ IEA officials do not impose their own preferences. This process allows every national government to tailor its participation in an IEA release to suit its own interests. But it also runs the risk that the release will be ill suited to the market's needs.

Figure 13. Emergency Stocks Made Available from the IEA Release

	Total	Public	Industry	Crude Oil	Refined Product	Of which: Gasoline	Diesel	Residual Fuel Oil	Jet Fuel/ Kerosene
United States	30,640	30,640		30,640					
Total IEA North America	30,640	30,640		30,640					
Japan	7,915		7,915	3,958	3,957				
Korea	3,467	3,467		1,998	1,469	300	1,169		
Total IEA Pacific	11,382	3,467	7,915	5,956	5,426	300	1,169		
Belgium	797	95	702		797	43	654	6	95
France	3,242		3,242		3,242	476	2,375	64	327
Germany	2,770	2,770		1,620	1,150	500	650		
Italy	2,524		2,524		2,524	1,183	373	968	
Netherlands	1,173	1,173		1,023	150		150		
Poland	959		959	310	650	139	510		
Spain	2,274		2,274		2,274	331	1,799	144	
Turkey	1,071		1,071		1,071	176	895		
United Kingdom	3,000		3,000	600	2,400				
Total IEA Europe	17,811	4,038	13,773	3,553	14,258	2,848	7,407	1,181	422
Total IEA	59,833	38,145	21,688	40,149	19,684	3,148	8,576	1,181	422

*The breakdown in crude and product has been estimated; overall stockholding obligations on industry, which include both crude and refined products, have been lowered in these countries.

Source: International Energy Agency.

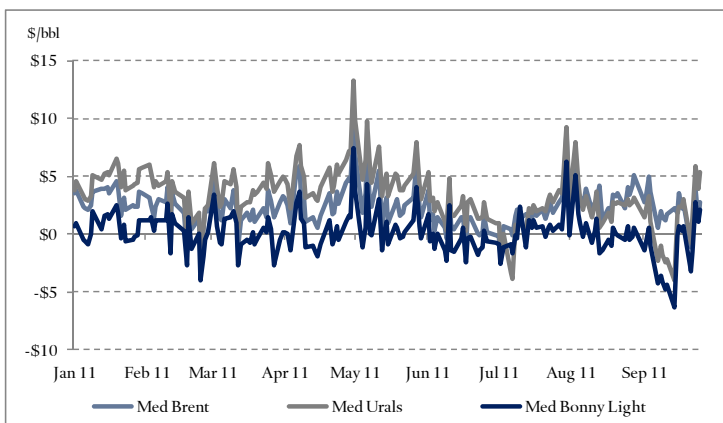
Of the roughly sixty million barrels of oil the IEA authorized for release, nearly one-third of the oil that was made available to industry came from relaxing industry stockpiling requirements of refined products in Europe.¹⁹ That was unfortunate. In these countries, governments require refiners to hold a certain amount of oil. Once a government reduces this officially mandated level of storage, refiners are free to sell or refine some of their stocks, though they are under no obligation to do so. Given conditions in the European oil market at the time, refiners had little incentive to release additional products onto the market. The release would likely have been more effective if it had consisted of more light sweet crude, ideally auctioned from public stocks, as opposed to refined products. Had that been the case, a greater percentage of the sixty million barrels of oil that was made available by the IEA release would have reached the market.

Altering the release in this way, though, would have required asking more of those countries with sizable national stockpiles of high-grade crude oil. The United States holds the lion's share of the sweet crude reserves held within IEA member countries, with some 262 million barrels (or 38 percent of total IEA holdings) as of July 2012.²⁰ Washington would have had to increase its role in the release if significantly more light sweet crude were to have been supplied. As it was, the United States was already providing more than half of the total oil made available in the 2011 IEA release, and may have resisted expanding its role.

European and Asian governments could very likely have also taken on a much larger role in supplying sweet crude oil. Indeed, they likely released much less of this type of crude, as a percentage of their total public holdings, than the United States did in 2011. The IEA does not keep comprehensive data on the grade of its member countries' crude stockpiles, so it is difficult to know for certain which countries may have been able to increase the amount of sweet crude they supplied.²¹ Yet public inventories of crude oil in Europe amounted to 186 million barrels in May 2011. Assuming the ratio of sweet to sour crude oil in European public stockpiles is similar to that of the United States, European IEA members could have more than doubled the amount of sweet crude they made available in 2011 and still not have surpassed Washington's contribution as a percentage of sweet crude stocks. It would have been sensible for Europe, whose physical market was affected most directly by the disruption, to have shouldered more of the burden. Japan also likely has sizable strategic stocks of sweet crude that it withheld, as its government-held reserves—about 323 million barrels—consist entirely of crude oil. But the Japanese government chose not to release any of the stockpiles in the 2011 IEA action.

Paltry demand for diesel in Europe, as a result of severe economic weakness, coupled with high crude oil prices had pushed refiners' profit margins into abysmally low, even negative, territory (see Figure 14). Releasing more fuel would only have made things worse. "Far from depressing prices and rescuing a fragile economic recovery in the industrialized world," one news report observed, the prospect of more refined products in the European market would "[pile] more misery on refiners, and has raised expectations of increased supply [of crude oil] that may not be realized."²² Not coincidentally, industry stockpiles of refined products in Europe at the time were well above the levels mandated by the IEA. Had companies had an economic rationale for releasing more products at prevailing prices, they would have already done so. Thus, lowering storage mandates for refined products likely did little to help improve supply conditions in the European market.

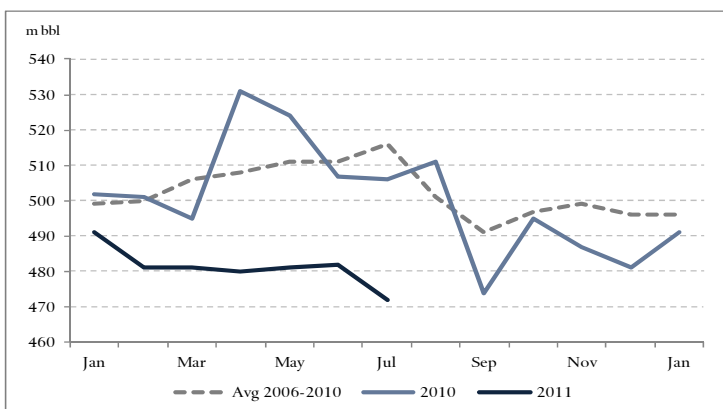
Figure 14. Oil Refining Margins in Southern Europe (Select Grades)



Sources: Bloomberg and the International Energy Agency.

Outside of North America, where oil supplies in the midwestern United States were at all-time highs, commercial inventories in the Organization for Economic Cooperation and Development (OECD) countries were far lower than the historical norm, reflecting a global crude oil market that was tight (see Figure 15). It was no coincidence that all of the 30.6 million barrels of crude oil auctioned from the U.S. SPR found their way to the market, albeit indirectly by diverting waterborne imports away from the United States to Europe. Priced at a discount to prevailing market prices, SPR crude was attractive to market participants. It also attacked the root of the global supply problem by allowing those European refiners most hurt by the loss of Libyan crude to take advantage of newly freed light sweet crude from West Africa, which no longer flowed to the United States.

Figure 15. OECD Commercial Crude Oil Inventories Outside North America



Sources: Bloomberg and the International Energy Agency.

Oil analysts' expectations for what the IEA release could accomplish would have been far more positive had the release favored crude oil over fuel and government-held oil over reduced stockholding requirements on industry. Shortly after details of the release were announced, Goldman Sachs analysts argued that the reduction in stockholding requirements would "have an almost negligible impact on oil prices," noting that commercial stocks in IEA countries were above mandated levels. Lowering the mandate "might result in very little additional oil being made available," making the

“price impact from those measures” likely “very limited.”²³ Oil analysts at JPMorgan took a similar view, arguing that “the method of sale, and the lack of guidance on refilling, work against the barrels being used.”²⁴ A European oil trader predicted that “the 15 million barrels of products should mean that refinery margins get pummeled and runs are cut, seeing as demand is already poor.”²⁵

This line of criticism was common enough to prompt IEA officials to address it directly in the following month’s *Oil Market Report*, a regular IEA publication:

While relaxing the stock obligation on operators might be a less visible response, or be seen as a more diluted measure, since no formally announced sales or physical movements may occur, it is no less effective. The lowered obligations give operators the opportunity to make additional oil available over the coming months, and they will use this greater flexibility according to market circumstances.²⁶

Although the argument above is true in theory, given the particular issues facing the oil market in the summer of 2011, policymakers in IEA member countries would have been more effective at offsetting any global supply shortage by restructuring the specifics of the release.

International Cooperation

International politics lie at the center of any IEA decision to jointly tap member countries’ emergency oil inventories. The 2011 release highlighted the challenges to, as well as the changing nature of, cooperation among IEA member countries, major non-IEA members like China, and pivotal producers such as Saudi Arabia.

THE DIFFICULTY OF NEGOTIATION AND CONSENSUS BUILDING

It can be far harder and take far longer for IEA member countries to form a consensus to authorize a joint release than the policymakers involved might expect or desire. Alas, delay can also compromise the effectiveness of a release.

Officials from the Obama administration, which made the initial push for the release, learned this lesson in the months prior to the June 2011 agreement. Although senior U.S. officials reportedly began lobbying their IEA peers for a release as early as March, it took nearly four months to reach a decision. The Obama administration’s early attempts at persuasion were met with “nothing but resistance.”²⁷ By late April, talks among the twenty-eight IEA nations had begun. On May 6, President Barack Obama called King Abdullah of Saudi Arabia and Kuwaiti emir Sheikh Sabah al-Ahmad al-Sabah to discuss a possible release. The president then sent a secret delegation of senior administration officials to Saudi Arabia, the United Arab Emirates (UAE), and Kuwait.²⁸

By May 19, after a meeting of the IEA’s governing board, international buy-in for a release was strong enough for the agency to publicly announce that member nations were ready to use “all tools”

at their disposal to settle the market.²⁹ Later that month, President Obama pressed his peers at a G8 summit in France to take joint action.³⁰ After the OPEC meeting in June ended without an agreement to raise production quotas, IEA member countries made a final decision to intervene, announcing their intention two weeks later.

The slowness of the decision-making process likely worsened the timing of the release in at least three ways. First, rampant speculation in the market press about the possibility of an imminent release—and possibly leaked information from political insiders—may have amplified price volatility that rattled the markets from April through the first half of June. Rumors abounded that the enormous ten-dollar drop in crude oil prices on May 5 was due to a tip-off that Obama had “started to consult seriously” about tapping the U.S. SPR.³¹ Second, announcing release as early as March or April may have helped calm oil’s stampede to \$125 per barrel, as the market anticipated peak demand in the Northern Hemisphere amid a dire Libyan supply crunch. Third, the time elapse between the collapse of Libyan exports and IEA’s June announcement provided ammunition for critics who claimed that the Libyan production stoppage was only a pretext for a decision that was politically motivated.³² Had the release followed more closely on the heels of the Libyan disruption, IEA policymakers would have been able to avoid that accusation.

THE SHIFTING PERCEPTIONS OF CRITERIA FOR IEA EMERGENCY INTERVENTIONS

The IEA’s decision to tap emergency stocks immediately met with intense skepticism among media and policy analysts who questioned whether conditions in the market warranted the intervention. The 2011 decision “proved particularly controversial” within the IEA, according to one report, “dividing the agency’s members and whipping up a firestorm of criticism from senior oil analysts and traders.” Some felt that the agency had overstepped its bounds. “They (the IEA) have given themselves justification to do just about anything they want. I’m sure it will be a lively debate internally,” said Mike Wittner, an oil analyst at Société Générale and former IEA official.³³ Some market analysts surmised that the United States was exhibiting a newfound willingness to deploy its strategic reserves for nonemergency purposes.³⁴

For some, the IEA decision evidenced that the agency’s mission had drifted from providing emergency supplies to trying to proactively manage prices. “By influencing short term sentiment,” wrote an analyst in the *European Energy Review*, “the IEA is playing a very dangerous game.”³⁵ It is true that IEA policymakers, particularly in the United States and the European Union, were desperate to buoy a nascent economic recovery. Fierce opposition to any additional fiscal or economic stimulus had largely rendered such measures politically impossible. Some saw the IEA release as an attempt by Western policymakers as stimulus by other means. “An economic stimulus . . . in oil dollars,” one analyst somewhat derisively described it.³⁶ The release, in other words, was a “reach by member countries for the remedy of last resort to high oil prices.”³⁷ The IEA was foolishly trying to assume Saudi Arabia’s role as the “central bank” of world oil, intervening in the market to suit its own economic objectives. The timing of the release, some months after Libyan production first began to collapse, raised some analysts’ suspicions that Libya was nothing more than “good cover” for the attempt to lower fuel prices.³⁸

At the heart of the debate was the question of what market conditions justify an emergency IEA intervention. Some policy analysts wondered whether IEA intervention was needed, as oil refineries

worldwide appeared to be well supplied, despite the loss of Libyan exports. As Guy Caruso of the Center for Strategic and International Studies put it, “We’re already several months into the Libyan disruption and a lot of the logistical rearrangement of supplies has already taken place. Most refiners I’ve talked to appear to be adequately supplied.”³⁹ Yet inventory data were showing signs of rapidly depleting industry crude oil stockpiles in Europe. By March, these stocks in OECD Europe had fallen well below normal seasonal levels due to the combined effects of the Libyan disruption and production outages in the North Sea.

The real question was not whether light sweet crude supplies were running low—they clearly were, particularly in southern Europe—but whether the shortage was severe enough and global enough in nature to justify an IEA collective action. Opinions differed sharply. The release raised other legitimate points of contention, including who bore primary responsibility for combating the shortage (some in Washington saw the European Union as the obvious candidate, given that its refiners were most harmed and U.S. commercial inventories remained high); whether the criteria for deciding to release stocks was too ad hoc and politicized; and whether the failure of the release to drive prices lower in the weeks following the June 23, 2011, announcement eviscerated the fundamental economic logic of the release.⁴⁰

Facing sharp criticism over the release, IEA officials defended their decision in the July 2011 edition of the *Oil Market Report*: “Much ink has been spilt subsequently suggesting that the IEA action comes three months too late, depletes emergency stockpiles and has failed to reduce rampant crude and motor fuel prices. However, we feel compelled to point out that critics cannot have their cake and eat it too.” IEA officials rejected the argument that influencing prices was the goal of the action or the measuring stick by which it should be judged, calling it “blinker” to “focus on specific price levels.” The authors pointed out that a lack of “major OPEC production increases up until June implied a real possibility that commercial stocks could fall to the bottom of their seasonal range, risking a renewed, damaging and sustained surge in international prices” later in the year. The emergency action was not a dangerous depletion of oil stocks, they argued. After all, it entailed only 1 percent of total IEA inventories.⁴¹ The bottom line, as the IEA officials saw it, was that the “impact of the collective action will only be truly evident in hindsight.”

THE NEED FOR COOPERATION WITH SAUDI ARABIA

For IEA countries, cooperation with Saudi Arabia (and its Gulf allies, to a much lesser extent) is critical for a release to meet its objective of helping to relieve a shortage of oil in the market. Saudi Arabia acts as the world’s major swing producer of oil, continually raising and lowering its output in response to market conditions. Without some degree of cooperation from Riyadh, any attempt by IEA member countries to offset supply losses by drawing on strategic stocks is almost certain to be ineffective. The reason is straightforward: were the Saudis to choose to dial back their production to offset emergency IEA supplies, they could easily neutralize a release.

Some analysts saw Riyadh’s unwillingness to aggressively discount the oil it offered to the market after Libyan production went down in early 2011 as a failure in Saudi-IEA cooperation.⁴² Traditionally, consumer governments view releasing oil from emergency stockpiles to combat a supply disruption only as a second resort. Instead, they would prefer to see OPEC, which has historically kept some of its production capacity idle, make up for any harmful shortfalls in global supplies. But judging by its production levels, Riyadh appeared unwilling to play this critical role in the early spring of

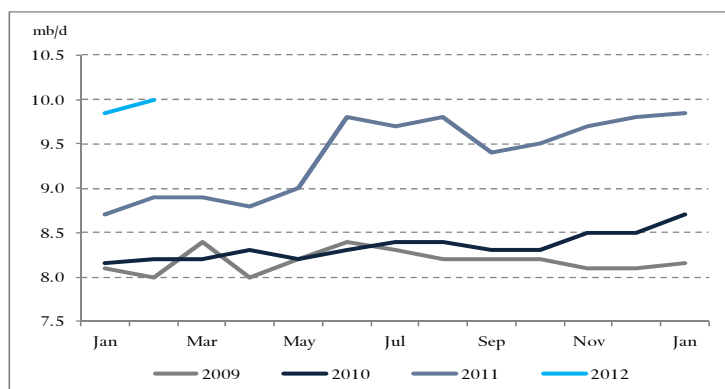
2011, prior to the IEA announcement, even as prices shot higher. For Saudi Arabia, putting more oil on the market inevitably would have meant offering it at a discount. Only then would its additional production attract interest from European buyers, who would have preferred the kind of light sweet crude they lost when Libya went offline.

IEA secretariat officials were aware of the need for cooperation from Saudi Arabia from the start of the planning process. Saudi Arabia has long held its current pivotal role in the global market. As the IEA saw it, the release would not substitute for Saudi oil, but rather supplement it in two ways. The emergency oil would serve as a backstop in case the expected increase in Saudi production did not arrive as quickly as planned or fell short. After an inconclusive OPEC meeting in early June 2011, the Saudis publicly declared their intention to ramp up their output that summer to help stem rising oil prices. When IEA officials announced their emergency release a few weeks later, they acknowledged the Saudis' promises, saying that the IEA "warmly welcomes the announced intentions to increase production by major oil producing countries," notably Saudi Arabia and its Gulf peers.⁴³ The purpose of the release, as the IEA described it, was to create a "bridge to higher supplies from other OPEC producers . . . and to try to prevent a potentially abrupt drawdown in OECD inventories . . . if other OPEC supplies did not increase."⁴⁴

The IEA intervention also supplemented Saudi production by offering a grade of oil that was closer to the missing Libyan crude than Riyadh had provided. Saudi Arabia was unable to replace ultra-high-quality crude oil exports from Libya with its own common grades, all eight of which are sour (i.e., high in sulfur content). As Libyan export volumes began to dwindle early in the year, Saudi Aramco, Saudi Arabia's national oil company, announced in March 2011 that it would help remove the deficit of light sweet crude in the global marketplace by offering higher-quality synthetic versions of its own crude. These hybrid Saudi grades met with only tepid interest from refiners. The market's lack of interest was likely because the oil was still an imperfect substitute for the missing Libyan crude, and the Saudis offered them to the market at too high an asking price to attract buyers, given the quality of the oil.⁴⁵

Cooperation between IEA member countries and the Gulf states, notably Saudi Arabia, was strong during and after the release. Riyadh lifted its crude output to the highest level in more than three decades, notwithstanding the IEA intervention (see Figure 16). Kuwait and the UAE also increased production. As Libya started to pump more oil in September 2011, the Gulf States trimmed back their supplies accordingly.⁴⁶ Ultimately, European refiners relied on higher-than-usual imports of oil from Saudi Arabia, Nigeria, Iraq, and Angola as the best available substitute for lost Libyan exports. Nigerian and Angolan crude proved especially valuable, given their low sulfur content and low viscosity. Many southern European refineries, unable to process the relatively high-sulfur crude oil common in the Middle East, could easily process this crude oil from West Africa.⁴⁷

Figure 16. Saudi Arabian Crude Oil Production



Source: International Energy Agency.

THE NEED FOR COOPERATION WITH CHINA

China's strategic petroleum reserves, still in the early phases of construction at the time of the 2005 IEA release, are now among the largest in the world. The IEA should continue to attempt to coordinate future releases with China and eventually with other non-IEA countries such as India.

China has been actively constructing and filling its strategic reserves in recent years. According to IEA reports, Beijing completed phase one of its SPR in 2008, building and filling four storage facilities with a combined capacity of 103 million barrels of crude oil (see Figure 17). As of June 2012, China was working on phase two of its SPR development. At capacity, these additional sites, which are due for completion in 2013, will house another 169 million barrels of crude. All in all, the buildup of Chinese emergency stockpiling capacity might be ready to receive as many as seventy-nine million barrels of oil in 2012.⁴⁸

Figure 17. China's SPR Expansion (as of February 2012)

Operator	Location	Capacity	Status	Completion
Sinopec	Zhenhai, Zhejiang	32.7	Filled	3Q06
Sinchem	Zhoushan, Zhejiang	31.4	Filled	4Q07
Sinopec	Huangdao, Shandong	20.1	Filled	4Q07
CNPC	Dalian, Liaoning	18.9	Filled	4Q08
Phase 1		103.2		2008
CNPC	Dushanzi, Xinjiang	18.9	Completed and ready to be filled	3Q11
CNPC	Lanzhou, Gansu	18.9	Completed and ready to be filled	4Q11
CNPC	Jinzhou, Liaoning	18.9	Under construction	1Q12
Sinopec	Tianjin	22.0	Under construction	1Q12
	Other	90.3		2013
Phase 2		169.0		2013
Phase 3		227.8		2016
Total SPR		500.0		

Source: International Energy Agency.

Oil purchases by the Chinese government have become a significant force in the global market. Analysts believe that China's efforts to begin filling these growing emergency coffers in the first quarter of 2012 boosted the country's crude oil imports and contributed to a sharp rise in oil prices over that time frame.⁴⁹ In March 2012, oil traders and analysts estimated that China had been adding as much as 250 thousand barrels per day (kb/d) to 500 kb/d to its national stockpiles.⁵⁰

Planning the 2011 release, IEA officials almost certainly realized that China's ongoing efforts to fill its own SPR could interfere with an IEA emergency stock draw. The IEA thus risked oil effectively moving out of IEA strategic stocks into the Chinese SPR, neutralizing the release. Trying to avert that outcome, IEA officials contacted Chinese officials prior to the release. The contents of their discussion have not been disclosed.⁵¹ Chinese energy officials publicly voiced support for the IEA intervention shortly after the announcement. China's National Energy Administration released a statement giving the IEA's move a "very positive evaluation and support." Chinese officials promised to "pay close attention to the impact and usefulness of oil stock releases on international oil prices and international oil markets."⁵² It is unclear whether China did in fact cooperate with the IEA's release by slowing down the rate at which it was filling its SPR. The Chinese government does not release regular data about the flow of oil into its strategic reserves.

This type of coordination between IEA policymakers and their Chinese counterparts is essential. The Chinese economy, like those of the large Western consumer nations, is highly vulnerable to global oil supply shortages and the high prices they bring about. Though China will not cede its sovereignty over its own national oil stockpiles, the IEA should attempt to persuade Chinese officials to assist them in an emergency release based on both parties' shared interest in low, stable oil prices and reliable supplies. This assistance might take one of two forms. Ideally, China would supplement an IEA release by drawing down its own stocks in conjunction with IEA member countries. If that is not possible, China would at least refrain from filling its SPR (if applicable) in the months prior to, during, and after an IEA release.

The need for the IEA to develop effective ways to work with the strategic reserve policies of major non-IEA consumers like China will grow more urgent in the years ahead. As emerging-market countries become more dependent on oil imports, their demand for emergency supplies will grow.⁵³ China, for its part, plans to expand its strategic reserves by a further 228 million barrels by 2016, lifting its capacity to five hundred million barrels.⁵⁴ At that scale, China's reserves would be roughly 70 percent the size of the U.S. SPR. Moreover, India unveiled plans in late 2011 to increase the size of its proposed national stockpile to 132 million barrels by 2020. While India does not currently have any strategic oil stocks, it expects to complete the first of three storage sites by the end of 2012. India's top oil official has said that the country may use SPR stocks to combat "price fluctuations," rather than only to address emergency shortages.⁵⁵ That distinction suggests India might intervene in the market more actively than other countries have. All signs point to the need for IEA member countries to coordinate more closely with countries outside their ranks if future releases are to be effective.

EFFECT ON RELATIONS WITH OPEC MEMBER COUNTRIES

An IEA emergency stock release risks causing diplomatic friction between IEA member countries and their allies within OPEC, particularly if the latter group does not see the circumstances as meriting extraordinary intervention.

This dynamic played out in the 2011 release. Predictably, both the OPEC secretary-general and Iran's representative to OPEC roundly criticized the IEA intervention.⁵⁶ But even OPEC countries that are allies of the United States and other Western nations seemed to resent what they perceived to be an unwarranted intrusion by the IEA. One Gulf delegate later said he saw "no reason" for the IEA release, accusing the agency of "playing politics" by acquiescing to a White House-directed release driven more by electoral than market considerations.⁵⁷ A recent statement by Saudi oil minister Ali al-Naimi suggests that Riyadh may have a dim view of the 2011 release, despite Saudi leaders' apparent acquiescence during consultations with U.S. policymakers prior to the release. Speaking to reporters on March 29, 2012, about another possible IEA action, al-Naimi derided the 2011 release, saying, "What I can tell you is that they have done it before and it didn't do anything. You saw what happened in the last release? Nothing."⁵⁸

It is difficult to know whether al-Naimi's statement reflects disapproval that Saudi officials harbored privately at the time of the release or whether they had grown more critical in the intervening months. Some analysts believe it may have been prompted by Riyadh's desire to avoid giving Tehran the impression of total solidarity with Washington. Either way, IEA member countries should be aware that the Saudis may not be as supportive in the future as they appeared to be in 2011. The new era of cooperation between Riyadh and the IEA that the release seemed to many to herald may be more tenuous than it initially looked.

Such a negative reaction from OPEC countries should not come as a surprise. After all, the IEA was devised after the 1973 energy crisis to give Western powers a means of leverage against OPEC's dominance in the oil market. For many OPEC countries, oil exports represent the source of the vast majority of their public revenues. Saudi Arabia enjoys special prominence by acting as the figurative central banker to the global oil market, adding and draining liquidity to keep prices within a range that suits its strategic objectives. To the extent that an IEA release places downward pressure on oil prices or signals incredulity among consumer governments that OPEC is able to manage the market, deploying emergency stocks runs counter to the economic and political interests of OPEC countries, and thus is likely to draw their ire. Fear of a diplomatic backlash against IEA countries is hardly a reason not to tap emergency stocks when conditions warrant. Still, the diplomatic friction in the wake of the 2011 release serves as a reminder that tapping IEA stockpiles can also have ramifications for international politics, not just economics.

The Policy and Politics of the SPR in the United States

President Obama's authorization to tap the U.S. SPR as well as the Department of Homeland Security's decision to grant numerous waivers to the Merchant Marine Act of 1920 (commonly known as the Jones Act, which curtails the use of non-U.S. vessels for domestic transport of oil) provoked sharp, if somewhat predictable, criticism from various groups. The release also raised questions about whether surging North American oil production and mismatched infrastructure have limited the speed at which oil can be released from the SPR.

DEALING WITH JONES ACT RESTRICTIONS

The Jones Act requires that all shipping vessels traveling between U.S. ports sail under the U.S. flag, be built in the United States, and be crewed by mostly U.S. citizens. Conventional wisdom holds that the Jones Act impedes the efficient release of oil from the U.S. SPR to maritime trade, but granting waivers to the act is politically fraught. The experience of 2011 confirmed this view.

Exporting crude oil from the SPR is effectively prohibited by U.S. law unless there is a “compelling national interest.”⁵⁹ As a result, oil released from the SPR must flow to U.S. refiners in one of several directions: within the Gulf of Mexico, where the storage facilities that hold SPR oil are located; to inland refineries via pipelines; and to other coastal refineries reachable by sea.

Only fifty-six ocean-going oil tankers meet that standard—less than 1 percent of the world’s tanker capacity.⁶⁰ Even in normal times, Jones Act restrictions have a material effect on the flow of oil between U.S. ports. They thwart the transfer of refined fuels from the U.S. Gulf Coast to the East Coast, for example, a route that could often be profitable using foreign vessels but that is not economically feasible using more costly U.S.-flagged vessels. In emergencies, though, the impact of Jones Act restrictions is much larger. Baker & O’Brien, an energy consulting firm, estimates that shipping refined oil products from Houston to New York Harbor on a Jones Act-compliant tanker increases the cost by about four dollars per barrel.⁶¹

The process of issuing waivers to the Jones Act in conjunction with the 2011 U.S. SPR release was not entirely smooth. On June 23, 2011, the Department of Energy announced the sale of crude oil from the SPR. The Department of Homeland Security issued a blanket waiver of the Jones Act for the marine delivery of oil purchased in the SPR sale. Similar general, time-limited waivers of the Jones Act had been issued in conjunction with the 1991 and 2005 SPR releases, the latter of which was followed by a case-by-case consideration of waiver requests.⁶² Proponents of the Jones Act, upset by the announcement, convinced the Obama administration to release an amended notice of sale the next day. Instead of a universal waiver, the notice specified that exemptions would be issued on a case-by-case basis. No public explanation was given for the change in policy.⁶³

The Department of Homeland Security, in consultation with the Obama administration and other federal departments, made extensive use of its prerogative to waive Jones Act restrictions. At the time, to issue a waiver, the secretary of homeland security had to determine that the allowance was in the interest of national defense and the Maritime Administration at the Department of Transportation needed to certify that U.S. shipping capacity was insufficient.⁶⁴ In the 2011 SPR release, most purchasers bought oil in large volumes, seeking to take advantage of economies of scale. Transporting such massive quantities of oil using the available fleet of U.S.-flagged vessels—many of them coastal barges that hold no more than 150,000 barrels—would have made the release unfeasibly slow and expensive. In the end, these considerations were enough for the Department of Homeland Security to grant fifty-two Jones Act waivers, the most issued under any U.S. administration. Only one U.S.-flagged vessel was used in the release.⁶⁵

These exemptions to the Jones Act were crucial to enabling a speedy, cost-effective release, but they sparked criticism from the U.S. maritime industry, labor unions, and public officials from coastal states. This reaction was not surprising. “Whenever someone takes on the Jones Act it is usually to their peril,” said Charles Ebinger of the Brookings Institution.⁶⁶ In the case of the 2011 waivers, a spokesman for the American Waterways Operators accused President Obama of “violating the spirit, if not the letter, of Jones Act by ignoring the availability of Jones Act ships and barges.”⁶⁷ Like-

wise, Senator Mary Landrieu (D-LA) and a bipartisan group of seven other members of Congress, mainly from coastal states, issued a joint statement decrying the waivers.⁶⁸ The AFL-CIO Maritime Trade Department, which represents maritime workers, lamented the impact of the waivers on blue-collar jobs.⁶⁹

The fallout over the Jones Act waivers was enough to prompt new legislation, passed in 2012, that raised the hurdles that U.S. federal agencies must meet to issue waivers. These toughened rules prohibit the Department of Homeland Security from approving a waiver without taking “adequate measures to ensure the use of U.S.-flagged vessels.” Before granting waivers, the Department of Transportation will also be required to assess whether Jones Act-compliant vessels “with single or collective capacity” are capable of lifting SPR crude oil. The Department of Homeland Security must also “provide a written justification” for all waivers granted.⁷⁰

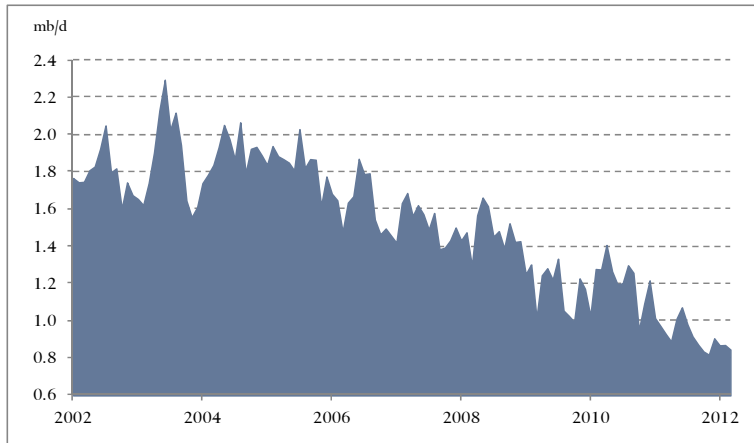
Despite the opposition, the Obama administration has continued to defend the Jones Act waivers granted in conjunction with the 2011 SPR release, citing the exceptionally large volumes of oil requested by the purchasing companies and the “focus on getting this oil to U.S. markets as quickly as possible.”⁷¹ These arguments are well-founded. Without the waivers, transportation constraints would have almost certainly prevented the United States from sticking to the sixty-day release window agreed upon by the IEA. It would also have required bidders for U.S. SPR oil to lower their bids significantly to compensate for higher transportation costs. Facing lower bids, the Department of Energy would have then had to consider releasing less oil (if the bids did not meet government-determined minimum price thresholds) or selling it at a much lower price.

POSSIBLE OPERATIONAL COMPLICATIONS FACING THE U.S. SPR

The U.S. SPR release ignited a debate about whether recent changes in North American oil flows and pipeline configurations have greatly reduced the rate at which these stockpiles can be released to the market. If true, the SPR may be far less able to combat a sudden, major oil shortage than it was in past eras.

Edward Morse, a former U.S. State Department official who is now head of commodities research at Citigroup, has argued that the release suggested that the U.S. SPR is “significantly less usable than advertised.”⁷² He notes that the U.S. SPR was designed to transport oil from Gulf Coast storage facilities inland on pipelines, rather than outward via seaborne trade. But most of the pipelines that once brought crude oil from the Gulf of Mexico northward had to be reversed—a process that can take months—in order to funnel oil southward to the Gulf (see Figure 18).

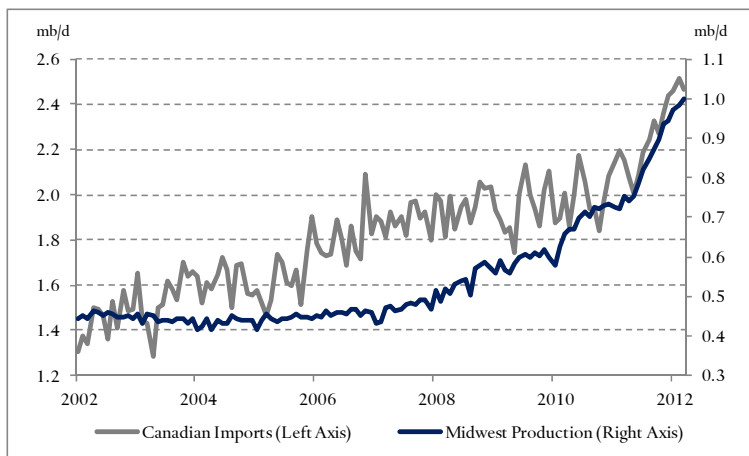
Figure 18. Crude Oil Shipped by Pipeline From the Gulf Coast (PADD III) to the Rest of the United States



Source: U.S. Energy Information Administration.

The pipeline reversals were the result of surging oil production in the midwestern United States in addition to increasing imports from Canada (see Figure 19).

Figure 19. Crude Oil Imports From Canada to the United States and U.S. Midwest (PADD II) Crude Oil Production



Source: U.S. Energy Information Administration.

These changes in the U.S. logistical system, Morse argues, have vastly reduced the speed at which oil can be distributed to industry from the U.S. SPR. Oil can still be loaded onto tankers, but not nearly as quickly it once could into pipelines, due to port congestion in the Gulf of Mexico. In his estimation, the rate at which oil flowed out of the U.S. SPR in the summer of 2011 (around 500,000 barrels per day) was likely closer to the peak evacuation rate than the 4.4 mb/d that the Department of Energy claims.⁷³

The Department of Energy disputes Morse's conclusions, insisting that it would have no problem executing a drawdown and distributing oil at a rate of 4.25 mb/d in the event of a major supply disruption. (The slight 0.15 mb/d reduction from its usual claim of 4.4 mb/d capacity is due to a storage

tank that is out of service at the Bryan Mound site.) The slow pace at which oil was moved out of the SPR during the 2011 emergency release was not indicative of mounting infrastructure constraints, U.S. officials argue. Rather, the pace reflected the fact that most of the U.S. SPR crude was delivered to vessels via only some of the SPR sites and marine terminals, and that the distribution utilized only a fraction of the available tanker loading docks to avoid disrupting commercial trade flows. The Department of Energy defends the reliability of its figures based on “routine and thorough analysis of commercial distribution capabilities” that the department conducts in order “to ensure accurate assessments,” according to an anonymous official cited by Platts, an industry news source.⁷⁴

Policymakers in the United States should investigate this issue via a test drawdown and sale and publicly disclose their findings. If market participants harbor doubts about the flow capacity of the U.S. SPR, they may discount its ability to help offset any sudden supply shortages, rendering it a less effective tool for calming the market. Greater transparency about the SPR’s capabilities, particularly in light of profound recent changes in the North American oil landscape, would be sensible.

Conclusion

The 2011 release provides an important case study for understanding the political and market consequences of deploying emergency oil inventories. These lessons are outlined below.

MARKET PERCEPTION AND EFFECT ON OIL PRICES

The 2011 IEA release shed light on how such emergency interventions can affect oil prices as well as how oil market participants and analysts perceive them. A few of the lessons for policymakers:

- Emergency oil releases may have only a modest impact on prices, and broader market forces can easily overwhelm them. Ultimately, emergency releases may be more effective at preventing harmful price spikes than actually lowering prices.
- Market participants may view an emergency release as signaling future tightness in the oil market, which risks raising long-term prices and can feed back into higher short-term prices.
- The threat of releasing stocks may be useful to policymakers as a tool for tamping down prices in the short term, but only if that threat appears credible. Mixed signals from energy officials about a possible future release, as in July 2011, can make oil prices even more volatile.
- A release’s effectiveness hinges on how it is structured. The better IEA member countries tailor a release to the market’s needs at the time, the greater its chances of influencing prices.

INTERNATIONAL COOPERATION

The 2011 IEA release highlighted the challenges, as well as the changing nature, of cooperation among IEA member countries, major non-IEA consumers like China, and pivotal producers such as Saudi Arabia. Among the lessons for policymakers are:

- Negotiating a release can be time consuming and difficult, particularly when some member countries are skeptical that supply conditions warrant intervention. A delayed decision, though, can undermine the release, in terms of both its market impact and public reception.
- The circumstances surrounding a release—its timing and perceived economic objective, for instance—have a decisive impact on its critical reception among analysts and in the popular press. Many analysts were skeptical that the supply shortage in June 2011 was severe enough to warrant the release, instead viewing the move as an unwise attempt by the IEA, under pressure from the United States, to manage prices.
- Cooperation with Riyadh is essential for an IEA release to help relieve a major shortage of crude oil, though the Saudis may only be able to offer an imperfect substitute for the missing oil and may be hesitant to discount their crude sufficiently to attract buyers.

- The IEA must continue to attempt to coordinate future releases with China, whose strategic petroleum reserves are now among the largest in the world, and eventually with other non-IEA countries such as India.
- An IEA emergency stock release risks causing diplomatic friction between IEA member countries and their allies within OPEC, particularly if the latter do not see the circumstances as meriting the intervention.

THE LOGISTICS OF THE SPR IN THE UNITED STATES

President Obama's authorization to tap the U.S. SPR, as well as the U.S. Department of Homeland Security's decision to grant numerous waivers to the Merchant Marine Act of 1920 (commonly known as the Jones Act), prompted debate on legal and operational aspects of U.S. SPR releases. Lessons for U.S. policymakers from the 2011 SPR release include the following:

- Granting waivers to the Jones Act is essential for a speedy large-scale release, but this strategy is likely to meet sharp opposition from the maritime industry, labor unions, and some U.S. officials.
- The Department of Energy should investigate the merit of the argument that surging North American oil production and mismatched infrastructure have limited the speed at which oil can be released from the U.S. SPR. It should publicly disclose its findings to allay any fears among market participants about the functionality of these reserves.
- Energy officials, both in the United States and other IEA member countries, should act on these findings to improve policy decisions when considering a future release.

Policymakers in the United States and other IEA member countries should act on these lessons when the inevitable need to tap emergency oil stockpiles returns. Heeding them will help ensure that these reserves help mitigate the economic disruption caused by a severe shortage of oil in the global marketplace.

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The author is grateful to the numerous energy experts, government officials, and industry professionals whose insights and knowledge contributed to this Working Paper. He would like to thank Daniel Ahn, Atul Arya, Helima Croft, David Fyfe, Meghan Gordon, Dagmar Graczyk, Nathan Harvey, Olivier Jakob, David Knapp, Vincent Lauerman, Bob McNally, Edward Morse, Charlie Papavizas, Gary Ross, Greg Sharenow, Aad Van Boheman, Peter Wood, and Martin Young for helpful feedback and comments. Monika Adamczyk and Alexandra Mahler-Haug provided valuable research assistance. He would like to thank several anonymous North American and European oil traders and former senior U.S. energy officials for their time and insight. He is also indebted to an anonymous reviewer for his generous and detailed feedback. The author would like to give special thanks to James M. Lindsay and Michael Levi for their expertise and guidance. The views expressed in this report are solely the author's responsibility.