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The Strategic Petroleum Reserve: History, Perspectives, and Issues

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Summary

Congress authorized the Strategic Petroleum Reserve (SPR) in the Energy Policy and Conservation Act (EPCA, P.L. 94-163) to help prevent a repetition of the economic dislocation caused by the 1973-1974 Arab oil embargo. The program is managed by the Department of Energy (DOE). The capacity of the SPR is 727 million barrels, and it currently holds slightly more than 700 million barrels of crude oil. In addition, a Northeast Heating Oil Reserve (NHOR) holds 2 million barrels of heating oil in above-ground storage. At issue in recent years has been whether SPR capacity should be expanded and whether the reserve should continue to be filled.

During the period FY1999-FY2007, roughly 139 million barrels of royalty-in-kind (RIK) oil were added to the SPR, with an estimated 19.1 million barrels to be acquired during FY2008. This is oil turned over to the U.S. government in lieu of cash royalties on offshore oil production from federal leases that would otherwise be paid to the Treasury. The Energy Policy Act of 2005 (EPACT, P.L. 109-58) permanently authorized the SPR and permits fill only if it can be established that adding to the SPR is not placing upward pressure on prices. However, the Bush Administration continued RIK fill. With gasoline prices exceeding, on average, $3.60/gallon, and approaching $4.00/gallon in some regions, some policymakers proposed that Congress take action to halt RIK deliveries. On May 13, the Senate, by a vote of 97-1, and the House, by a vote of 382-25, approved suspension of RIK fill. President Bush indicated that he would not veto the legislation. There were reports on May 14 of further SPR legislation that might be introduced in the House. The bill would reportedly initiate an exchange of SPR crude and direct SPR funds from a prior sale to be used to fund energy research and development programs.

The SPR comprises five underground storage facilities, hollowed out from naturally occurring salt domes in Texas and Louisiana. EPCA authorized drawdown of the Reserve upon a finding by the President that there is a "severe energy supply interruption." Congress enacted additional authority in 1990 (Energy Policy and Conservation Act Amendments of 1990, P.L. 101-383), to permit use of the SPR for short periods to resolve supply interruptions stemming from situations internal to the United States. The meaning of a "severe energy supply interruption" has been controversial. A spike in crude and product prices often stirs calls to use the SPR. However, the statute intends use of the SPR only to ameliorate discernible physical shortages of crude oil. The dynamics of world oil markets, and price sensitivity to planned or unplanned events that temporarily reduce refinery production, have added new complexities to decision making on when to fill and to use the SPR.

Congress approved $25 million in the FY2008 budget for land acquisition for a site in Richton, Mississippi, that would add 160 million barrels of capacity. Further environmental assessment of the site is underway.

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Establishment of the SPR

From the mid-1970s until 2007, world markets have had to absorb roughly five significant spikes in the price of crude oil and petroleum products.[1] Whether driven by disruptions in the physical supply of crude or refined fuels, or by uncertainties owing to international conflicts and instabilities, these price increases have consequences for the United States. Elevated petroleum prices affect the balance of trade and, owing to the relative inelasticity of demand for gasoline at prices in excess of $3.50 per gallon, siphon away disposable income that might be spent to support spending, investment, or savings.

The origin of the U.S. Strategic Petroleum Reserve (SPR) stems from the 1973 Arab-Israeli War. In response to the United States' support for Israel, the Organization of Arab Exporting Countries (OAPEC) imposed an oil embargo on the United States, the Netherlands, and Canada, and reduced production. While some Arab crude did reach the United States, the price of imported crude oil rose from roughly $4/barrel (bbl) during the last quarter of 1973 to an average price of $12.50/bbl in 1974. While no amount of strategic stocks can insulate any oil-consuming nation from paying the market price for oil in a supply emergency, the availability of strategic stocks can help blunt the magnitude of the market's reaction to a crisis. One of the original perceptions of the value of a strategic stockpile was also that its very existence would discourage the use of oil as a political weapon. The embargo imposed by the Arab producers was just that, and intended to create a very discernible physical disruption. This explains, in part, why the genesis of the SPR was focused especially on deliberate and dramatic physical disruptions of oil flow, and on blunting the significant economic impacts of a shortage stemming from international events.

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[1] These have included the Arab oil embargo (1973-1974), the deposing of the Shah of Iran, followed by the Iranian revolution (1979-1980), the first Gulf War (1990), and OPEC production cuts and a resurgence in world oil demand (early 1999 into the fall of 2000). Since 2003, crude oil and product prices have risen to new nominal highs — and, very briefly, a new high in real dollars — owing to a blend of many factors, including international tensions and armed conflicts, as well as worldwide demand. Some of the dynamics behind recent and sustained increases in price owe to factors internal to the United States, including seasonal formulations of gasoline to help meet clean air standards, and strains on U.S. refining capacity. Natural events, such as Hurricanes Rita and Katrina, can also create havoc and alarm in domestic and world markets.

In response to the experience of the embargo, Congress authorized the Strategic Petroleum Reserve in the Energy Policy and Conservation Act (EPCA, P.L. 94-163) to help prevent a repetition of the economic dislocation caused by the Arab oil embargo. In the event of an interruption, introduction into the market of oil from the Reserve was expected to help calm markets, mitigate sharp price spikes, and reduce the economic dislocation that had accompanied the 1973 disruption. In so doing, the Reserve would also buy time — time for the crisis to sort itself out or for diplomacy to seek some resolution before a potentially severe oil shortage escalated the crisis beyond diplomacy. The SPR was to contain enough crude oil to replace imports for 90 days, with a goal initially of 500 million barrels in storage. In May 1978, plans for a 750-million-barrel Reserve were implemented. The SPR is currently authorized for expansion to 1 billion barrels, and the Bush Administration has been unsuccessful to date in persuading Congress to raise the authorized size further to 1.5 billion barrels.

The program is managed by the Department of Energy (DOE). Physically, the SPR comprises five underground storage facilities, hollowed out from naturally occurring salt domes, located in Texas and Louisiana. The caverns were finished by injecting water and removing the brine. Similarly, oil is removed by displacing it with water injection. For this reason, crude stored in the SPR remains undisturbed, except in the event of a sale or exchange. Multiple injections of water, over time, will compromise the structural integrity of the caverns.[2] By 2005, the capacity of the SPR reached 727 million barrels. Its inventory reached nearly 700 million barrels before Hurricanes Katrina and Rita in 2005. Following the storms, some crude was loaned and some was sold. The loan of SPR oil was "paid" by the return of larger amounts of oil than were borrowed. In mid-May of 2008, the SPR held nearly 702 million barrels.[3]

SPR oil is sold competitively. A Notice of Sale is issued, including the volume, characteristics, and location of the petroleum for sale; delivery dates and procedures for submitting offers; as well as measures for assuring performance and financial responsibility. Bids are reviewed by DOE and awards offered. The Department of Energy estimates that oil could enter the market roughly two weeks after the appearance of a notice of sale.[4]

The Arab oil embargo also fostered the establishment of the International Energy Agency (IEA) to develop plans and measures for emergency responses to

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[2] Oil stored at one SPR site, Weeks Island, was transferred after problems with the structural integrity of the cavern — unrelated to drawdown activity — were discovered in the mid-1990s.

[3] Details and current levels of SPR inventory are updated regularly at [http://www2.spr.doe.gov/DIR/SilverStream/Pages/pgDailyInventoryReportViewDOE_new.html]

[4] [http://www.fe.doe.gov/programs/reserves/spr/spr-facts.html]. For more detail on the sales procedure, see U.S. *Federal Register*, Department of Energy, *Price Competitive Sale of Strategic Petroleum Reserve Petroleum; Standard Sales Provisions: Final Rule*, July 27, 2005, pp. 39363-39382; available at [http://www.fe.doe.gov/programs/reserves/spr/spr_rule_070705.pdf]. The Department of Energy has a history of SPR drawdowns, sales, and exchanges on the web at [http://www.fe.doe.gov/programs/reserves/spr/spr-drawdown.html].

energy crises. Strategic stocks are one of the policies included in the agency's International Energy Program (IEP). Signatories to the IEA[5] are committed to maintaining emergency reserves representing 90 days of net imports, developing programs for demand restraint in the event of emergencies, and agreeing to participate in allocation of oil deliveries among the signatory nations to balance a shortage among IEA members. The calculation of net imports for measuring compliance with the IEA requirement includes private stocks. By that measure, the United States has more than 100 days' cushion. However, it is likely that less than 20% of the privately held stocks would technically be available in an emergency, because most of that inventory supports movement of product through the delivery infrastructure. The Administration's advocacy for expansion of the SPR is partly based on this argument that the SPR will need to be larger if the United States is to be able to maintain stocks equivalent to 90 days of net imports.

Some IEA nations require a level of stocks to be held by the private sector or by both the public and private sectors. Including the U.S. SPR, roughly two-thirds of IEA stocks are held by the oil industry, whereas one-third is held by governments and supervisory agencies.[6]

The Energy Policy Act of 2005 (EPACT) also requires, "as expeditiously as practicable," expansion of the SPR to its authorized maximum of 1 billion barrels. Congress approved $25 million in the FY2008 budget for land acquisition for a site in Richton, Mississippi, that would add 160 million barrels of capacity, but rejected spending for any other expansion work. In FY2009, the Administration is again seeking funds for this purpose, for which there still appears to be limited support. The FY2008 request was $331.6 million; Congress approved spending of $186.8 million. The FY2009 request is $346.9 million. The Administration has requested $9.8 million for the Northeast Heating Oil Reserve in FY2009, a reduction of $2.5 million from the FY2008 enactment, principally due to a reduction in the need for funds for repurchasing heating oil that was sold during FY2007 to finance new storage contracts.

Acquisition of Crude Oil for the SPR

By the end of 1978, the SPR was supposed to contain 250 million barrels, but it contained only 69 million barrels. When the Iranian revolution cut supplies in the spring of 1979, purchases were suspended to reduce the upward pressure on world oil prices. Filling of the Reserve was resumed in September 1980 following enactment of the Energy Security Act (P.L. 96-294), which established a minimum fill rate of 100,000 barrels per day (b/d). The Reagan Administration accelerated the

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[5] IEA member countries are Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Republic of Korea, Luxembourg, The Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States. See [http://www.iea.org/Textbase/about/membercountries.asp].

[6] See [http://www.iea.org/Textbase/subjectqueries/keyresult.asp?KEYWORD_ID=4103].

fill rate to 292,000 b/d in FY1981, but the rate steadily declined to a low of 34,000 b/d in FY1990.

Filling of the SPR was suspended during 1990-1992 after the Iraqi invasion of Kuwait, but it resumed thereafter at a modest rate. Fill declined to 16,500 b/d during FY1994 before being suspended at the end of that fiscal year; by then the SPR held 592 million barrels. Owing to sales of SPR oil during 1996, the level in the Reserve had fallen to 563.5 million barrels by the early spring of 1997.

From 1995 until the latter part of 1998, sales of SPR oil, not acquisition, were at the center of debate. However, the subsequent reduction and brief elimination of the annual federal budget deficit — as well as a precipitous drop in crude oil prices into early 1999 — generated new interest in replenishing the SPR, either to further energy security objectives or as a means of providing price support to domestic producers who were struggling to keep higher-cost, marginal production in service. As an initiative to help domestic producers, Secretary of Energy Bill Richardson requested that the Office of Management and Budget (OMB) include $100 million in the FY2000 budget request for oil purchases. The proposal was rejected.

Royalty-in-Kind Acquisition

As an alternative to appropriations for the purchase of SPR oil, DOE proposed that a portion of the royalties paid to the government from oil leases in the Gulf of Mexico be accepted "in kind" (in the form of oil) rather than as revenues. The Department of the Interior (DOI) was reported to be unfavorably disposed to the royalty-in-kind (RIK) proposal, but a plan to proceed with such an arrangement was announced on February 11, 1999. (Legislation had also been introduced [H.R. 498] in the 106th Congress to direct the Minerals Management Service to accept royalty-in-kind oil.) Producers were supportive, maintaining that the system for valuation of oil at the wellhead is complex and flawed. While acquiring oil for the SPR by RIK avoids the necessity for Congress to make outlays to finance direct purchase of oil, it also means a loss of revenues in so far as the royalties are settled in wet barrels rather than paid to the U.S. Treasury in cash. Final details were worked out during the late winter of 1999.

In mid-November of 2001, President Bush ordered fill of the SPR to 700 million barrels, principally through oil acquired as royalty-in-kind (RIK). At its inception, the RIK plan was generally greeted as a well-intended first step toward filling the SPR to its capacity of 727 million barrels.[7] However, it became controversial when crude prices began to rise sharply in 2002. Some policymakers and studies asserted that diverting RIK oil to the SPR instead of selling it in the open market was putting additional pressure on crude prices. Deposit of 40 million barrels into the SPR during 2002 was criticized in a report released on March 5, 2003, by Senator Levin, representing the minority on the Permanent Subcommittee on Investigations of the

[7] The SPR estimated capacity of 727 million barrels followed a reevaluation of the cavern formations and other work. Water injections into caverns when oil has been moved have added capacity, as did completion of a project to remove excess gas from stored petroleum.

Senate Committee on Governmental Affairs.[8] The study argued that this increment of fill had been a major contributor to oil price increases during that year. A number of industry analysts quickly dismissed the study, arguing that the quantity of SPR fill was not enough to have driven the market. One of the most vocal critics of RIK fill, Philip K. Verleger, Jr., argued that SPR fill is one of two reasons that crude oil prices were exceeding $90/barrel during the latter part of 2007. In a commentary released in January 2008, Verleger estimated that, were the Administration to cease depositing sweet crude into the SPR, "crude prices would ease dramatically were this to happen, possibly to $70 per barrel."[9] The Administration has strongly disagreed with claims that RIK fill bears responsibility for the continuing spike in prices, arguing in part that market fluctuations both take and restore crude supply to world markets without affecting prices at the scale that would be implied by Verleger's assumptions.

The Administration has suspended RIK oil on some occasions in the past. In light of tightness in world oil markets and increasing prices, the Bush Administration agreed to delay deliveries scheduled for late 2002 and the first months of 2003. The Administration had intended to boost deliveries to the SPR to 130,000 barrels per day during April 2003, a total of 3.9 million barrels. But, on March 4, 2003, DOE delayed delivery of all but 15,000 b/d of RIK oil. With the declared end of the military phase of the war in Iraq and little effect on oil markets, deliveries of RIK oil were resumed, as well as delivery of oil still owed from a "swap" held in 2000 (described in detail below).

Through FY2007, royalty-in-kind deliveries to the SPR have totaled roughly 140 million barrels and forgone receipts to the Department of Interior an estimated $4.6 billion. DOE estimated deliveries of 19.1 million barrels of RIK oil during FY2008 and $1.170 billion in forgone revenues.[10]

In May 2008, with gasoline prices exceeding, on average, $3.60 gallon, and approaching $4.00/gallon in some regions, more policymakers expressed support for halting RIK deliveries. On May 13, the Senate, by a vote of 97-1, approved suspension of RIK fill as an amendment to a flood insurance bill (H.R. 3121) that was subsequently passed (92-6). The bill would permit resumption of RIK fill if crude oil fell to $75/barrel, on average, for a 90-day period. The House approved a similar proposal (H.R. 6022) that evening by a vote of 385-25. The Senate then approved the House bill by unanimous consent. President Bush indicated that he would not veto the legislation.

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[8] U.S. Strategic Petroleum Reserve: Recent policy Has Increased Costs To Consumers But Not Overall U.S. Energy Security; available at [http://hsgac.senate.gov/_files/sprt10818 petro_reserves.pdf].

[9] Prices at this time were in the realm of the mid-$80 per barrel. Verleger commentary available at [http://www.pkverlegerllc.com/PKV%20Made%20in%20the%20USA%20Op-Ed.pdf].

[10] Annual figures through FY2006 may be found in the Strategic Petroleum Reserve Annual Report for FY2006, p. 39: [http://www.fossil.energy.gov/programs/reserves/publications/Pubs-SPR/spr_annual_rpt_06.pdf]. Estimates for FY2008 furnished in a communication from DOE.

Bills to suspend RIK fill were introduced earlier in the Second Session of the 110th Congress. In late January 2008, H.R. 5146, the Invest in Energy Security Act, and S. 2598, the Strategic Petroleum Reserve Fill Suspension and Consumer Protection Act of 2008. Both bills would suspend RIK fill not later than the end of FY2008. Both bills specified conditions that would need to be satisfied to permit the resumption of fill. Introduction of these bills may have been driven, in part, by dissatisfaction with the November 2006 Administration rule responding to the provisions in EPACT requiring the Administration to specify how it would determine that RIK fill would not affect product prices and markets.

Opponents of RIK fill in the 110th Congress are not necessarily opposed to the concept of an SPR. When the price of crude was much less of an issue, objections to RIK full were also ideological. Opponents of RIK fill in principle contended that a government-owned strategic stock of petroleum is inappropriate under any circumstance — that it essentially has saddled the public sector with the expense of acquiring and holding stocks, the cost for which might have otherwise been borne by the private sector. The existence of the SPR, this argument goes, has blunted the level of stocks held in the private sector.[11]

Suspension of RIK fill has been an issue since 2004. There were unsuccessful attempt to end RIK fill in the 108th Congress. An amendment to the FY2005 Interior Appropriations bill (H.R. 4568) to suspend RIK deliveries and cap the SPR at 647 million barrels was defeated on the House floor (152-267) on June 17, 2004. Another effort to suspend RIK deliveries to the SPR occurred on September 14, 2004, during debate on H.R. 4567, the FY2005 Department of Homeland Security appropriations bill. Senator Byrd proposed suspension of RIK fill in order to provide $470 million in additional funding for homeland security purposes. The amendment was set aside. Despite the continued opposition to RIK fill of some policy makers, the Administration continued with it until August 2005, when the SPR held virtually 700 million barrels. Deliveries of RIK oil were suspended in August 2005 after Hurricanes Rita and Katrina.

The Energy Policy Act of 2005 (P.L. 109-58), enacted in the summer of 2005, required the Secretary of Energy to develop and publish for comment procedures for filling the SPR that take into consideration a number of factors. Among these are the loss of revenue to the Treasury from accepting royalties in the form of crude oil, how the resumed fill might affect prices of both crude and products, and whether additional fill would be justified by national security. It is likely that these provisions of P.L. 109-58 were a partial consequence of the debate over the wisdom of RIK fill. On November 8, 2006, DOE issued its final rule, "Procedures for the Acquisition of Petroleum for the Strategic Petroleum Reserve." The rule essentially indicated that DOE will take into account all the parameters to which P.L. 109-58 insists be weighed in any acquisition strategy. DOE rejected tying decisions to acquire oil to any specific, measurable differentials in current and historic oil prices.

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[11] See, for example, Taylor, Jerry and Van Doren, Peter, "The Case Against the Strategic Petroleum Reserve," *Policy Analysis*, No. 555, November 21, 2005.

To the indignation of some, DOE resumed RIK fill of the SPR, after soliciting and accepting in the summer of 2007 8.7 million barrels of oil from Shell to be delivered at a rate of roughly 50,000 b/d over a six-month period. On October 10, 2007, DOE issued a solicitation for an additional 13 million barrels of RIK oil, and in early November, contracts were awarded for 12.3 million barrels of RIK oil to Shell Trading Company, Sunoco Logistics, and BP North America. At the time of Congressional passage of legislation suspending RIK fill, deliveries of RIK oil were scheduled through July 2008, and DOE had invited bids for additional fill through December 2008. Deliveries for which DOE already has contracts will be postponed.

There were reports on May 14 of further SPR legislation that might be introduced in the House. The bill would reportedly initiate an exchange of SPR crude and direct SPR funds from a prior sale to be used to fund energy research and development programs.

The Drawdown Authorities

The Energy Policy and Conservation Act authorizes drawdown of the Reserve upon a finding by the President that there is a "severe energy supply interruption." This is deemed by the statute to exist if three conditions are joined: If "(a) an emergency situation exists and there is a significant reduction in supply which is of significant scope and duration; (b) a severe increase in the price of petroleum products has resulted from such emergency situation; and (c) such price increase is likely to cause a major adverse impact on the national economy."

The SPR could be drawn down initially at a rate of roughly 4.3 mbd for up to 90 days; thereafter, the rate would begin to decline. Although fears were expressed periodically during the 1980s about whether the facilities for withdrawing oil from the Reserve were in proper readiness, the absence of problems during the first real drawdown in early 1991 (the Persian Gulf War) appeared to allay much of that concern. However, some SPR facilities and infrastructure were beginning to reach the end of their operational life. A Life Extension Program, initiated in 1993, upgraded or replaced all major systems to ensure the SPR's readiness to 2025.

Congress enacted additional drawdown authority in 1990 (Energy Policy and Conservation Act Amendments of 1990, P.L. 101-383) after the *Exxon Valdez* oil spill, which interrupted the shipment of Alaskan oil, triggering spot shortages and price increases. The intention was to provide for an SPR drawdown under a less rigorous finding than that mandated by EPCA. This section, 42 U.S.C. § 6241(h), allows the President to use the SPR for a short period without having to declare the existence of a "severe energy supply interruption" or the need to meet obligations of the United States under the international energy program. As noted previously, the Energy Policy Act of 2005 made the SPR authorities permanent. These authorities also provide for U.S. participation in emergency-sharing activities of the International Energy Agency without risking violation of antitrust law and regulation.

Under the additional authorities authorized in P.L. 101-383, a drawdown may be initiated in the event of a circumstance that "constitutes, or is likely to become,

a domestic or international energy supply shortage of significant scope or duration" and where "action taken ... would assist directly and significantly in preventing or reducing the adverse impact of such shortage." This authority allows for a limited use of the SPR. No more than 30 million barrels may be sold over a maximum period of 60 days, and this limited authority may not be exercised at all if the level of the SPR is below 500 million barrels. This was the authority behind the Bush Administration's offer of 30 million barrels of SPR oil on September 2, 2005, which was part of the coordinated drawdown called for by the International Energy Agency. The same authority may have been the model for a swap ordered by President Clinton on September 22, 2000 (see below).

The SPR and Hurricanes Ivan, Katrina, and Rita (2004-2005)

The additional drawdown authorities enacted in P.L. 101-383 were also the basis for using SPR resources during the hurricanes of 2004-2005. Crude oil prices exceeded $50/barrel during October 2004, accompanied by declines in crude and product inventories. A major factor was Hurricane Ivan, which rampaged through the Gulf Coast in mid-September and temporarily interrupted more than 70% of offshore crude production, affecting crude oil deliveries to refineries. On September 23, 2004, the Administration agreed to a request placed to the Department of Energy from a couple of refineries seeking to borrow crude oil from the SPR, to be replaced within a short period of time. Subsequent requests raised the amount of borrowed crude to roughly 5.4 million barrels. The volume of oil returned was greater than the volume borrowed, in keeping with the mechanics of a "swap" of oil conducted in 2002 under comparable circumstances.

Critics claimed that it was a belated and insufficient use of the SPR, and that it even backfired in terms of calming the market. However, because the swap was limited and sharply focused, and represented such a tiny volume of oil, it may have been a misinterpretation to see it as intended to do anything more than it did — which was to provide supply to refiners to whom deliveries of crude were temporarily affected by Hurricane Ivan. The Administration argued that the decision to loan oil to these refineries was consistent with its overall SPR policy not to suspend fill or to authorize a broader drawdown for the purpose of reducing high prices. The swap was not characterized as a broader market-calming measure. The fact that the price of oil rose even after the announcement was a reflection of much stronger factors and uncertainties then prevailing in world markets than could be offset by such a limited swap.

Hurricanes Katrina and Rita in 2005 shut down oil and gas production from the Outer Continental Shelf in the Gulf of Mexico, the source for 25% of U.S. crude oil production and 20% of natural gas output. Katrina, which made landfall on August 29, 2005, resulted in the shutdown of most crude oil and natural gas production in the Gulf of Mexico, as well as a great deal of refining capacity in Louisiana and Alabama. Offshore oil and gas production was resuming when Hurricane Rita made landfall on September 24, and an additional 4.8 million barrels per day of refining capacity in Texas and nearby Louisiana was closed.

Combining the effects of both storms, 1.3 mbd of refining — about 8% of national capability — was shut down, reducing the supply of domestically refined

fuels commensurately. Much of the refined product shortfall was made up by imports of refined products, some of which were made available by strategic supplies released by International Energy Agency (IEA) member nations on September 2. As part of the IEA drawdown, 30 million barrels of crude oil were made available from the SPR, which holds only crude. Only 11 million barrels was sold from the SPR, in part because limited refinery capacity reduced the call on crude.

Stocks of heating oil proved more than adequate during the winter of 2005-2006. There were no calls for use of the SPR during that winter. More attention was focused on providing economic relief through the Low Income Home Energy Assistance Program to low-income heating oil consumers.

A Change in the Market Dynamics (2005-2007)

The history of the SPR traces differences of opinion over what could be deemed a "severe energy supply interruption." As has been noted, the original intention of the SPR was to create a reserve of crude oil stocks that could be tapped in the event of an interruption in crude supply. However, in the last few years, there have been increases in the price of products independent of crude prices, as well as increases in crude prices that correlate to "tight" markets, but not to measurable shortages in crude supply.[12]

The increases in gasoline and other petroleum products following Hurricanes Katrina and Rita were not a response to any shortage of crude, but to shortages of products owing to the shutdown of major refining capacity in the United States and to an interruption of product transportation systems. Demand growth that was strapping refinery capacity even before (as well as after) the hurricanes had significantly altered the traditional correlation between crude and product prices. Since mid-2005, owing to pressure on product supplies and continued international tensions, the price of products has been divorced, in part, from its traditional correlation with crude supply and price.

The roughly 50% rise in crude oil prices since the beginning of 2007 has been attributed to many contributing factors, including increasing international demand and continuing turmoil in the region of the world where most of the world's supply is located. Markets are described as "tight," meaning that there may be little cushion in terms of the capacity to replace any crude lost to the market, or to provide adequate supply of petroleum products. In such a market, refinery outages, whether routine or unexpected, can spur a spike in crude and product prices, as can weekly reports of U.S. crude and petroleum stocks, if the numbers reported are not consistent with expectations. Some argue that market conditions do not support current price levels. One market analyst remarked at the end of October, "The market at this stage totally ignores any bearish news [that would soften the price of oil], but it tends to exaggerate bullish news."[13] Overall, recent events show that significant and

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[12] One article in the trade press describes the oil market as driven by "tight fundamentals." See *Little Relief Seen From Tight Fundamentals*, Oil Daily, November 1, 2007: p. 1-2.

[13] Oil Daily, October 30, 2007. *Crude Continues Its Rally as Storm Hits Mexican Crude* (continued...)

sustained increases in oil prices may happen in the absence of the sort of "severe energy supply interruption" that remains the basis for use of the SPR. Depending upon future events, the many more factors that can drive oil markets today may complicate reconciling developments in those markets with possible use of the SPR.

When Should the SPR Be Used?: The Debate Over the Years

As has been noted, oil prices have risen in recent years in the absence of the normal association with the ideas of "disruption" or "shortage." High prices are driven by international factors, little or no spare capacity downstream to refine products from crude, and a general inelasticity in demand for oil products despite high prices. The historic correlation between shortages of crude and high petroleum product prices has been broken. However, it was that correlation — and the assumption that product prices were driven by, and followed, crude prices — that lay behind debates from the 1980s until early this decade over when drawdown of the SPR was warranted. Because there have been calls for use of the SPR in recent years, it's useful to outline how policymakers and Administrations have framed SPR policy over this time period.

A debate during the 1980s over when, and for what purpose, to initiate a drawdown of SPR oil reflected the significant shifts that were taking place in the operation of oil markets after the experiences of the 1970s, and deregulation of oil price and supply. Sales of SPR oil authorized by the 104th Congress — and in committee in the 105th — renewed the debate for a time.[14] The intended use of the SPR became an issue again, beginning with the rise in home heating prices during the winter of 1999-2000.

The SPR Drawdown Plan, submitted by the Reagan Administration in late 1982, provided for price-competitive sale of SPR oil. The plan rejected the idea of conditioning a decision to distribute SPR oil on any "trigger" or formula. To do so, the Administration argued, would discourage private sector initiatives for preparedness or investment in contingency inventories. Many analysts, in and out of Congress, agreed with the Administration that reliance upon the marketplace during the shortages of 1973 and 1979 would probably have been less disruptive than the price and allocation regulations that were imposed. But many argued that the SPR should be used to moderate the price effects that can be triggered by shortages like those of the 1970s or the tight inventories experienced during the spring of 1996, and lack of confidence in supply availability. Early drawdown of the SPR, some argued, was essential to achieve these objectives.

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[13] (...continued)
Exports: p. 3.

[14] These were sales ordered by Congress as deficit-reduction measures. For a chronology of these sales, see [http://www.fe.doe.gov/programs/reserves/spr/spr-drawdown.html].

The Reagan Administration revised its position in January 1984, announcing that the SPR would be drawn upon early in a disruption. This new policy was hailed as a significant departure, considerably easing congressional discontent over the Administration's preparedness policy, but it also had international implications. Some analysts began to stress the importance of coordinating stock drawdowns worldwide during an emergency lest stocks drawn down by one nation merely transfer into the stocks of another and defeat the price-stabilizing objectives of a stock drawdown. In July 1984, responding to pressure from the United States, the International Energy Agency agreed "in principle" to an early drawdown, reserving decisions on "timing, magnitude, rate and duration of an appropriate stockdraw" until a specific situation needed to be addressed.

Use of the SPR in the Persian Gulf War (1990). This debate was revisited in the aftermath of the Iraqi invasion of Kuwait on August 2, 1990. The escalation of gasoline prices and the prospect that there might be a worldwide crude shortfall approaching 4.5-5.0 million barrels daily prompted some to call for drawdown of the SPR. The debate focused on whether SPR oil should be used to moderate anticipated price increases, before oil supply problems had become physically evident.

In the days immediately following the Iraqi invasion of Kuwait, the George H. W. Bush Administration indicated that it would not draw down the SPR in the absence of a physical shortage simply to lower prices. On the other hand, some argued that a perceived shortage does as much and more immediate damage than a real one, and that flooding the market with stockpiled oil to calm markets is a desirable end in itself. From this perspective, the best opportunity to use the SPR during the first months of the crisis was squandered. It became clear during the fall of 1990 that in a decontrolled market, physical shortages are less likely to occur. Instead, shortages are likely to be expressed in the form of higher prices, as purchasers are free to bid as high as they wish to secure scarce supply.

Within hours of the first air strike against Iraq in January 1991, the White House announced that President Bush was authorizing a drawdown of the SPR, and the IEA activated the plan on January 17. Crude prices plummeted by nearly $10/barrel in the next day's trading, falling below $20/bbl for the first time since the original invasion. The price drop was attributed to optimistic reports about the allied forces' crippling of Iraqi air power and the diminished likelihood, despite the outbreak of war, of further jeopardy to world oil supply. The IEA plan and the SPR drawdown did not appear to be needed to help settle markets, and there was some criticism of it. Nonetheless, more than 30 million barrels of SPR oil was put out to bid, but DOE accepted bids deemed reasonable for 17.3 million barrels. The oil was sold and delivered in early 1991.

The Persian Gulf War was an important learning experience about ways in which the SPR might be deployed to maximize its usefulness in decontrolled markets. As previously noted, legislation enacted by the 101st Congress, P.L. 101-383, liberalized drawdown authority for the SPR to allow for its use to prevent minor or regional shortages from escalating into larger ones; an example was the shortages on the West Coast and price jump that followed the Alaskan oil spill of March 1989. In the 102nd Congress, omnibus energy legislation (H.R. 776, P.L. 102-486)

broadened the drawdown authority further to include instances where a reduction in supply appeared sufficiently severe to bring about an increase in the price of petroleum likely to "cause a major adverse impact on the national economy." The original EPCA authorities permit "exchanges" of oil for the purpose of acquiring additional oil for the SPR. Under an exchange, a company borrows SPR crude and later replaces it, including an additional quantity of oil as a premium for the loan. There have been seven exchanges from 1996 through 2005, the most recent ones following Hurricanes Katrina and Rita.

A new dimension of SPR drawdown and sale was introduced by the Clinton Administration's proposal in its FY1996 budget to sell 7 million barrels to help finance the SPR program. While agreeing that a sale of slightly more than 1% of SPR oil was not about to cripple U.S. emergency preparedness, some in the Congress vigorously opposed the idea, in part because it might establish a precedent that would bring about additional sales of SPR oil for purely budgetary reasons, as did indeed occur. There were three sales of SPR oil during FY1996. The first was to pay for the decommissioning of the Weeks Island site. The second was for the purpose of reducing the federal budget deficit, and the third was to offset FY1997 appropriations. The total quantity of SPR sold was 28.1 million barrels, and the revenues raised were $544.7 million. Fill of the SPR with RIK oil was initiated in some measure to replace the volume of oil that had been sold during this period.

Establishment of a Regional Home Heating Oil Reserve

Although a number of factors contributed to the virtual doubling in some Northeastern locales of home heating oil prices during the winter of 1999-2000, one that drew the particular attention of lawmakers was the sharply lower level of middle distillate stocks — from which both home heating oil and diesel fuels are produced — immediately beforehand. It renewed interest in establishment of a regional reserve of home heating oil. EPCA includes authority for the Secretary of Energy to establish regional reserves as part of the broader Strategic Petroleum Reserve. With support from the Clinton Administration, Congress moved to specifically authorize and fund a regional heating oil reserve in the Northeast. The FY2001 Interior Appropriations Act (P.L. 106-291) provided $8 million for the Northeast Heating Oil Reserve (NHOR). The regional reserve was filled by the middle of October 2000 at two sites in New Haven, CT, and terminals in Woodbridge, NJ, and Providence, RI. The NHOR would provide roughly 10 days of Northeast home heating oil demand.

There was controversy over the language that would govern its use. Opponents of establishing a regional reserve suspected that it might be tapped at times that some consider inappropriate, and that the potential availability of the reserve could be a disincentive for the private sector to maintain inventories as aggressively as it would if there were no reserve. The approach enacted predicated drawdown on a regional supply shortage of "significant scope and duration," or if — for seven consecutive days — the price differential between crude oil and home heating oil increased by more than 60% over its five-year rolling average. The intention was to make the threshold for use of the regional reserve high enough so that it would not discourage

oil marketers and distributors from stockbuilding. The President may also authorize a release of the NHOR in the event that a "circumstance exists (other than the defined dislocation) that is a regional supply shortage of significant scope and duration," the adverse impacts of which would be "significantly" reduced by use of the NHOR.

During mid- and late December 2000, the 60% differential was breached. However, this was due to a sharp decline in crude prices rather than to a rise in home heating oil prices. In fact, home heating oil prices were drifting slightly lower during the same reporting period. As a consequence, while the 60% differential was satisfied, other conditions prerequisite to authorizing a drawdown of the NHOR were not.

A general strike in Venezuela that began in late 2002 resulted, for a time, in a loss of as much as 1.5 million barrels of daily crude supply to the United States. With refinery utilization lower than usual owing to less crude reaching the United States, domestic markets for home heating oil had to rely on refined product inventories to meet demand during a particularly cold winter. Prices rose, and there were calls for use of the NHOR; still, the price of heating oil fell significantly short of meeting the guidelines for a drawdown.[15] In connection with the FY2004 Interior appropriations, both the House and Senate Appropriations Committees included language in their committee reports directing that DOE advise Congress as to the "circumstances" under which the NHOR might be used. The provision implied that some in Congress were not satisfied with the formula currently in place that would permit drawdown of the NHOR. The language was not included in the final FY2004 Interior appropriations bill. As the sharp increases in home heating oil prices during 2005 are averaged into the five-year rolling average, the price differential needed to trigger use of the NHOR will increase further. However, the President can invoke the authorities for an NHOR drawdown even if the price threshold is not met.

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[15] During the heating oil season, DOE updates and posts a weekly table that shows the various inputs that go into the calculation to determine the current differential, [http://www.fe.doe.gov/programs/reserves/heatingoil/Sales_Basis_0506.html].