

Role of Strategic Petroleum Reserves: The U.S. Experience

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Presentation Outline

- Brief History of the U.S. Strategic Petroleum Reserve (SPR)
- Key Issues – Building and maintaining the SPR
- Key Issues – Releasing oil during oil supply emergencies
- Conclusions – Lessons Learned

Strategic Petroleum Reserve (SPR) Overview

- Current storage capacity = 714 million barrels at four sites in Texas and Louisiana
- Current inventory = 663 million barrels of crude oil as of June 30, 2020 (approximately 4050 petajoules)
- Oil is stored in man-made caverns that were created by injecting fresh water into sub-surface salt domes (less expensive than above ground storage)
- First sites acquired in 1977; became operational in 1986
- Current, initial drawdown rate of four sites = 4.4 million barrels per day. Designed to flow oil south to north

SPR Releases during Global Oil Emergencies

Event	Date	SPR Oil Offered	SPR Oil Sold	IEA Collective Action
Operation Desert Storm	Jan 1991	33.8	17.3	
Hurricane Katrina	Sep 2005	30.0	11.0	60
Libyan Civil War	Spring 2011	30.0	30.6	60

Source: U.S. Department of Energy

SPR Exchanges / Capacity Leasing

Exchanges

- 1996 Pipeline Blockage
- 1999 Maya Exchange
- 2000 Ship Channel Closure
- 2000 Heating Oil Exchange
- 2002 Hurricane Lili
- 2004 Hurricane Ivan
- 2005 Hurricane Katrina
- 2006 Barge Accident
- 2008 Hurricanes Gustav and Ike
- Hurricane Isaac
- Hurricane Harvey

Source: U.S. Department of Energy

Capacity Leasing

- On April 4, 2020, DOE announced agreements with 9 U.S. companies to store 23 million barrels of U.S. produced crude oil to help mitigate the adverse effects of the COVID-related drop in petroleum product demand.
- On June 3, 2020, U.S. Secretary Brouillette and Australian Minister Taylor signed a lease agreement that allows Australia to store its oil in the U.S. SPR for use during emergencies.

Mandated SPR Oil Sales

	<u>Facility Maintenance</u>	<u>General Revenue</u>	
FY2017	6.3	9.9	million barrels
FY2018	4.7	14.2	
FY2019	4.2	10.9	
FY2020	<u>- 0 -</u>	<u>9.9</u>	
Total Volume	15.2	14.9	million barrels
Total Revenue	\$ 971	\$ 2,586	million

Source: U.S. Department of Energy, excludes 1996/97 sale of Weeks Island oil

Building and Maintenance Issues

- How large should the SPR be?
- As U.S. net oil imports decline, should the SPR become smaller?
- What is the right mix of crude oil and petroleum products?
- How best to respond to infrastructure changes affecting SPR distribution capabilities?

Emergency Response Issues

- How to ensure a rapid and robust response when a supply emergency occurs.
- How to coordinate with others:
 - IEA members
 - Other major consuming countries
 - Major oil exporting countries

Conclusions – Lessons Learned

- The SPR is a valuable asset during an oil supply emergency.
- The SPR is not well suited to address demand shocks (e.g., COVID 19).
- Government officials can be reluctant to release stocks aggressively.
- “Free riders” are a problem both in building stockpiles before an emergency and in releasing stocks during the emergency.
- For the U.S., crude oil stocks are more efficient than product stocks
- Even with low cost caverns, strategic oil stocks are expensive:
 - Security, reliability, and readiness costs are high
 - Oil and facilities are expensive; maintenance costs are high
 - External infrastructure changes can impose additional costs
- Although very real, geopolitical benefits are difficult to quantify.