



Highlights of [GAO-09-695T](#), a report to Committee on Energy and Natural Resources, U.S. Senate

## Why GAO Did This Study

The possibility of storing refined petroleum products as part of the Strategic Petroleum Reserve (SPR) has been contemplated since the SPR was created in 1975. The SPR, which currently holds about 700 million barrels of crude oil, was created to help insulate the U.S. economy from oil supply disruptions. However, the SPR does not contain refined products such as gasoline, diesel fuel, or jet fuel. The Energy Policy Act of 2005 directed the Department of Energy (DOE) to increase the SPR's capacity from 727 million barrels to 1 billion barrels, which it plans to do by 2018.

With the possibility of including refined products as part of the expansion of the SPR, this testimony discusses (1) some of the arguments for and against including refined products in the SPR and (2) lessons learned from the management of the existing crude oil SPR that may be applicable to refined products.

To address these issues, GAO relied on its 2006 report on the SPR ([GAO-06-872](#)), 2007 report on the globalization of petroleum products ([GAO-08-14](#)), and two 2008 testimonies on the cost-effectiveness of filling the SPR ([GAO-08-521T](#) and [GAO-08-726T](#)). GAO also reviewed prior DOE and International Energy Agency studies on refined product reserves.

View [GAO-09-695T](#) or key components. For more information, contact Frank Rusco at (202) 512-3841 or [ruscof@gao.gov](mailto:ruscof@gao.gov).

## STRATEGIC PETROLEUM RESERVE

### Issues Regarding the Inclusion of Refined Petroleum Products as Part of the Strategic Petroleum Reserve

#### What GAO Found

Since the SPR, the largest emergency crude oil reserve in the world, was created in 1975 a number of arguments have been made for and against including refined petroleum products. Some of the arguments for including refined products in the SPR are: (1) the United States' increased reliance on imports and resulting exposure to supply disruptions or unexpected increases in demand elsewhere in the world, (2) possible reduced refinery capacity during weather related supply disruptions, (3) time needed for petroleum product imports to reach all regions of the United States in case of an emergency, and (4) port capacity bottlenecks in the United States, which limit the amount of petroleum products that can be imported quickly during emergencies. For example, the damage caused by Hurricane Katrina demonstrated that the concentration of refineries on the Gulf Coast and resulting damage to pipelines left the United States to rely on imports of refined product from Europe. Consequently, regions experienced a shortage of gasoline and prices rose. Conversely, some of the arguments against including refined products in the SPR are: (1) the surplus of refined products in Europe, (2) the high storage costs of refined products, (3) the use of a variety of different type of blends of refined products—"boutique" fuels—in the United States, and (4) policy alternatives that may diminish reliance on oil. For example, Europe has a surplus of gasoline products because of a shift to diesel engines, which experts say will continue for the foreseeable future. Europe's surplus of gasoline is available to the United States in emergencies and provided deliveries following Hurricanes Katrina and Rita in 2005.

The following three lessons learned from the management of the existing SPR may have some applicability in dealing with refined products.

- *Select a cost-effective mix of products.* In 2006, GAO recommended that DOE include at least 10 percent heavy crude oil in the SPR. If DOE bought 100 million barrels of heavy crude oil during its expansion of the SPR it could save over \$1 billion in nominal terms, assuming a price differential of \$12 between the price of light and heavy crude, the average differential from 2003 through 2007. Similarly, if directed to include refined products as part of the SPR, DOE will need to determine the most cost-effective mix of products.
- *Consider using a dollar-cost-averaging acquisition approach.* Also in 2006, GAO recommended that DOE consider acquiring a steady dollar value—rather than a steady volume—of oil over time when filling the SPR. This would allow DOE to acquire more oil when prices are low and less when prices are high. GAO expects that a dollar-cost-averaging acquisition method would also provide benefits when acquiring refined products.
- *Maximize cost-effective storage options.* According to DOE, below ground salt formations offer the lowest cost approach for storing crude oil for long periods of time—\$3.50 per barrel in capital cost versus \$15 to \$18 per barrel for above ground storage tanks. Similarly, DOE will need to explore the most cost-effective storage options for refined products.