U.S. Strategic Petroleum Reserve Overview

Center for Strategic & International Studies Event “The Future of the Strategic Petroleum Reserve”

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Strategic Petroleum Reserve
Legal Authority and Mission

Established by U.S. Law:

• *Energy Policy & Conservation Act (EPCA)* (December 1975)

Mission:

• To ensure U.S. Energy Security by reducing the impacts of potential disruptions in U.S. petroleum supplies

• To carry out U.S. obligations under the International Energy Program
Strategic Petroleum Reserve
Release Authorities

PRESIDENT
OF THE UNITED STATES

- **Full Drawdown** [EPCA Sec 161(d)]
  - To address a “Severe Petroleum Supply Interruption”, or
  - To meet U.S. obligations under the International Energy Program

- **Ltd. Drawdown** [EPCA Sec 161(h)]  
  *(Added in 1991)*
  - In preventing or addressing lesser supply shortages
  - Limited to 30 Million Barrels and 60 Days

SECRETARY of the
DEPARTMENT OF ENERGY

- **Test Sale** [EPCA Sec 161 (g)]
  - To conduct evaluations of sales and drawdown procedures
  - Limited to 5 Million Barrels of Oil

- **Oil Exchanges** [EPCA Sec 159(f)] Under “Oil Acquisition Authority”
  - To acquire or alter the mix of oil
  - Used also to provide refiners short-term emergency loans to address supply problems
Strategic Petroleum Reserve
Prior Oil Releases

• SPR Drawdowns (IEA Collective Actions):
  – 1991 Iraq War: 17.3 MMB
  – 2005 Hurricane Katrina: 11.0 MMB
  – 2011 Libya Supply Disruption: 30.6 MMB

• SPR Test Sales:
  – 1985: 1.0 MMB
  – 1990: 3.9 MMB
  – 2014: 5.0 MMB

• Exchanges:
  – Seaway Emergency (1996): 1.0 MMB
  – Ship Channel Closure (2000): 1.0 MMB
  – Time Exchange (2000): 30.0 MMB
  – Hurricane Ivan (2004): 5.4 MMB
  – Hurricane Katrina (2005): 9.8 MMB
  – Ship Channel Closures (2006): 1.6 MMB
  – Hurricane Gustav/Ike (2008): 5.4 MMB
  – Hurricane Isaac (2012): 1.0 MMB
<table>
<thead>
<tr>
<th>SPR Site</th>
<th>Operational Caverns</th>
<th>Design Capacity</th>
<th>Current Inventory</th>
<th>Drawdown Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bryan Mound</td>
<td>19</td>
<td>247.1 MMB</td>
<td>240.8 MMB</td>
<td>1.5 MMB/d</td>
</tr>
<tr>
<td>Big Hill</td>
<td>14</td>
<td>170.0 MMB</td>
<td>162.7 MMB</td>
<td>1.1 MMB/d</td>
</tr>
<tr>
<td>West Hackberry</td>
<td>21</td>
<td>220.4 MMB</td>
<td>213.8 MMB</td>
<td>1.3 MMB/d</td>
</tr>
<tr>
<td>Bayou Choctaw</td>
<td>6</td>
<td>76.0 MMB</td>
<td>73.6 MMB</td>
<td>0.5 MMB/d</td>
</tr>
<tr>
<td>SPR - Total</td>
<td>60</td>
<td>713.5 MMB</td>
<td>690.9 MMB</td>
<td>4.4 MMB/d</td>
</tr>
</tbody>
</table>
Strategic Petroleum Reserve
Cavern Storage

Storage in Salt Formations

- Proven storage technology
- Deep underground - 2000 Feet
- High degree of safety and security
- Easy to get oil in and out
- Oil does not dissolve salt
- No evaporation or air emissions
- Thermal-mixing of oil

Cost:

- Low construction cost – 1/5 of conventional surface tank storage
- Cavern operating cost: <$0.25/bbl/yr
Strategic Petroleum Reserve
Drawdown Operations

Raw Water System

Water Injection
Pumps

Fresh Water
Source

Brine Disposal System

Settling
Pond

Oil Distribution System

Crude
Pumps

Pipeline

Gulf of
Mexico

Offshore Brine
Diffusers

Salt

Underground
Oil Storage
Caverns

Brine
Disposal
Well

Marine

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Energy

Fossil Energy
Strategic Petroleum Reserve
Current Initiatives

- Crude Oil Purchase
- Long Term Strategic Review of the SPR
- Refined Petroleum Product Reserve Studies
  - PADD V
  - Southeast U.S.
- Marine Distribution Terminal Analyses