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U.S. Department of Energy

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Chairman Upton, Ranking Member Rush, and Members of the Subcommittee, it is an honor to appear before you today to discuss the Strategic Petroleum Reserve (SPR).

Mission and Role of the U.S. Strategic Petroleum Reserve

The mission of the SPR is to protect the United States economy from severe petroleum supply interruptions through the acquisition, storage, distribution, and management of emergency petroleum stocks, and to carry out U.S. obligations under the International Energy Program (IEP).

From October 1973 to March 1974, the Organization of Arab Petroleum Exporting Countries (OAPEC) imposed an oil embargo on the United States due to U.S. support of Israel during the Yom Kippur War of October 1973. In response, the United States Congress passed, and President Gerald R. Ford signed, the Energy Policy and Conservation Act (EPCA) in December 1975. Among other initiatives, it authorized the establishment of the SPR and called for a stockpile of petroleum that could mitigate the economic damage of disruptions.

The SPR remains a key national energy security asset, even as the nature of energy security evolves. Today's lower oil prices, increased domestic oil production, and reduced U.S. oil import dependency have changed the U.S. energy landscape.

Since the establishment of the SPR in 1975, U.S. and global oil markets have changed the environment in which the SPR operates. When the SPR was established, U.S. oil production was in decline and oil price and allocation controls separated the U.S. oil market from the rest of the world. At the time, a truly global commodity market for oil, as we know it today, did not exist. Although U.S. oil production has increased dramatically in recent years, the global oil market is the largest commodity market in the world, making consumers subject to global commodity price fluctuations.

The original 1970s-era goal of EPCA focused on avoiding "national energy supply shortages." A loss of supply to U.S. refineries is no longer the singular focus of the SPR. Because the United States is linked to the global market, it is exposed to global price fluctuations. When global oil prices spike, U.S. oil prices spike. Regardless of U.S. oil import levels, a severe global oil supply disruption today would impact domestic petroleum product prices. Past oil price fluctuations have been followed by multiple quarters of weak world-wide economic growth. This focus on price was codified in the EPCA amendments of 1990, which added price impacts to the criteria for an SPR drawdown.

In the event of a serious international oil supply disruption, commercial stocks and global spare production capacity could provide some relief for lost output, but cannot provide assured additional supply. Offsetting disrupted supplies with SPR oil, in concert with other countries that hold strategic oil stocks, can help reduce an increase in international oil prices and the resulting adverse economic impacts that could otherwise occur.

SPR Organization, Assets and Capabilities

The SPR operates under the leadership and direction of the Deputy Assistant Secretary for the Office of Petroleum Reserves, a Program Office within the Department of Energy's (DOE) Office of Fossil Energy. The Headquarters Program Office maintains responsibility for program management of the SPR, providing oversight of the SPR program, including major engineering projects; environmental, safety, security, and occupational health issues; oil distribution planning and analysis; budgeting and financial management; and the drawdown and operations of the SPR. The Program Office also conducts strategic planning, policy analysis, and major program studies, and engages with domestic and international stakeholders.

The SPR Project Management Office, located in New Orleans, Louisiana is responsible for the operation and management of all SPR field activities, as well as oversight of the Department's Management and Operating (M & O) Contractor, who performs the day-to-day operations and maintenance activities of the SPR's crude oil storage sites.

The Department operates and maintains four major oil storage sites in the Gulf Coast region: the Bryan Mound and Big Hill sites in Freeport, Texas and Winnie, Texas, and the West Hackberry and Bayou Choctaw sites in Hackberry, Louisiana and Plaquemine, Louisiana, respectively. These sites are located in close proximity to Gulf Coast refineries and midstream infrastructure. The SPR's crude oil inventory of 671.7 million barrels (as of October 13, 2017) consists of both sweet and sour crude oil available for release in the event of an oil supply disruption. The crude oil is stored across the four sites in 60 underground caverns with a total design capacity of 713.5 million barrels and 115 operational wellbores. The SPR is designed to provide the capability to draw down and deliver crude oil from the storage sites to designated distribution points, with additional access to commercial pipeline networks and marine terminals, at a design drawdown rate of 4.415 million barrels per day. Each site is capable of drawing down and delivering crude

oil to the designated distribution points until 90% of the inventory is depleted. SPR operating costs are less than $0.25 per barrel of design storage capacity per year, the lowest reported cost among oil stockpiling countries.

U.S. International Energy Program Obligations

One of the SPR's core missions is to carry out U.S. obligations under the (IEP), the 1974 treaty that established the International Energy Administration (IEA). Under the Coordinated Emergency Response Mechanism, adopted in 1984, selling oil into the market (rather than exchanging the oil withdrawn from stocks among members) became the preferred approach to address oil supply disruptions. The IEA monitors the world oil market and, in the event of a global oil supply crisis, calls for the release of strategic oil stocks.

As a member of the IEA, the United States has two primary obligations:

1. As a net oil importer, the United States must maintain crude oil and/or refined product stock inventories, whether held by industry or government, equal to at least 90 days of net petroleum imports. Of the 29 IEA member countries, 25 other net importers have the same obligation. The remaining three members do not have a stockholding obligation because they are net oil exporters. As of June 30, 2017 the U.S. held 149 days of net petroleum imports, based on an SPR crude oil inventory of 678.9 million barrels and 2016 net import figures.

2. The United States must be able to contribute a proportionate share to an IEA collective action response based on its share of IEA oil consumption. This obligation can be met by any measure a member nation may choose, including release of strategic or commercial stocks. As of June 30, 2017, the United States must be prepared to contribute 43.2% of the barrels released in an IEA collective action response. The United States government relies on the use of the SPR to meet this requirement, although commercial stocks may also contribute voluntarily.

It is also important to note that U.S. domestic conventional and unconventional production alone would not be able to ramp up quickly enough to make up for the lost barrels in a crisis. The SPR can physically begin to drawdown its stored crude oil in as little as two days of notification, and taking into account the time required to meet all sales process requirements, can be ready to drawdown and deliver crude oil within thirteen days of a Presidential Finding. Domestic production would take months to expand substantially.

According to the BP Statistical Review of World Energy 2017, the movement of oil around the world grew by nearly 11 million barrels per day from 2006 to 2016, and this trend is likely to continue. As global oil trade increases, the potential role of the SPR to help mitigate global supply disruptions expands, regardless of the level of U.S. net oil imports. The portion of this traded oil imported by IEA member countries is decreasing as consumption has increased in non-OECD countries. In step with this trend, the ability of IEA stocks to address a crisis will

become strained. Without the ability to replace disrupted oil supplies on the global market, global oil prices could increase significantly, and the U.S. and global economy could be harmed. Accordingly, one important way to measure the SPR's effectiveness is by its ability to address the requirements that will arise from a collective action response to a disruption, rather than strictly how many days of U.S. oil imports it represents.

Modernization of SPR Infrastructure

The infrastructure and equipment to support a drawdown across the SPR is both large and complex. In addition to the underground storage caverns and wellbores, this infrastructure includes 80 pumps for crude oil, raw water, brine, and firefighting systems; more than 5,400 valves; 33 heat exchangers; 21 brine disposal wells; 16 above ground storage tanks holding crude oil, waste oil, and firefighting water; a crude oil degasification plant; and over 200 miles of crude oil, raw water, and brine disposal pipelines that must be maintained.

SPR infrastructure has performed capably to ensure the SPR has been able to respond to every emergency release situation presented throughout the SPR's history. However, SPR facilities are aging and a significant amount of infrastructure components are at or beyond their design life. The first and only SPR life extension project was conducted in the late 1990s. This project addressed essential SPR configuration and system improvements necessary to ensure the ability to maximize the SPR's drawdown rate. However, it did not replace many pieces of rotating equipment such as pumps and motors, and did not completely address some other SPR infrastructure elements. Further, nine consecutive years of crude oil sales from the SPR (beginning in FY2017) utilizing equipment beyond its design life increases the risk of additional equipment failures that could potentially impact the ability to conduct these sales in the statutorily-mandated timeframes.

Congress, recognizing the importance of the SPR as a valuable national energy security asset, established an Energy Security and Infrastructure Modernization (ESIM) Fund in Section 404 of the Bipartisan Budget Act of 2015 (Public Law 114-74) for the purpose of providing for the construction, maintenance, repair, and replacement of SPR facilities. In establishing the ESIM Fund, Congress made the following findings:

1. The SPR is one of the nation's most valuable energy security assets;

2. The age and condition of the SPR have diminished its value as a Federal energy security asset;

3. Global oil markets and the location and amount of U.S. oil production and refining capacity have dramatically changed in the 40 years since the establishment of the SPR; and

4. Maximizing the energy security value of the SPR requires a modernized infrastructure that meets the drawdown and distribution needs of changed domestic and international oil and refining market conditions.

Section 404 also directed the Secretary of Energy (the Secretary) to establish an SPR modernization program to protect the U.S. economy from the impacts of emergency supply disruptions. This program may include:

1. Operational improvements to extend the useful life of surface and subsurface infrastructure;

2. Maintenance of cavern storage integrity; and

3. Addition of infrastructure and facilities to optimize the drawdown and incremental distribution capability of the SPR.

Section 404 also authorized the Secretary to draw down and sell crude oil from the SPR in the amount of $2 billion, over the four year period encompassing fiscal years 2017 through 2020, for the purpose of carrying out an SPR modernization program. In response, the SPR has initiated a major capital asset acquisition project known as Life Extension Phase II (LE2). The purpose of this project is to modernize aging SPR infrastructure through systems upgrades and associated equipment replacement to ensure that the SPR can meet mission requirements for the next several decades. Affected SPR infrastructure that will be addressed by this project include crude oil transfer systems; raw water systems; brine disposal systems; power distribution and lighting systems; physical security systems; firefighting systems; a new crude oil processing (degasification) plant; and auxiliary systems and facilities. An initial analysis of alternatives to consider work activity packages for this project was completed in December 2016, and a supplemental analysis of alternatives to refine the initial work activity packages selected was completed in June 2017, leading to the commencement of project design work in August 2017 and procurement of long lead-time equipment in September 2017. This project has a current estimated cost range of $750 million - $1.4 billion with a current estimated completion date range between fiscal year's FY2022 and FY2024.

Congressionally-Mandated Crude Oil Sales

As mentioned above, beginning in FY2017, the SPR began nine consecutive years of mandatory sales, referred to as the "decade of drawdowns". In 2015 and 2016, three separate laws were enacted that mandate the Secretary of Energy to sell 149 million barrels of crude oil, with the proceeds to be deposited in the general fund of the Treasury.

1. Section 403 of the Bipartisan Budget Act of 2015 (Public Law 114-74) mandates the sale of 58 million barrels between FY2018 and FY2025 for federal government deficit reduction;

2. The Fixing America's Surface Transportation (FAST) Act (Public Law 114-94) mandates the sale of 66 million barrels between FY2023 and FY2025 for funding offsets to finance transportation infrastructure; and

3. The 21st Century Cures Act (Public Law 114-255) mandates the sale of 25 million barrels between FY2017 and FY2019 for funding offsets to finance medical initiatives.

Hurricane Harvey Emergency Response Efforts

Hurricane Harvey made landfall as a major hurricane on August 25, 2017 just north of Corpus Christi, Texas. Harvey's path eventually impacted U.S. Gulf Coast crude oil infrastructure as a hurricane and as a tropical storm from Corpus Christi, Texas to Lake Charles, Louisiana from August 25 through August 30. During this period, 20 refineries in this area were impacted (seventeen closing, and three running at reduced operations for limited periods) comprising over 5.6 million barrels of crude oil processing capacity. In addition, nine major ports in the area were closed, and the major east-west crude oil pipeline between Houston, Texas and Houma, Louisiana was not operating. Many of the impacted refineries were operable following the passage of Harvey but, in some cases, were unable to secure crude oil feedstock to re-commence or continue operations. As a result, the SPR received a total of eight requests for emergency exchanges of crude oil from six companies – one request submitted just prior to the hurricane's landfall was denied, since SPR personnel had been evacuated as a safety precaution and the requested SPR site was not available for drawdown; and one request was withdrawn shortly after submission due to availability of an alternate supply source. Evaluation of the remaining 6 requests commenced immediately upon receipt of the requests.

After assessing prevailing supply conditions and consulting with other Federal agencies regarding the status of ports and other supply infrastructure, the SPR received approval from the Secretary to execute six emergency exchange agreements with four companies. The first deliveries of crude oil were provided on August 30, just two days after the request was received. Deliveries to the remaining companies also commenced within days after the initial requests were received and continued until all deliveries totaling five million barrels of SPR crude oil were completed on September 28. These emergency exchanges helped alleviate the loss of crude oil supply, allowing the affected companies to begin and/or continue refinery operations that otherwise would have been halted as a result of the impacts from Hurricane Harvey. Repayment of these crude oil loans recently commenced and are anticipated to conclude in March 2018.

Conclusion

In conclusion, I want to thank you for the opportunity to speak with you today about the SPR and its operational challenges. I look forward to answering any of your questions.