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Response Options to Oil Supply Disruptions

Overview

The September 2019 oil infrastructure attacks in Saudi Arabia temporarily disrupted production and processing of approximately 6% of global crude oil supply. This resulted in the largest single-day price increase over the last 10 years, as measured by West Texas Intermediate (WTI, the U.S. domestic oil price benchmark). This effect on U.S. domestic price levels from a temporary disruption in a foreign country illustrates the integrated and global nature of crude oil markets. Interruptions in oil supply could affect the price of crude oil and petroleum products (e.g., gasoline). The volume and rate at which lost supply is restored are key factors that contribute to the duration and magnitude of price effect. Also, assured access to crude oil is associated with energy independence and energy security.

There are two primary options to replace lost or interrupted supplies: releasing stockpiles or using spare capacity. These and other options may be of interest to Congress during a crude oil supply disruption.

Stockpiling Inventories

Many countries and private companies retain crude oil supply stockpiles as well as product stocks like gasoline and heating oil. Stockpiling oil supplies has been a practice of government and industry for several decades.

Although many countries stockpile crude oil and petroleum products, not all provide transparent or frequently updated volume information. This unknown volume puts a limitation on measuring the full scope of readily available crude oil and petroleum products in response to a supply disruption. For instance, in 2019, China's National Energy Administration announced storage of roughly 80 days' worth of imports. Prior to this announcement, China had not released numbers since 2017.

International Energy Agency (IEA) and the Strategic Petroleum Reserve (SPR)

One major public sector coordinated stockpiling effort came about in response to the 1973 Organization of Arab Petroleum Exporting Countries (OAPEC) oil embargo. The United States entered into the International Energy Program in 1974, an agreement implemented through the IEA that requires all members to hold a 90-day supply of oil (based on the previous year's net imports) for emergency use.

The following year, Congress passed the Energy Policy and Conservation Act (EPCA, P.L. 94-163), which authorized the creation of the government controlled stock—the SPR—to address emergency supply shortages. According to the U.S. Department of Energy, as of September 27, 2019, the SPR's inventory totaled approximately 645 million barrels of oil, meeting the IEA requirement.

In a supply interruption emergency, the President can authorize a release from the SPR and/or the IEA can call for a coordinated release from IEA member countries. After the September 2019 attacks on the Saudi oil infrastructure, initially, as prices rose, the Trump Administration (under EPCA authority) responded with an announcement to authorize a release from the SPR. However, as prices stabilized several days after the attacks, there was no release. Further, the IEA has not announced any plans to coordinate a release of strategic supplies (crude or petroleum products).

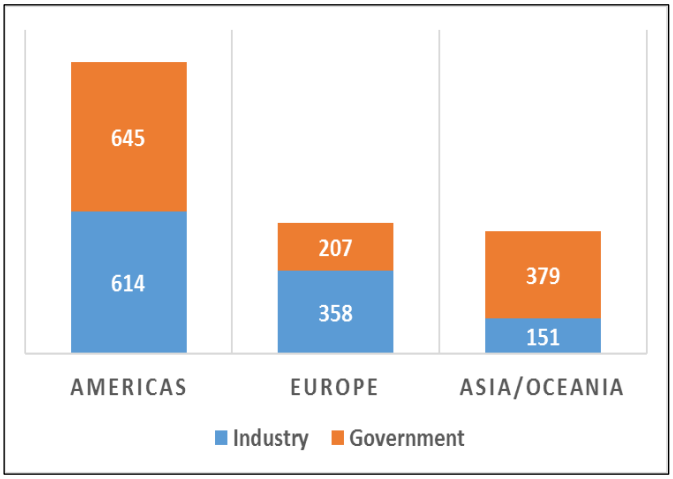
According to the IEA, a coordinated collective member release from stocks has occurred three times: early in the 1991 Gulf War; after Hurricanes Katrina and Rita in the Gulf of Mexico in 2005; and in June 2011, after political unrest in Libya led to a production loss of 1.7 million barrels per day (mb/d). At that time, crude oil prices were trading above $100/barrel. Today, prices are stabilizing under $70/barrel, and the United States is the top crude oil producer in the world.

Commercial Stocks

IEA members can use both public and commercial stocks to meet their 90-day obligation. In June 2019, according to the IEA, Organization for Economic Cooperation and Development (OECD) members held around 1,122 million barrels of crude oil in commercial inventories and 1,230 million barrels in government stocks (**Figure 1**). The United States had 461 million barrels of commercial crude oil stocks in June 2019, equaling around 711 days' worth of net imports when combined with SPR stocks, according to the IEA's methodologies.

Figure 1. OECD Crude Oil Stocks

June 2019, Millions of Barrels



Source: IEA, *Oil Market Report*, September 12, 2019.

Notes: Excludes non-OECD volumes. See source for details.

Numerous oil industry firms hold commercial stocks of crude oil at refineries, bulk terminals, and in pipelines. The purpose of these stocks is to ensure the continuous operation of the refining industry, which transforms crude oil into petroleum products used by consumers. Commercial stocks do not necessarily provide a level of security proportional to that of the SPR. A certain amount of oil held in the system is not likely to ever be drawn upon. For example, in the case of oil in pipelines, some quantity may be considered as "pipe fill" (i.e., oil required to keep the pipeline system operable).

Congressional Considerations

The role of the SPR continues to be a topic of debate for Congress. Congress authorized the creation of the SPR to meet IEA obligations to mitigate the effects of oil supply disruptions. Some assert that using the SPR for emergency supply disruptions should be its sole purpose. The SPR was used in the three IEA-coordinated releases to date.

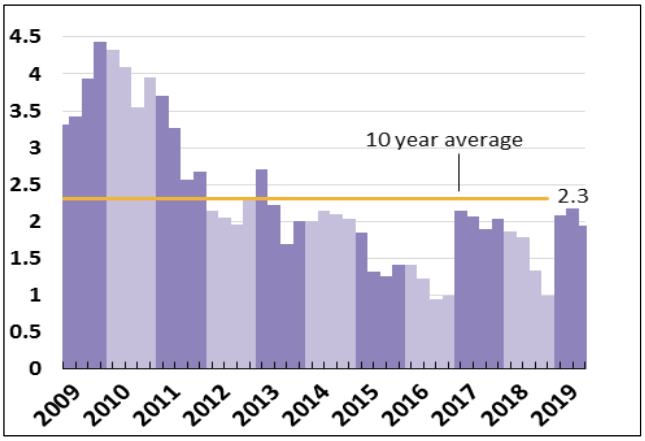
Others contend that commercial stocks meet IEA obligations and Congress could authorize the SPR to meet other needs. Since the 1970s, Congress has expanded the role of the SPR to include natural disaster response and economic stabilization. Hurricanes (e.g., Harvey 2017) have resulted in drawdowns from the SPR to supply refineries and aid consumers. Congress also has allowed various economic drawdowns of the SPR known as mandated and modernization sales. Proceeds from mandated sales are deposited into the general fund of the U.S. Treasury. Proceeds from modernization sales are required by law to be used for construction and maintenance of SPR facilities.

Spare Capacity

Spare production capacity is potential oil production that can brought to market within 30 days, and sustained for at least 90 days, as defined by the U.S. Energy Information Administration (EIA). Countries with the greatest spare capacity are sometimes referred to as "swing producers." Spare capacity may enhance these countries' oil market influence.

Figure 2. OPEC Spare Capacity

Millions of Barrels



Source: U.S. EIA, Refinitiv, "What Drives Crude Oil Prices: Supply OPEC," accessed October 23, 2019.

Notes: Data though 2019 3rd quarter, last updated October 8, 2019.

The Organization of the Petroleum Exporting Countries (OPEC), a group of 14 oil-producing nations, typically holds enough spare capacity to influence the market when it deems it necessary. According to the EIA, OPEC's spare capacity is generally around 2.3 mb/d (**Figure 2**). Normally, Saudi Arabia keeps around 1.5-2 mb/d of spare capacity, the majority of OPEC spare capacity.

Spare capacity in non-OPEC countries is difficult to quantify as the definition of spare capacity can vary. Further according to the EIA, non-OPEC countries typically attempt to produce at full capacity and have limited spare capacity. OPEC typically sets its supply target based on this assumption of non-OPEC members, which is referred to as the "call on OPEC."

Congressional Considerations

Issues for Congress include whether and how to affect OPEC's use of their spare capacity. In recent years, several bills have been introduced to address OPEC's influence in the oil market. For example, the No Oil Producing and Exporting Cartels (NOPEC) Act of 2019 (H.R. 948 and S. 370) would modify the Sherman Antitrust Act (15 U.S.C. 1 et seq.), criminalizing collective actions by foreign states or persons that affect markets and prices for crude oil and other commodities. Some contend that NOPEC may cause unintended consequences. OPEC members may respond by producing oil at full capacity, lowering prices. Low oil prices may not be ideal for all U.S. stakeholders. For example, some U.S. producers may find extraction of crude oil uneconomic below a certain price.

Other Measures

Governments can use other measures to mitigate oil supply disruptions. These include demand-side management tools, such as fuel rationing, which were used in the 1970s in response to the oil embargo. Another tool that may help reduce U.S. demand for oil is the Renewable Fuel Standard. However, some of these options may take time before results materialize.

CRS Products

CRS Testimony TE10040, *The Strategic Petroleum Reserve*, by Phillip Brown.

CRS Report R45493, *The World Oil Market and U.S. Policy: Background and Select Issues for Congress*, by Heather L. Greenley.

CRS Insight IN11167, *Attacks Against Saudi Oil Rattle Markets*, by Michael Ratner, Christopher M. Blanchard, and Heather L. Greenley.

CRS Report R42460, *The Strategic Petroleum Reserve: Authorization, Operation, and Drawdown Policy*, by Robert Pirog.

CRS Recorded Event WRE00205, *Oil Prices: Oil Supply and the Potential for Price Volatility*, by Phillip Brown.

CRS In Focus IF11186, *No Oil Producing and Exporting Cartels (NOPEC) Act of 2019*, by Phillip Brown.

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