

Oil Price Outlook - October 2022

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Introduction

There is probably not a single word to best describe the oil situation this year. Interesting, volatile, or unprecedented doesn't seem to adequately convey what has already happened and what may occur the rest of the year. This article will summarize the past year and what factors might influence prices in the future. Oil is critically important to agriculture, not just for fuel but also because fertilizer prices are closely correlated to oil prices.

Review of the last year

There are at least two major forces that affected oil price volatility over the past couple of years. First, was the Covid pandemic which led to many world economies shutting down and then rebounding. Second, is the on-going Russia/Ukraine conflict. Many countries went into lockdowns when the pandemic started in early 2020. The result was a dramatic drop in oil demand in the U.S. and other countries, with a corresponding reduction in oil production. As lockdowns were eased and demand for oil started to increase, production increases lagged. In the U.S., oil production is still behind pre-Covid levels.

As shown in Figure 1, oil prices increased most of 2021 as demand rebounded. Prices had risen to the low \$90's at the start of the Russian invasion of Ukraine. As might be expected, the Russian/Ukraine conflict increased oil uncertainty and caused prices to spike at nearly \$130/barrel. Prices then stabilized and since June of 2022 have actually decreased to levels before the Russia/Ukraine conflict. Much of this decrease can be

attributed to slowing demand as a U.S. recession is potentially unfolding. Also, Russia is still exporting oil despite the sanctions currently in place.

Figure 2 shows how fuel prices have responded. As expected there is a strong correlation between oil and fuel prices. Gasoline prices have nearly mirrored the rise and fall of oil prices. Diesel prices have decreased some, there is still a larger than normal gap between diesel and gas prices. This price gap between gasoline and diesel prices has its roots in the cuts in production from the Covid lockdowns.

As shown in Figure 3, the U.S. has not restored refinery capacity back to levels that were in place pre-Covid. Several refineries were shutdown during Covid and are never coming back. The last new refinery in the U.S. was built nearly 50 years ago and there are no plans in place to build any new ones. Thus, it will take expansion of the current refineries to increase gas and diesel production and this is likely to be a long-term prospect. The combination of reduced capacity combined with the already high utilization rates means that supplies of gasoline and diesel have been constrained. Diesel production, especially, has been limited resulting in the bigger than normal price differential to gasoline.

The refinery constraints need to be discussed in combination with oil production. The U.S. is both an importer and exporter of oil. The U.S. refinery system is set up to process heavier weight oils so some of these oils are imported. Other countries are better positioned to process lighter weight oils so some of these are exported. The result is

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shown in Figure 4. Fracking has dramatically increased the oil produced in the U.S. but as shown in Figure 5, the U.S. still imports about 30 percent of its oil. Oil production in the U.S. is still lower than it was pre-Covid as not all the wells that were operating then have come back online.

Current situation

With oil prices at \$87/barrel, gasoline and diesel prices would typically be at around \$3.50 and \$3.80 a gallon, respectively, based on historical price relationships (see Figure 6). However, with gasoline and diesel prices at \$3.78 and \$4.84, respectively, fuel prices are above what might be expected. These higher than expected fuel prices are a direct result of the refinery bottleneck in the U.S. that has persisted since early spring. Until this is resolved, farmers should expect to pay more for diesel than they might otherwise.

As shown in Figure 7, the world is still producing almost 80 million barrels of oil a day. Pre-Covid, world crude oil production was 83 million barrels. Thus, world production is still down 3.5% from January of 2020 but well above the low of 70 million barrels a day in June of 2020. Despite sanctions and the on-going Russian/Ukraine conflict, Russia continues to be a leading producer of oil. Russia is currently producing 10.3 million barrels a day, down 5.5% from January of 2020. Because oil is a fungible commodity, it is difficult to make sanctions very effective. Countries like India and China have been buying more Russian oil so Russian oil is finding a market.

This past week OPEC announced production cuts of 2 million barrels a day in oil production. OPEC currently produces 30 million barrels a day (see Figure 9). A cut of 2 million barrels would amount to a reduction of 2.5% in global production. If OPEC follows through, it would likely raise prices but

perhaps not by very much. Quotas are difficult to enforce and many smaller OPEC countries were below their current targets already.

In response to the OPEC announcement, the administration is reported to be considering easing sanctions on Venezuela. Venezuela at one time produced 3 million barrels of oil a day but is currently producing under 1 million barrels a day (see Figure 10). Many of the oil fields in Venezuela are damaged so ramping up Venezuela oil production is more of a longer term consideration.

The administration has also been releasing oil from the Strategic Petroleum Reserves (SPR) in a bid to lower oil prices. The SPR is now below 500 million barrels, the lowest it's been since the mid 1980's. At its current level, the SPR is 36% below its peak level of 727 million barrels. Since the first of the year, the administration has been drawing down the SPR by an average of 668 thousand barrels a day. Like the OPEC proposed production cuts, it is questionable if this additional supply makes much of a price difference. The biggest issue for U.S. fuel prices continues to be limited refinery capacity.

Going forward

The Russia/Ukraine conflict will certainly be a factor that could affect fuel prices going forward. When the conflict first started, traders added about \$40 a barrel to the oil price. However this premium has since disappeared as Russia seems to be placing its oil on the world market despite the conflict and sanctions. There still remains the possibility that something could happen that would limit Russia's oil output and with Russia producing over 10% of the world's oil, the price shock could be large.

A bigger factor that could affect oil prices is a U.S. or world recession. A slowing U.S.

economy is likely for some of the oil price decrease seen over the summer. Less demand for oil in the U.S. would also help the constrained U.S. refinery situation and help gasoline and diesel prices more closely match the expected price that Figure 6 predicted. Economists like to say the cure for \$5 gas is \$5 gas. However, few economists actually think a recession is beneficial for consumers.

Fertilizer prices are affected by oil prices so

any increase in oil prices will to higher fertilizer prices. Oil prices have declined since anhydrous prices reached \$1500 this spring so fertilizer prices might have peaked. While nitrogen could very well be less expensive this coming year, it's doubtful prices will decline to the levels seen in the spring of 2021 when anhydrous was \$500/ton.

OK WTI Daily Spot Prices

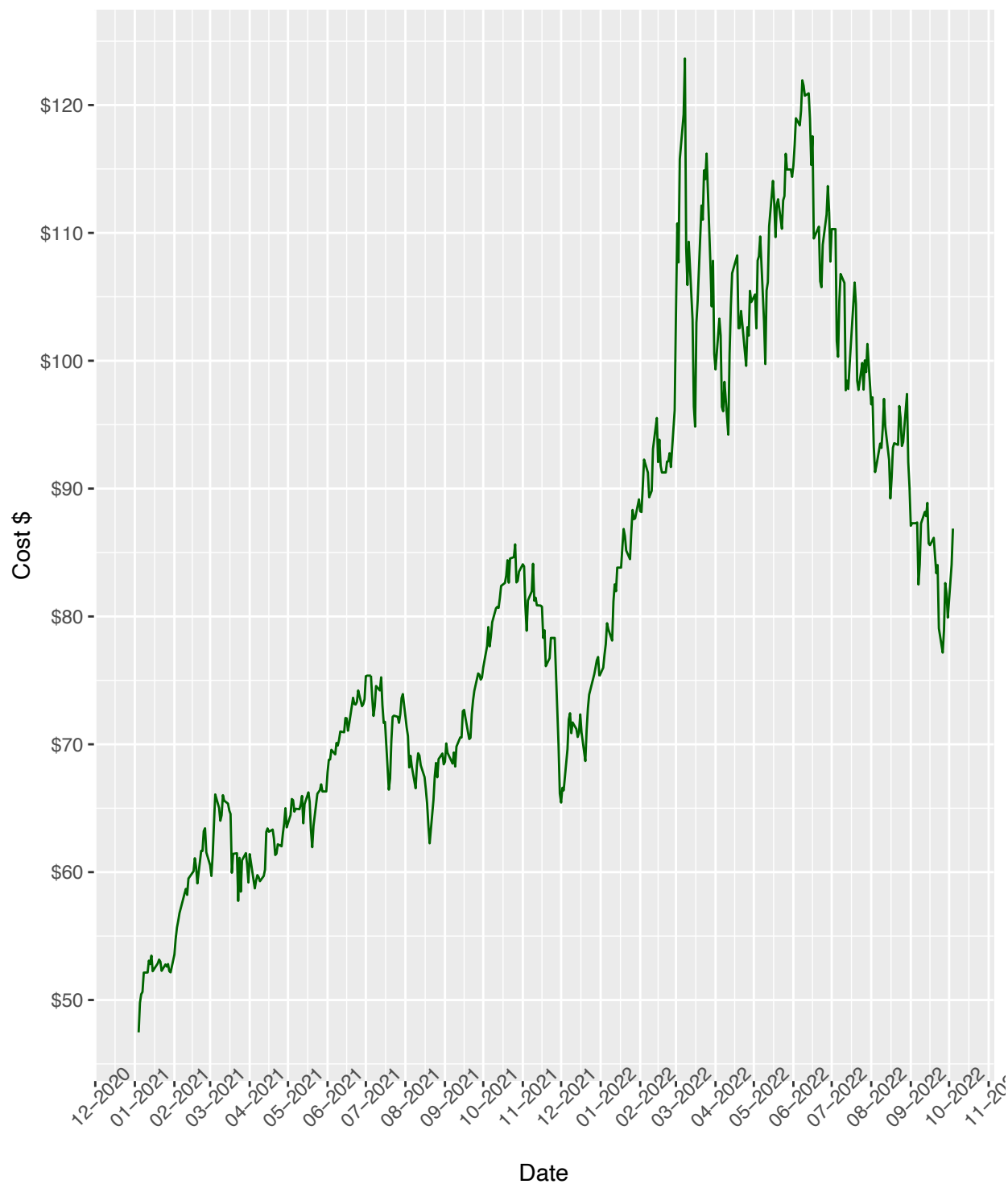


Figure 1. Oil Prices Since the Start of 2021

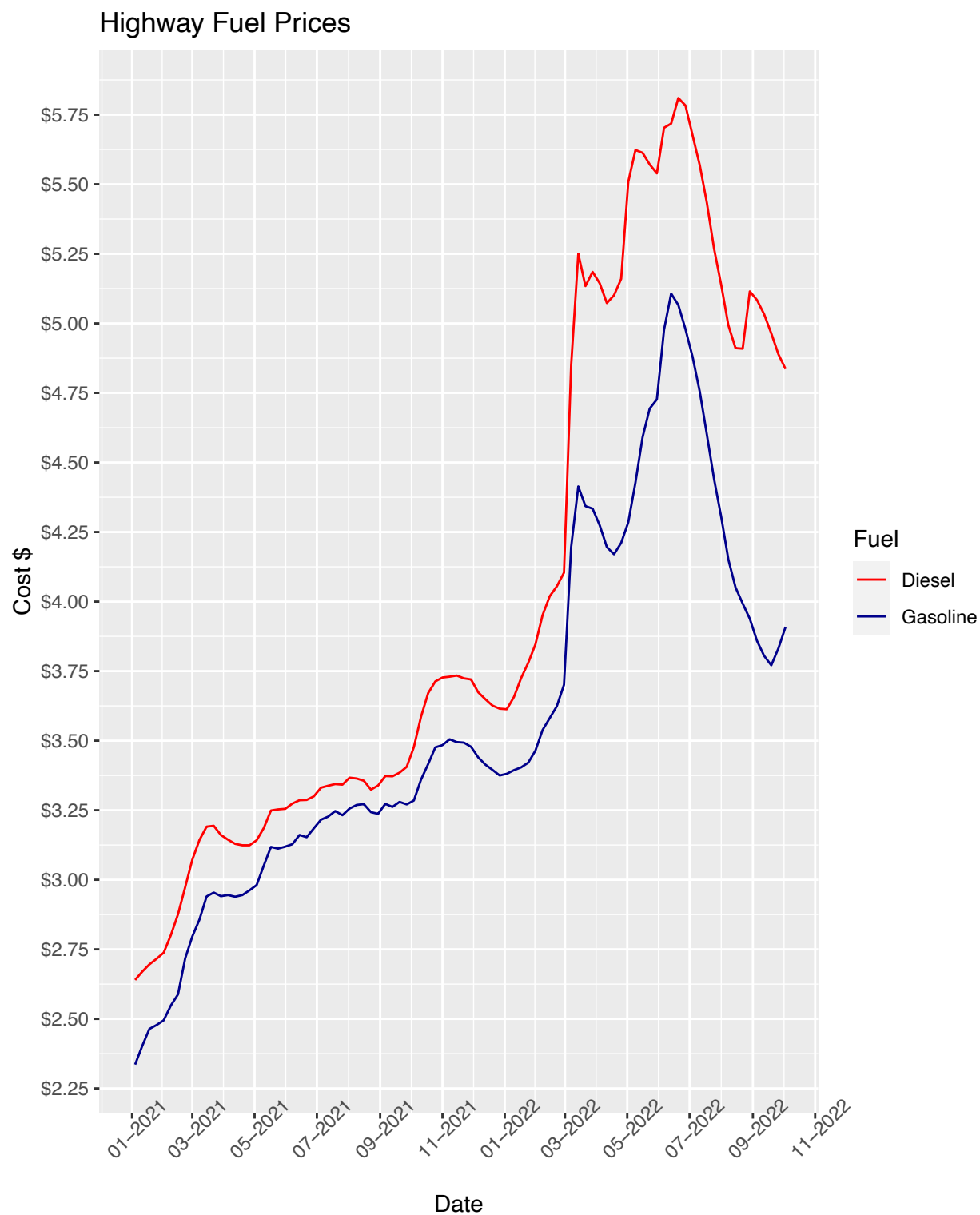


Figure 2. Gasoline and Diesel Prices Since the Start of 2021

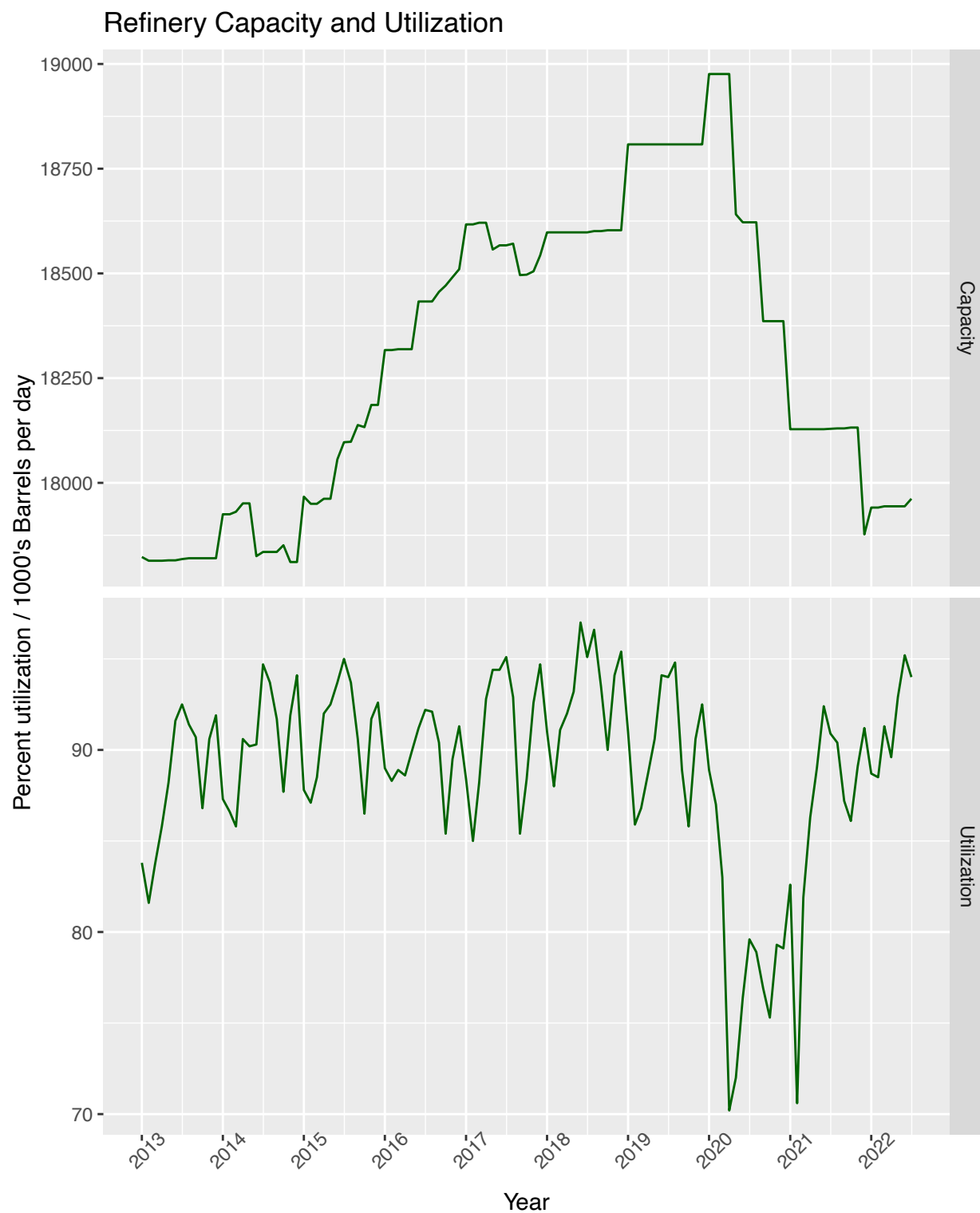


Figure 3. Refinery Capacity and Utilization

U.S. Oil Use by Production and Net Imports

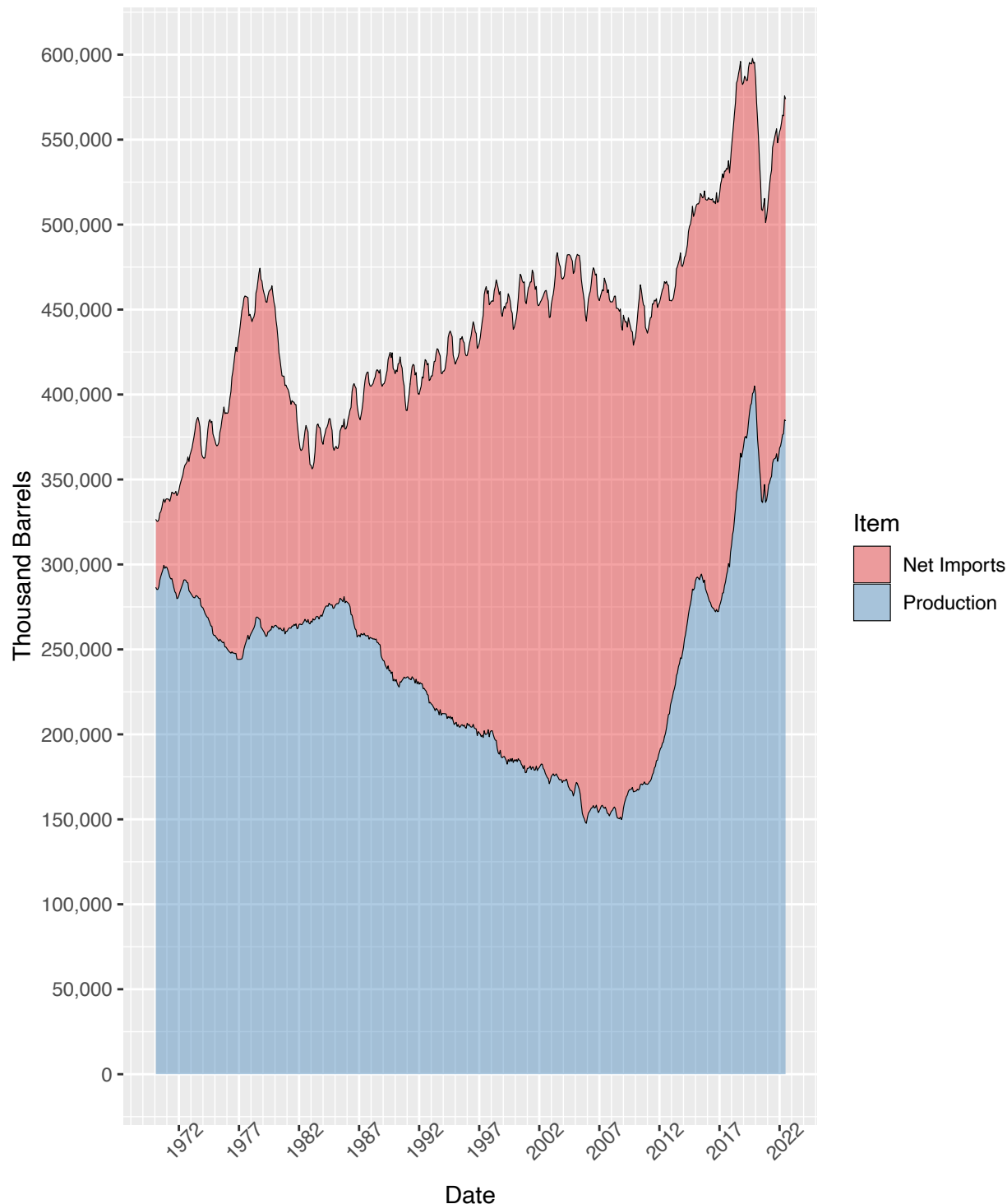


Figure 4. U.S. Oil Production, Imports, and Use

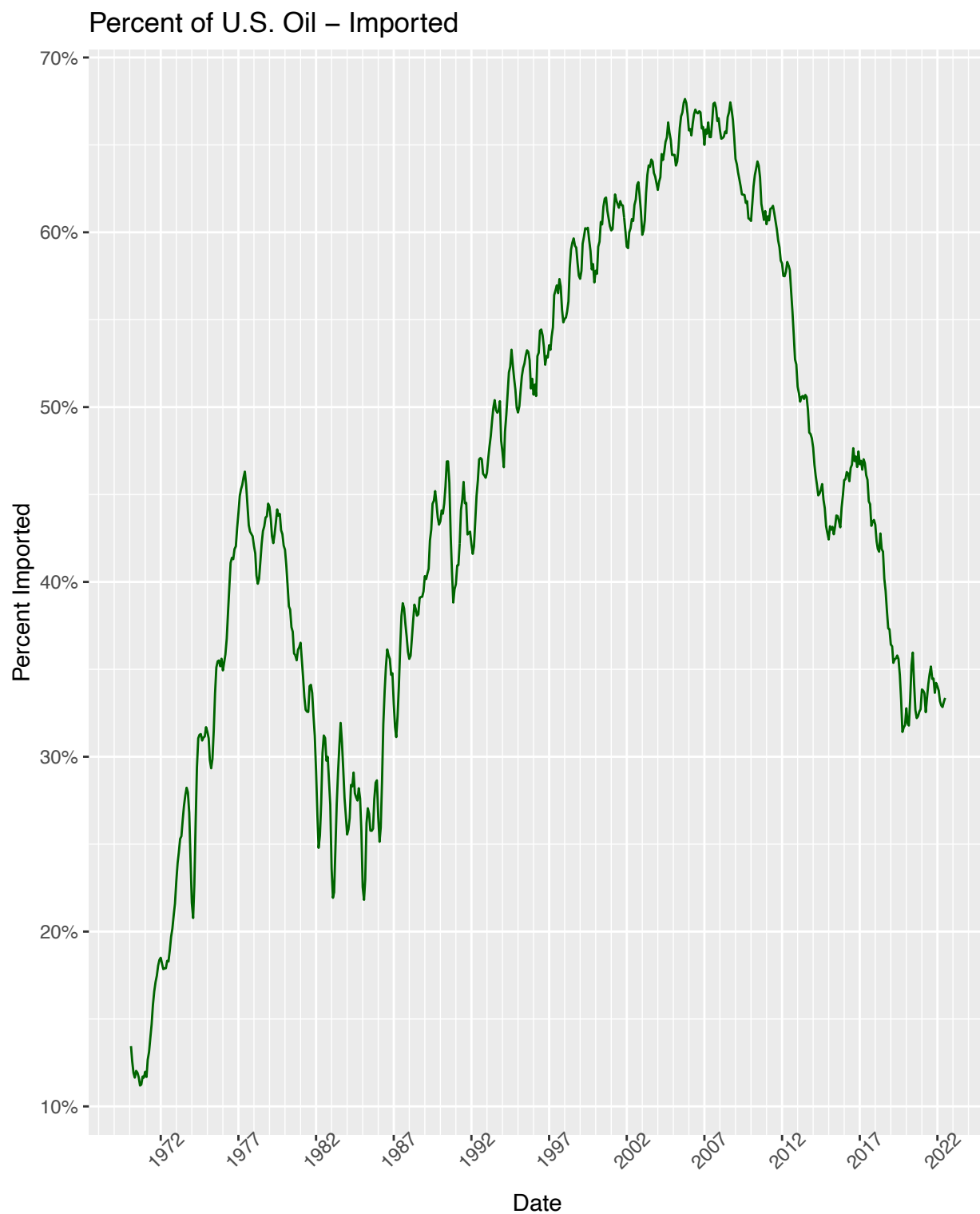


Figure 5. Percent of U.S. Oil Imported

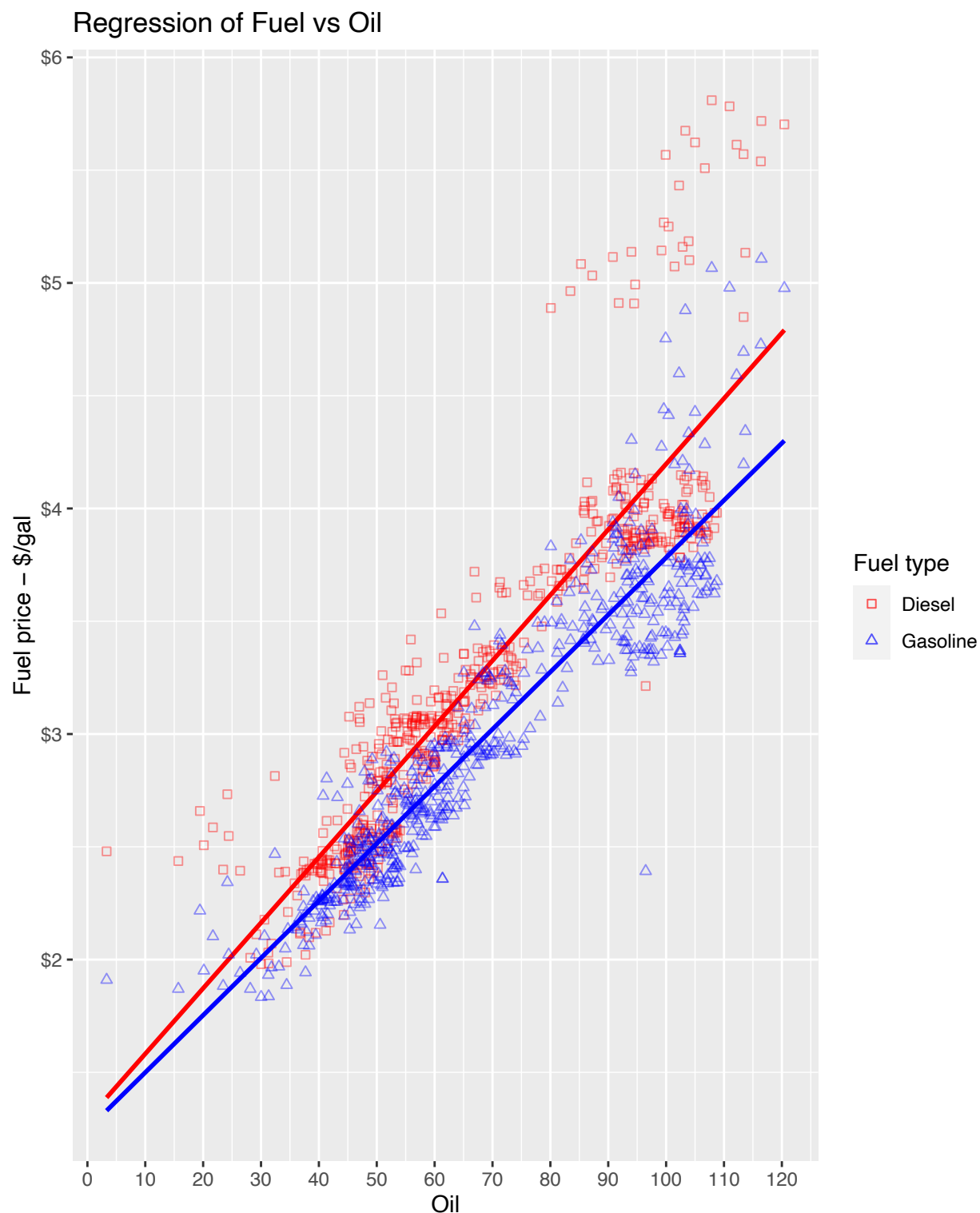


Figure 6. Regression of Fuel Prices vs Oil Prices

Crude oil including lease condensate production, World, Monthly

thousand barrels per day

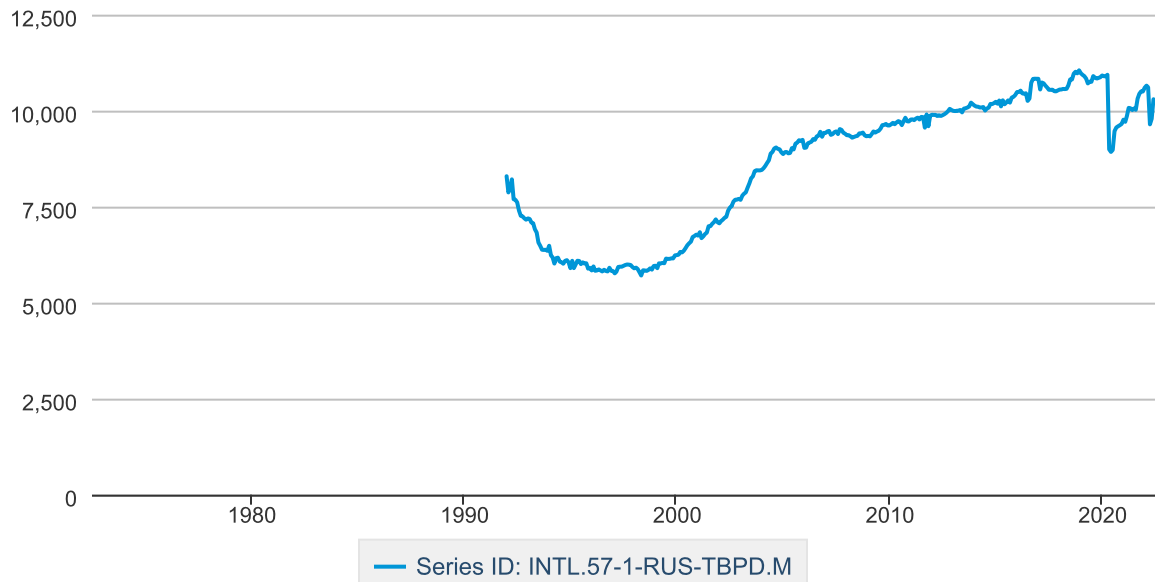


Source: U.S. Energy Information Administration

Figure 7. EIA Graph of World Crude Oil Production

Crude oil including lease condensate production, Russia, Monthly

thousand barrels per day

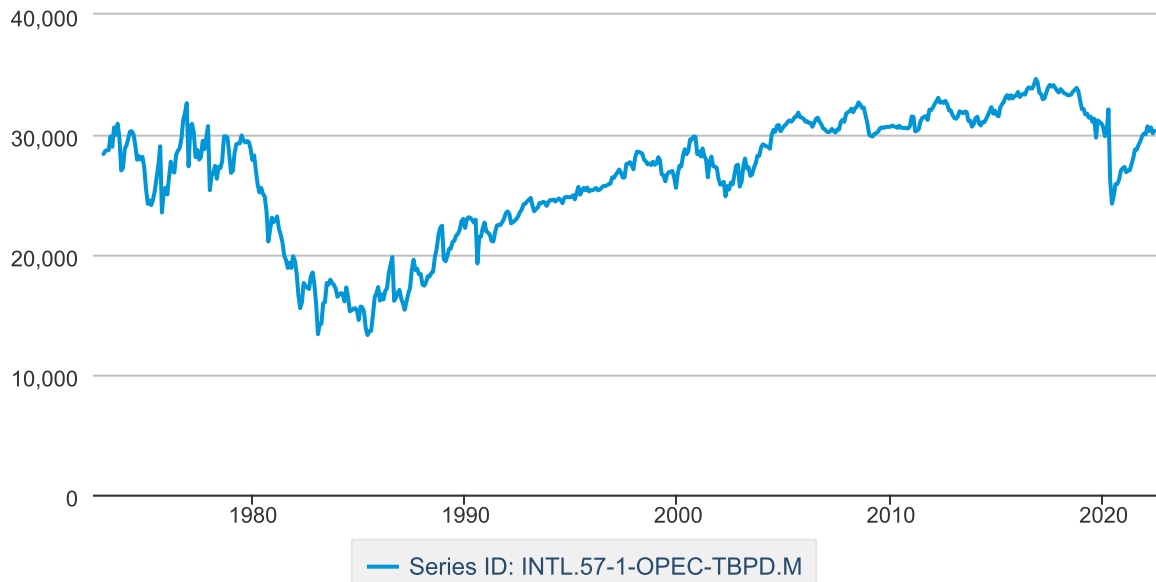


Source: U.S. Energy Information Administration

Figure 8. EPA Graph of Russia Oil Production

Crude oil including lease condensate production, OPEC, Monthly

thousand barrels per day

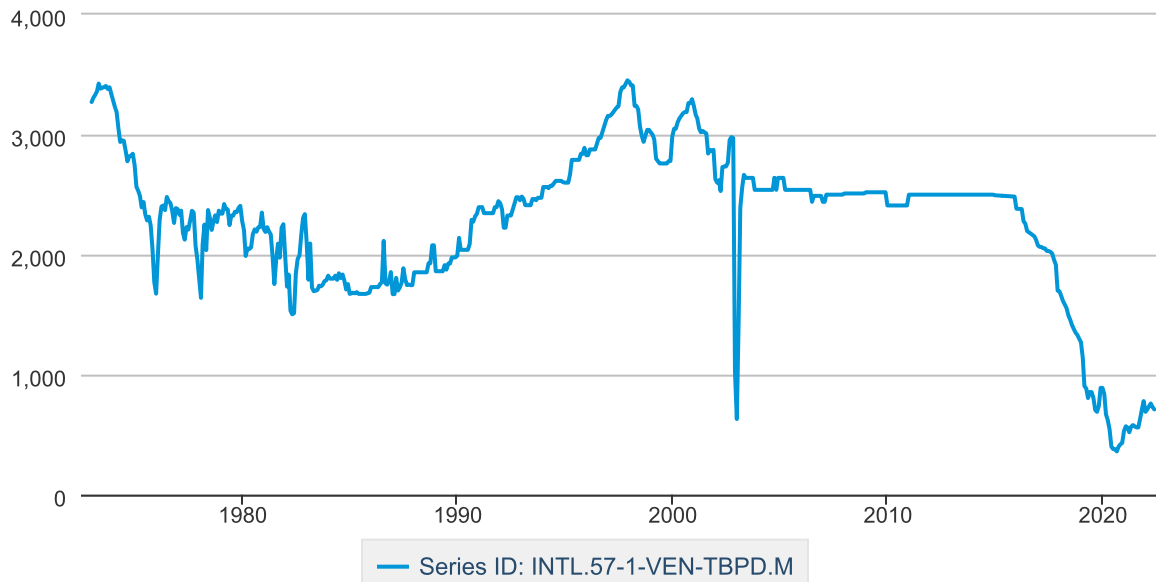


Source: U.S. Energy Information Administration

Figure 9. EPA Graph of Russia Oil Production

Crude oil including lease condensate production, Venezuela, Monthly

thousand barrels per day

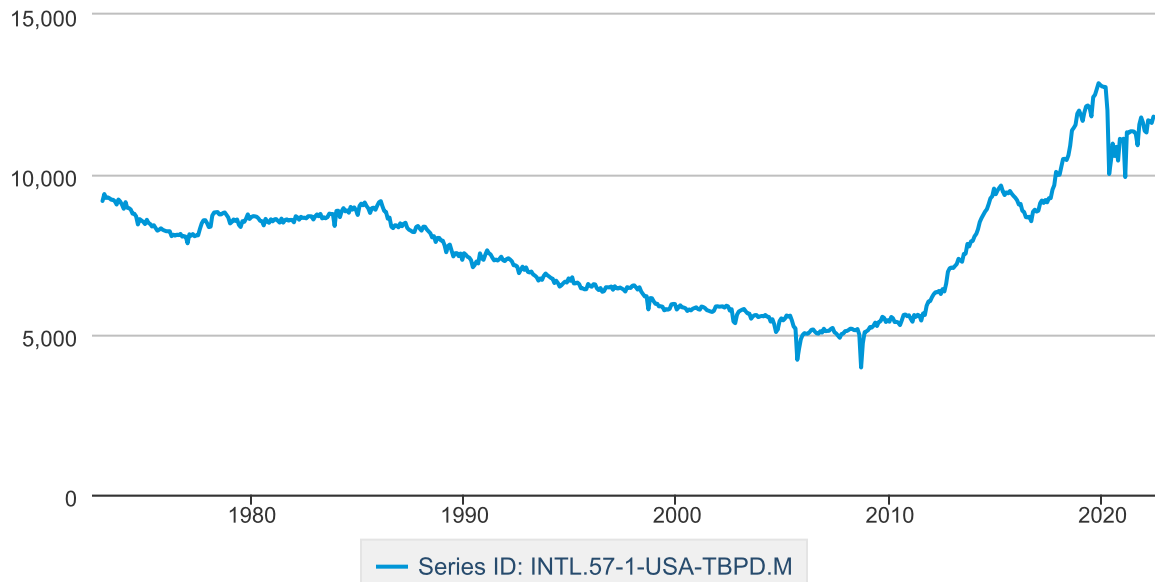


Source: U.S. Energy Information Administration

Figure 10. EPA Graph of Venezuela Oil Production

Crude oil including lease condensate production, United States, Monthly

thousand barrels per day

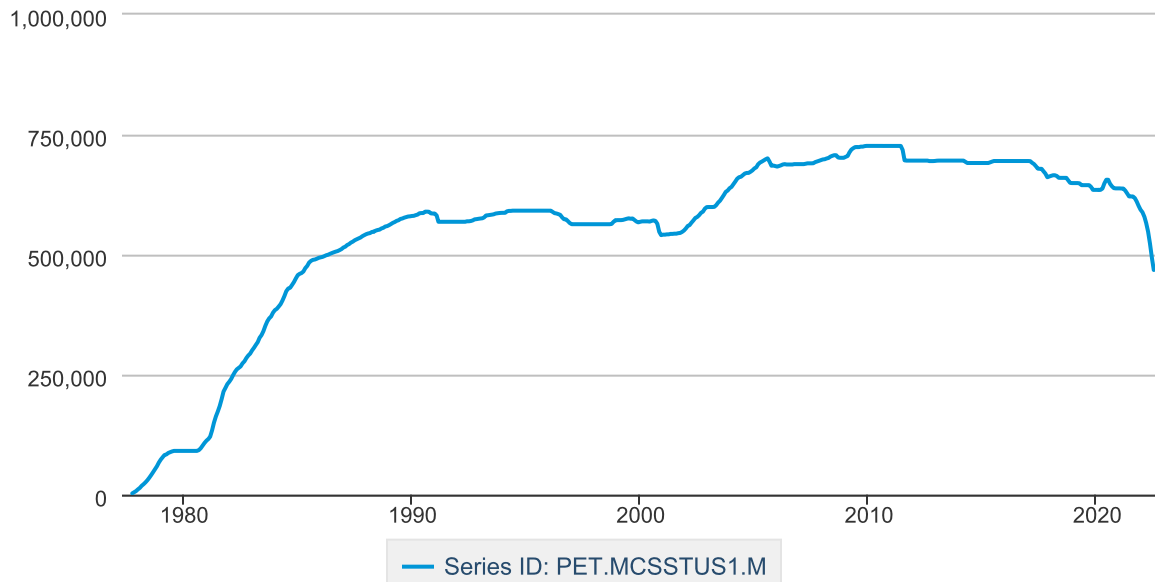


Source: U.S. Energy Information Administration

Figure 11. EPA Graph of U.S. Oil Production

U.S. Ending Stocks of Crude Oil in SPR, Monthly

Thousand Barrels



Source: U.S. Energy Information Administration

Figure 12. Stocks of Crude Oil in the Strategic Petroleum Reserve