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March 27, 2018

Venezuela's Petroleum Sector and U.S. Sanctions

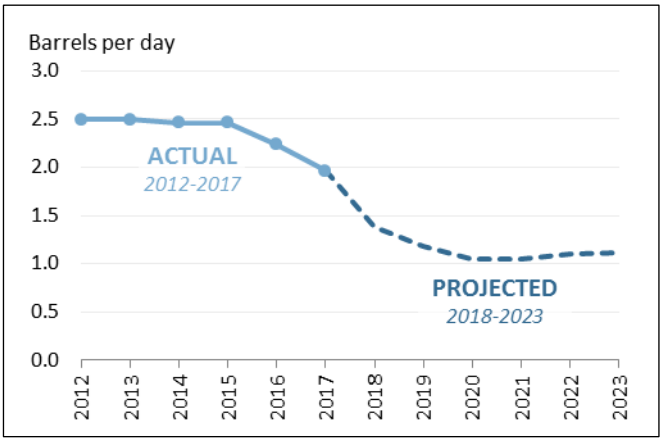
In response to the ongoing political and economic crisis in Venezuela, the United States has imposed targeted sanctions on certain Venezuelan individuals as well as broader financial sanctions on the Venezuelan government and the state-owned oil company Petroleos de Venezuela, S.A. (PdVSA). On February 4, 2018, then-Secretary of State Rex Tillerson remarked that the Administration is considering sanction options that may limit U.S. petroleum trade with Venezuela. As Tillerson acknowledged, a challenge with such sanctions is balancing the desired effects on the Maduro government with potential negative effects on the Venezuelan people, U.S. consumers, and U.S. business interests. The following discussion examines Venezuela's oil production, U.S.-Venezuela petroleum trade, and the potential effect of various types of petroleum sanctions on the Venezuelan and U.S. oil sectors.

Venezuela Crude Oil Production

Production and export of crude oil is a critically important element of the Venezuelan economy. According to the Organization of the Petroleum Exporting Countries, the oil and gas sector represents approximately 25% of Venezuela's gross domestic product and accounts for 95% of export earnings. In 2016, Venezuela produced 2.3 million barrels per day (mbpd) of crude oil; 0.5 mbpd was consumed domestically and 1.8 mbpd was exported.

Venezuelan crude oil production has been trending downward since 1998 when oil production peaked at approximately 3.4 mbpd. Between 2012 and 2017 production has declined by more than 0.5 mbpd on an annual basis with 2017 production just below 2 mbpd. According to the International Energy Agency (IEA), oil production is projected to continue declining—even without the effect of targeted U.S. sanctions—through 2021 to just over 1 mbpd, less than half of 2016 production levels (see **Figure 1**).

Figure 1. Venezuela Crude Oil Production 2012-2023



Source: International Energy Agency, *Oil 2018*, March 2018.

Contributing factors to Venezuela's crude oil production decline include (1) using oil revenues for general government programs resulting in limited cash availability to pay for operational expenses such as oil field services contracts, (2) non-optimal reservoir management due to inadequate investment in production asset maintenance, (3) loss of experienced PdVSA personnel, and (4) government policies that affect cash flow and deter private investment.

U.S.-Venezuela Petroleum Trade

Petroleum trade between the United States and Venezuela is bilateral, although heavily weighted towards Venezuela crude oil exports to U.S. refiners (see **Table 1**). Generally, in terms of sanction considerations, the larger the trade volume the larger the impact of sanctions for each petroleum category.

Table 1. U.S. and Venezuela Petroleum Movements
Thousand Barrels Per Day

	2016	2017
U.S. Exports to Venezuela		
Crude Oil (to Curacao)	30	15
Petroleum Products	75	77
Venezuela Exports to the United States		
Crude Oil	741	618
Petroleum Products	55	55

Source: Energy Information Administration, *Imports/Exports and Movements*, http://www.eia.gov, accessed March 2018.

Potential Impact of Petroleum Sanctions

Various sanction options on Venezuela's petroleum sector are reportedly being considered by the Administration as a potential means of applying economic pressure on the Maduro government. Generally, the economic impact of sanctions will depend on the timing (e.g., immediate versus phased) of each option as well as whether or not such sanctions are unilateral (i.e., U.S. only) or multilateral (i.e., U.S. cooperation with other countries). The following discussion assumes that potential sanctions are unilateral.

Prohibit U.S. Crude Oil Exports to Venezuela

In 2017, the United States exported 15,000 bpd of crude oil to Curacao that was used as a feedstock at PdVSA's 330,000 bpd Isla Refinery. U.S. crude oil exports to Curacao started in 2016 following a legislative repeal of restrictions that prevented U.S. crude oil exports to most countries. Prohibiting the movement of these barrels would result in PdVSA having to find alternative sources of similar crude types, which could potentially result in a short-term price premium for the replacement crude oil. Given the relatively low volume of crude exports to

Curacao, in addition to global waterborne crude oil trade, prohibiting these exports would likely have a small and limited economic impact on PdVSA's operations.

Prohibit U.S.-Venezuela Petroleum Product Trade

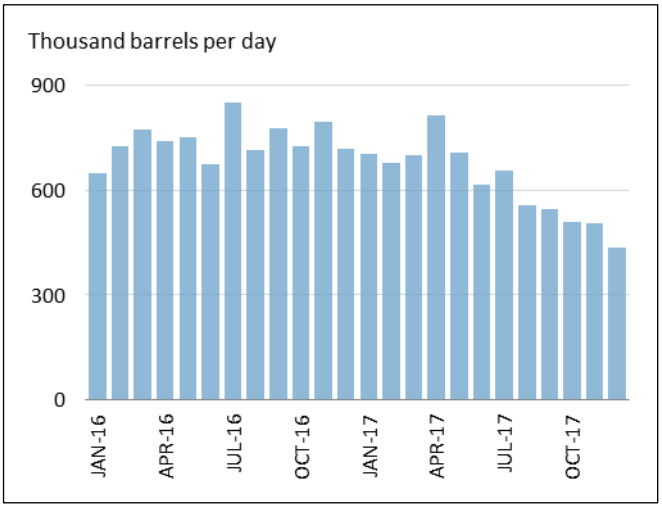
Venezuela exported 55,000 bpd of petroleum products to the United States in 2017. In turn, the United States exported 77,000 bpd of petroleum products to Venezuela. Prohibiting Venezuela product exports to the United States would result in a small but likely manageable constraint in the petroleum product supply system. Venezuela would need to establish alternative markets and U.S. buyers would need to find alternative sources.

Preventing U.S. product exports to Venezuela would likely result in a similar outcome. Of the 77,000 bpd of petroleum product exports to Venezuela, approximately 50% is a partially refined product called Naphtha. Most of the other 50% is finished transportation fuels such as gasoline and diesel fuel. Naphtha is used by Venezuela as a diluent to assist with production and transportation of heavy crude oil produced in the Orinoco region. Limiting access to naphtha could potentially impact oil production, exports of oil and related products, and associated revenues. However, there is a global market for both naphtha and transport fuels. Prohibiting access to U.S. products would require Venezuela to find alternative supply, likely resulting in some degree of price dislocation—potential price premiums that may cause some financial strain on PdVSA and private oil producers—as alternative sources and markets for petroleum products are established.

Prohibit Venezuela Crude Oil Exports to the U.S.

Export of crude oil from Venezuela to the United States is the largest element of petroleum trade between the two countries. U.S. imports of Venezuelan crude oil peaked in 1997 at 1.6 million bpd. In 2017, Venezuela supplied approximately 618,000 bpd of crude oil to U.S. refineries, most being located in the Gulf Coast region. However, on a monthly basis, U.S. imports of Venezuelan crude declined from 812,000 bpd in April to 437,000 bpd in December 2017 (See **Figure 2**).

Figure 2. Monthly Imports of Venezuela Crude Oil



Source: Energy Information Administration.

An immediate prohibition on U.S. crude oil imports from Venezuela could result in a shock to global oil market and would create a constraint in the world oil supply system. From the perspective of Venezuela, the country would lose access to a close-proximity market that provides much-needed cash flow to the government. Venezuela would need to find alternative markets for these crude volumes, with India and China being likely destinations. Initially, in order to sell crude to alternative markets, Venezuelan oil may need to be price-discounted. The magnitude of this discount is uncertain and the financial impact would depend on the prevailing market price of crude oil at the time such a prohibition might be introduced.

Venezuela may need to negotiate payment terms for cash transactions with certain buyers in order to compensate for any reduced cash flow from U.S. sales. China and Russia hold debt with Venezuela, much of which is to be repaid by crude oil deliveries. China has reportedly been flexible with Venezuela and has paid Venezuela cash for a portion of oil shipments. Debt with the Russian state-controlled oil company Rosneft also includes 49% of collateral in PdVSA refining subsidiary CITGO, with refining operations in Texas, Louisiana, and Illinois. Furthermore, Rosneft acquired refining assets in India in 2017 and is reportedly planning to use Venezuelan crude oil as a feedstock. Rosneft is subject to U.S. sanctions related to events in Ukraine.

U.S. oil refiners would also be affected by a prohibition on Venezuela oil imports. Initially, prices for substitute crude oils would likely rise in order to attract alternative sources of supply (e.g., Canada and Iraq). While there are a limited number of U.S. refiners that acquire crude oil from Venezuela, any crude oil price increase would likely impact all refiners. U.S. oil producers, on the other hand, would benefit financially from an increase in oil prices.

Over time the world oil supply system would reconfigure in order to accommodate a U.S. oil import constraint. Crude oil prices would adjust and would ultimately reflect any inefficiency in the oil transportation system. Arguably, the oil supply system has been gradually adjusting since at least the beginning of 2017. Venezuela crude exports to the United States are down considerably and U.S. refiners have been sourcing heavy crude oil from alternative suppliers.

Oil and Gasoline Price Considerations

Sanctions that might prohibit U.S. crude oil exports to Venezuela and petroleum product trade between the two countries would likely have a short term impact on the price of crude oil and ultimately transportation fuels (e.g., gasoline and diesel fuel) for U.S. consumers. An immediate prohibition of U.S. crude oil imports from Venezuela would put upward price pressure on crude oil purchased by U.S. refiners until the supply system adjusts for this constraint. To the extent that higher crude oil prices are reflected in the price of petroleum products, U.S. industries and consumers would also be affected.

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