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### **Venezuelan Crude Supply to the United States**

This weekend the president of Venezuela, Hugo Chavez, threatened once again to halt crude oil sales to the United States. It is Lipow Oil Associates opinion that the probability of this event occurring is small but rising. There is no doubt that should this event occur, crude oil prices will go up. However, there is also a downside for Venezuela as well.

*The overall effect of a halt in Venezuelan crude oil sales to the United States is not a reduction in world crude oil production but a disruption in the normal supply patterns of crude oil distribution.*

### **Venezuela Crude Oil Production**

Venezuela currently produces approximately 2.4 million barrels per day of crude oil which is down from a peak level of 3.5 million barrels per day produced in 1997. The upgrading of heavy Orinoco crude oil by four joint venture companies accounts for 20-25% of the total. The OPEC production quota for Venezuela is 3.223 million barrels per day and as such, Venezuela is producing at 75% of quota.

### **Venezuela Crude Oil Disposition**

The domestic refining capacity of Venezuela is 1.28 million barrels per day. Over the last several years there has been a noticeable deterioration in operations and the refining system operates well under its nameplate capacity. The United States imported 1.15 million barrels per day of the Venezuelan crude during 2007.

### **United States Crude Oil Imports**

The United States imported a grand total of 10.03 million barrels per day of crude oil during the first 11 months of 2007. The largest supplier of crude oil to the United States is Canada (18.4%) followed by Saudi Arabia (14.5%) and Mexico (14.1%). Venezuela is the fourth largest supplier of crude oil (11.4%). Compared to 2006, crude oil imports from Venezuela are up about 8,000 barrels per day or 0.7%. Nigeria is the fifth largest supplier (10.6%).

### **Refiners Importing Venezuelan Crude**

Not surprisingly, Citgo is the biggest importer of Venezuelan crude. They refine about 30 % of the oil supplied by Venezuela to the United States or 345,000 barrels per day. This oil is processed at Citgo refineries which have a total capacity of 816,000 barrels per day. Citgo's two gulf coast refineries at Corpus Christi TX and Lake Charles LA receive the bulk of the crude oil. Facilities at Paulsboro NJ and Savannah GA primarily produce asphalt. The refinery in Lemont, IL currently does not process any Venezuelan crude; in fact it processes 95%+ Canadian crude.

Conoco imports about 240,000 barrels per day or 21% of Venezuelan imports. Approximately 163,000 barrels per day of very heavy high sulfur oil is imported into the company's 247,000 barrels per day refinery in Sweeny TX. The Lake Charles refinery receives about 70,000 barrels per day from the Petrozuata heavy oil upgrading project in the Orinoco which had been a Conoco/PDVSA joint venture.

Houston Refining Company owns a 283,000 barrel per day refinery in Houston, TX which receives about 219,000 barrels per day of Venezuelan crude (about 19% of Venezuelan imports) under a long term contract. This refinery used to be 40% owned by Citgo and this stake was sold in 2006 for nearly \$2.2 billion.

Valero processed about 101,000 barrels per day of Venezuelan crude throughout its refining system during 2007.

The Chalmette Refining Company is an Exxon/PDVSA joint venture in Chalmette LA processing about 78,000 barrels per day of Cerro Negro crude (7% of Venezuelan imports) at the 192,000 barrel per day refinery. Cerro Negro is another heavy oil upgrading project in the Orinoco Belt. This upgrading project had been a joint venture between Exxon, BP and PDVSA until Exxon and PDVSA parted ways.

**Summary: These five companies account for nearly 90% of Venezuelan crude imports into the United States.**

Hovensa is a joint venture company between Hess Corp and PDVSA which owns a 495,000 barrel per day refinery in St. Croix, USVI. This refinery processed approximately 299,000 barrels per day of Venezuelan crude oil during 2007. This crude oil is NOT included in the United States import figures. We expect that this facility will not be affected by any halt in crude oil sales to the United States.

### **Halting Crude Oil Sales to the United States**

What can the market expect should Venezuela decide to halt crude oil sales to the United States? There are two issues to consider. The first, and the one that the market focuses on is the supply side loss in the United States, and the second, less discussed issue is to whom will Venezuela sell its crude oil that otherwise was sold into the United States.

### **Alternate Crude Supply Sources**

The effect of an immediate halt of Venezuelan oil sales into the United States will cause many refiners to seek promptly available alternative supplies. The transit time for loading crude oil tankers in Venezuela and discharging them on either the Atlantic or Gulf Coast is just under one week. We would expect that if an immediate halt occurred, the United States Government would release oil from the Strategic Petroleum reserves to mitigate any short term impact that could result in a product shortage.

Most Venezuelan crude is very high sulfur and heavy meaning that without the necessary refinery upgrading equipment, the production of gasoline and diesel fuel from each barrel of crude oil is low. United States refineries do indeed have the equipment to improve the gasoline and diesel fuel yield from processing Venezuelan crude.

These units are known as cokers. For every 100 barrels of crude oil processing capacity, American refiners on average have 13.9 barrels of coking capacity. Compare that to China where for every 100 barrels of crude capacity, there are 2.5 barrels of coking capacity. Without coking capacity, refiners produce heavy fuel oil for use in marine vessels or utilities rather than the high value transportation fuels. This sophisticated equipment means that these refiners can easily process crude oil produced in any part of the world.

Considering that OPEC is looking to reduce production by in March, there is no doubt that enough alternate supplies of crude oil exist to replace Venezuelan crude oil. In fact, some OPEC members may wish to take advantage of the sales halt to increase market share in the United States.

Nevertheless, it is Lipow Oil Associates opinion that the market will temporarily move upwards until the supply chain is re-established to the United States.

### **New Customers for Venezuela's Production**

Should Venezuela decide not to sell the United States crude oil, it must find new customers. This side of the story receives far less attention than it deserves. For Venezuela, it is a great problem.

South America has more crude oil production than demand. Argentina, Bolivia, Brazil, Colombia, Ecuador, Peru and Trinidad export crude oil. The preferred market is the United States which minimizes freight costs being geographically close by while achieving the highest price. Since the local refiners in Latin America are already purchasing locally available crude oil, Venezuela must now look at European and Asian markets for expanding sales. It takes 15 to 17 days to move a tanker of oil from Venezuela to Europe. These markets with longer transit times have higher transportation costs and generally lower crude oil prices which translate into lower revenue.

### **Selling Low and Medium Sulfur Crude Oil**

Venezuela produces some low sulfur light sweet crude, some medium sulfur crude and a majority of heavy high sulfur crude. The light sulfur crude can be sold into Europe displacing light sweet crude from other sources such as Algeria, Libya or Nigeria. Those suppliers either reduce their price to sell in the local European market or find new customers in the United States. A similar scenario is true of medium sulfur crude. Venezuelan crude will compete with Russian and Middle Eastern supplies. These producers can reduce their price in the local market or ship to the United States and incur higher transportation costs. A similar analogy holds for sales into Asia.

The bottom line is Venezuela, by terminating sales into the USA, will force its oil into markets that are adequately supplied and become a source of new competition. This new competition forces the European or Middle Eastern producers to compete for market share or transport oil greater distances with the associated increase in freight cost. In either case, the producer receives less revenue. Venezuela becomes a competitor in OPEC's backyard.

### **Selling High Sulfur Heavy Crude Oil**

However, Venezuela has another big problem. Venezuela produces a substantial amount of high sulfur heavy crude. Some crude contain up to 5.5% sulfur. Compare that to WTI which has less than 0.5 % sulfur and Nigerian crude with less than 0.2%. In order to refine this into high quality transportation fuels, European and Asian refineries need specialized high conversion upgrading units such as cokers. Without these units, refiners must produce high sulfur fuel oil for marine vessels or utility use.

This conversion capacity is currently all being used. As we mentioned before, China has 2.5 barrels of coker capacity for every 100 barrels of crude processing capacity. Additional high sulfur heavy crude processed in China will not be converted into transportation fuels. If processed in China, high sulfur marine vessel and utility fuel will be produced. However the market for this high sulfur material is decreasing. Asian utilities have cleaned up their act by burning lower sulfur fuels. The marine industry as well is instituting new regulations that reduce the sulfur content of bunkers. China has a lot of new refinery construction projects on the drawing boards that will permit the processing of high sulfur heavy crude oil; however they will not be ready for years.

Some Venezuelan crude oil used for asphalt production may not find a new customer if it is removed from the United States market.

*Venezuela, Hugo Chavez in particular, has not recognized that it needs United States refining capacity as much as the United States needs to buy Venezuelan crude oil.*

### **Summary**

Although Venezuela continues a steady stream of Anti-American rhetoric, Lipow Oil Associates sees little probability of a halt in crude oil sales into the United States. Should a halt actually occur, the market will react and move higher, however once the supply chain has been re-established into the United States, prices will fall.

Sales of Venezuela crude oil into European and Asian markets will undoubtedly irritate other member of OPEC as well as Russia as they see increased competition. Some OPEC members may be more than happy to grab market share from Venezuela for sales into the United States.

Venezuela may also be quite surprised and unable to find any outlets for some of their crude oil production. *Crude oil is not worth anything unless one can sell it or refine it.*