2017: The Year* of Living Dangerously

***So far…**

SW Chemical Association
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Carl Larry

Frost & Sullivan Oil and Gas

Carl Larry

Director – Consultant, Business Development, Oil and Gas

Email: Carl.Larry@frost.com

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Executive Summary

Review of events that changed the Oil and Gas market in 2016

Looking back at the past year, we want to highlight some of our forecasts that were predicted and successfully presented to our Oil and Gas client base. Thinking and planning ahead of the curve helped many to budget, schedule, and execute in a timely manner.

We are looking ahead to a major year of change with the Trump Administration

The basics of what lie ahead from the information that we are dealing with and the clues that we are given before the Presidential election.

Summary of the Oil and Gas industry areas that will see growth and opportunity

Touching upon the immediate actions and the potential for opportunity in sectors that surround these actions

Executive Summary (continued)

A brief on the implications we see in Mexico and Latin America

NAFTA and a possible Border Tax change the plans and strategy South of the border. We examine some of the situations at hand and the ways we can work with and around them.

Executive orders and the way they are shaping the near term for Oil and Gas

From Number One to Number Eighteen, we give a quick glance at the meaning behind them and as they pertain to the next year of the Oil and Gas industry.

Financial rules and regulation rollback

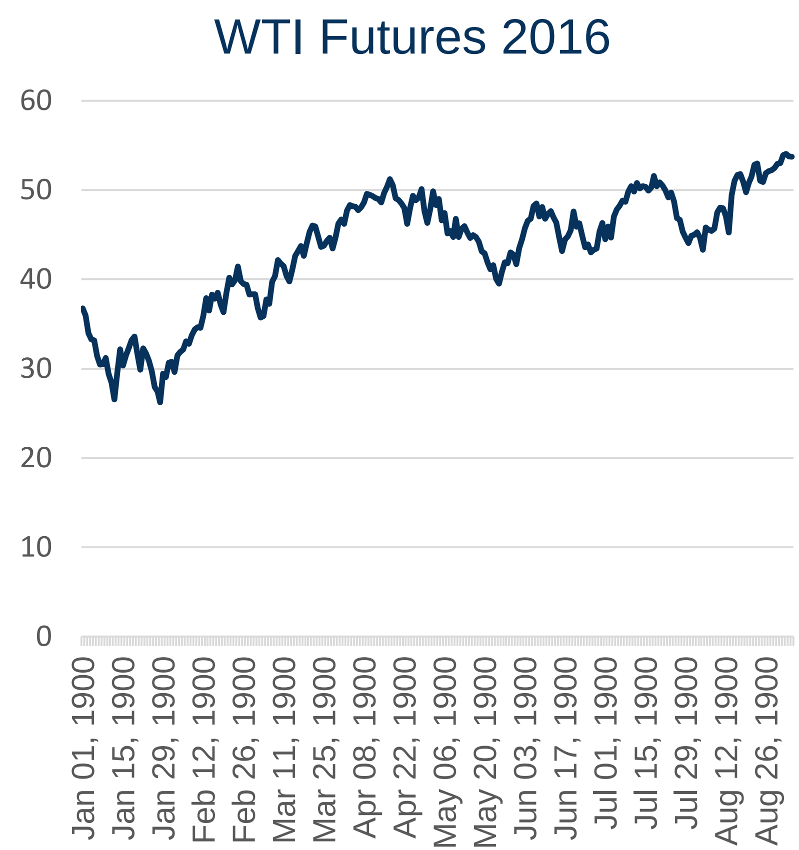
The latest on one of the biggest and brightest Executive Order for the Oil and Gas industry. Changing the way financial institutions are integrated in this industry harkens back to the great run of 2003 to 2008. Prices may be more stable, but the industry has great potential to use this to its advantage.

2016: The year I had it right*

*The price was not right, but we won the showcase.

2016 Review:

- ***WTI Futures Price avg.: $43.40***
  The price could not hold over $50 with consistency until December after the OPEC decision.
- ***US Crude imports avg. 7.9 mm b/d (+400K b/d from 2015)***
  Interesting to note that of this jump in imports, 200K was an increase from Canada, the other 200K was Iraq.
- ***Refining Runs avg. increased +132K b/d***
  Refining Capacity leaped to end the year at 18.474 mm b/d after starting 2015 at 17.830 mm b/d.
- ***Spare capacity avg. 2.1mm b/d***
  An increase of 500K b/d, but that is in relation to the capacity increase over the past year (+644K).



Source: Frost & Sullivan analysis.

Knowing/Guessing

"Knowing makes you money, guessing makes you famous."

- ***The Certainty of Uncertainty***
- ***The Trump Presidency***
  - *Infrastructure*
  - *The Oil connection*
  - *US vs. Them Trade Theory*
  - *Buy American, Hire American*
  - *Building up to falling out*
- ***Preparing for the Road Ahead***
  - *Year One to Year Four*
  - *Nothing Is Easy (almost)*
  - *Sustainability – The Fossil Fuel Way*

USD chart

Source: Frost & Sullivan analysis.

Trump Presidency: Oil (industry) Independence

Everything Changes

- Energy Adviser: House Rep, Kevin Cramer
- Campaign backer: Harold Hamm, CEO Continental Resources
- Stands against EPA and Climate Change
- Pro American business
- Republican majority in Congress

Oil Independence

- Some of the biggest telltale signs around the future of oil and gas in America were laid out well ahead of the election results.
- A quick review of some of President Trump's Campaign advisers, financial backers and then his picks for key Cabinet posts have helped form an base of supporters that all have a say in the future of Energy in America.
- Some of the biggest changes though will not come from the many that have backgrounds in Oil and Gas, but those that will be dealing with the Government Departments that will shape policy and public interest around Oil and Gas.
- The EPA stands out as a major key player as well as the Department of Energy, but it is the people that have been put into posts around economic policy that will help boost opportunity for growth and expansion in what has been an unwanted Energy explosion the past six years.

Source: Frost & Sullivan analysis.

Trump Card

Infrastructure

- Keystone readies to go. TransCanada has already re-applied.
- Canadian crudes to keep market prices balanced based on grades
- Dakota Access Pipeline being pushed and granted Army Corps approval
- Ability to bring more Bakken light grades to the US Gulf
- Midwest and East Coast refiners readying for a slate switch
- 2004 all over again

Crude Prices Second, Refining Margins First

- Good times (2013, 2015) Not so good times (2014, 2016)
- Supply side
- Changing the slate

Trump Card (continued)

- One of the most prominent Campaign points that President Trump has made is adamant about seeing through, has been a commitment to “infrastructure”. Although many have thought this to be more about highways, roadways and general transportations, the veiled truth may be focused on more oil and gas pipeline infrastructure.
- In America, the issue with oil independence has not been so much about a lack of oil production, but the ability to move our oil efficiently and cost effectively from production to consumption. Building out this infrastructure in the United States will help ease the dependence for foreign barrels that are brought into US refiners with more accessibility to shipping ports.
- The market believes that we’re will soon see the Dakota Access pipeline operational by Q2 2017. That will help bring US crude from the North Dakota fields down to the US Gulf Coast refining hub. Currently the US Gulf brings in about 3 mm b/d of imported crude oil. Based on current production in the Bakken and along that route, we may see as much as 1 mm b/d of crude oil imports displaced from this area.
- What we may soon see past this though is an extension of the Dakota Access that will head East. The road for a pipeline to the East Coast refining hub will not be as easy, even with environmental friendly regulation. The States that are in between may resist, but as cost decline in areas that are situated with safe and secure oil infrastructure, the benefits may be hard to ignore.

Source: Frost & Sullivan analysis.

Trump Card (continued)

- The other major issue with moving along with "oil independence" is a problem that was created in 2004. It was during this year that some of America's largest refiners undertook a task to rework their existing systems to process heavy, high sulfur crude oils. Back then, these grades of crude were more readily available and at lower price values. This made refining for the short term and the expected long term, profitable at these margins.
- The unexpected happened in 2011 when the explosion and expansion of US crude production took hold with the advancement of hydraulic fracturing. This move in oil production yielded much lighter viscosity and lower sulfur crudes. Now with this grade of crude in abundance, the US refining system has found itself with a surplus domestic crude that it's refining system is not prepared to use without necessary adjustments. Coincidentally, the lighter grade of shale crude yield much more products, such as gasoline, and in many cases may not need to be run through a traditional refinery to use commercially.
- What happens going forward may be a bit speculative, but the commitment of US refiners to switch their refineries to once again, handle the lighter crude oil slate, is possible. As we can presently see, there is a good amount of crude determined in our domestic shale plays, as well as higher technology and efficiency methods to extend those yields and reserves.

Source: Frost & Sullivan analysis.

NAFTA and Latin America

Border Tax Dilemma

- 20% tax on imported goods from countries with budget deficit
- Tax benefits for exports
- Countries that will be open to trade

Latin America Redefined

- Mexico in or out
- Brazil quiet
- Argentina, Peru waiting in the wings
- Venezuela the big “what if”

NAFTA and Latin America (continued)

- The border tax dilemma complicates the equation of importing crude. It does give some baseline to the lower price point on which crude imports become the profitable option (~26% including costs). This is not going to play out well in the near term for refiners that depend on imports for the heavier grades of crude that we have mentioned. Conversely, it does push up any timetable that US refiners may have if they are inclined to switch their crude oil slates to be more accommodative for domestic crude oil grades.

- The highlight of the Border Tax though it is not wholly inclusive. The Border Tax, at this writing, will only be in effect for countries that are in a trade deficit to the United States. Canada, at this time, has a trade surplus to the United States of $4.4B (2016). Mexico though, has a trade deficit to the United States of -$63.1B (2016). Although it is going to be hard to find many other countries that can carry a trade deficit to the United States, we do think that the future of this bill may rest on a sliding scale that can be adjusted to the amount of the trade deficit on a global average.

- For Mexico, this may also have the potential for negotiation. We can foresee more demand in Mexico for US oil and gas equipment and services as they move ahead in developing their new oil production plans. We may also see some bartering ability to send America crude in trade for gasoline. Currently, Mexico is the largest consumer of US produced gasoline. That market is likely to increase along with other commercial fuels as they expand the aforementioned oil production.

Source: Frost & Sullivan analysis.

NAFTA and Latin America (continued)

- Extending out to other countries in Latin America, one of the other large importers of crude oil to the United States that is not included in OPEC is Colombia. They send an average of 355 K b/d of crude into the United States (2014-2016). Here the trade balance is only a meager -$696 M difference, but nonetheless, a trade deficit. This is an example where we think that a sliding scale is inevitable around the Border Tax.
- Venezuela is the other major Latin American oil importer into the United States (Ecuador imports halted in 2013). The trade deficit here is -$5.36 B, but this also presents a lot of optionality going forward. With the country flirting with economic collapse and hyperinflation, there is a high probability that we will see some change around this Government. How the change affects the relations with the United States will help dictate its possible future with its oil imports into the United States.
- It should be noted that Venezuela would be faced with a major economic collapse if their oil imports into the United States were cut down. The country relies mainly on its oil income and as we have already seen, it is in a financially fragile state.

Source: Frost & Sullivan analysis.

View of the Reviews

1 ***Repealing Universal Health Care***
No impact unless you are providing chemicals to drug manufacturers

2 ***Federal Government Hiring Freeze***
This exempts military so not likely to impact oil or chemical sales to Government contracts

3 ***Any Obama-era regulation, signed in his lame-duck period, is being put on hold until further review by the Trump administration***
For those who were not paying attention, all of the strict EPA rules on Methane and the Mid Term Evaluation of greenhouse emissions are now on hold

4 ***An order to pull out of the Trans-Pacific Partnership***
The first shot at pulling out of any and all foreign trade deals that do not put America first

5 ***A ban on federal funding to international groups***
May seem like something outside of O&G, but another shot at foreign trade (MX)

View of the Reviews (continued)

6-10.

Set of orders that: streamline permitting and regulatory burden for domestic manufacturers in order to speed up the process, expedite environmental review and approval of high-priority infrastructure projects, accelerate the Keystone XL and Dakota Access pipeline projects, and state that pipelines intended for usage in United States should be built in the country

OK, here is where everything starts to pick up the pace for Oil and Gas. To keep this brief, it is all about pipeline. Keystone and Dakota Access are just the first of many. We should expect to see this become a high priority for America and it will eventually move into our ability to refine and export more chemicals.

We are seeing more activity in the Midstream sector and a deeper calling into expanding projects. What many in the Oil and Gas industry have overlooked in the past year was that despite the weak prices in crude oil, the US refining operable capacity had increased significantly. The country started 2015 with operable capacity at 17.8 mm b/d and ended 2016 at 18.5 mm b/d.

Source: EIA, Frost & Sullivan analysis.

View of the Reviews (continued)

6-10.

As we now shift focus from the Downstream industry to Midstream, we think that the growth and expansion of this industry moves quickly. There will be more opportunity in this area for everything that compliments pipeline activity. These include:

Power Generators – Mobile and permanent generators are going to be in high demand. First to mobilize along construction routes and then to sustain flow rates for oil. Higher power for less viscous oils, steady power for more fluid oils that flow continually.

Building Materials – Essential components such as steel, concrete and copper. These will also create higher demand for chemicals such as diluent to ensure proper oil movements

Specific Instrumentation – What may fall into this category will be specific equipment to this industry, such as Pipeline Pigs, Flow Meters, and so on.

Drone technology – Building out new and expanding on existing pipeline require constant monitoring along the lines for safety and efficiency. Where we have seen manned crews attending to these tasks in the past, we are likely to see more drone technology to work 24/7 to replace higher cost labor.
These drones will be able to monitor changes in flow, leakage, and possible deterioration along the lines before they become environmental and costly issues.

View of the Reviews (continued)

6-10.

Data gathering, efficiency optimization and the Internet of Things –

This gets a page of detailed focus. What has been something of high regard in the Upstream sector of the Oil and Gas industry in the past year or two gets a revisionary look as we expand into the growth of Midstream (pipeline, storage).

As Upstream participants can attest, the absolution of efficiency has been optimized with the evolution of data gathering, analysis of efficiency optimization around this data and the application of solution using applicable software. We can see this moving forward in the Midstream area by the same ideas to solutions process.

Moving oil through pipelines seems relatively simple, but there are many opportunities to see slippage of the process. Here we should see an increase of equipment that will pertain to measuring data, processing that data and finding applicable solutions to maximize efficiency around that data.

View of the Reviews (continued)

11-13.

Mainly in regards to immigration and limiting immigrants into the United States from countries in regards to terrorist activity

There is some interest in our community in regards to these EOs. Primarily we are frosting the relationship that we have with Middle Eastern countries (3 OPEC members) and once again, pushing away the idea of importing anything from them.

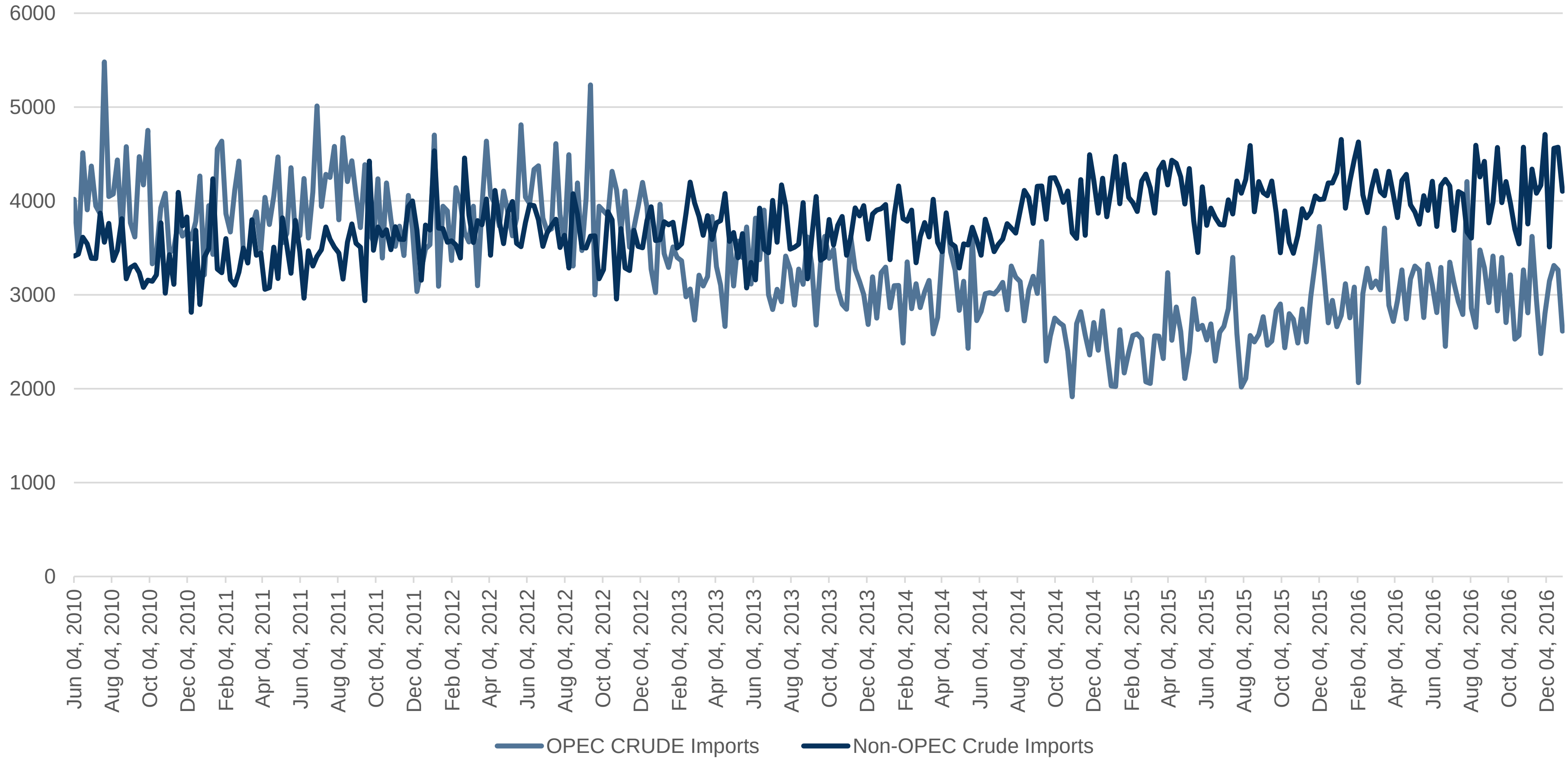
This action is going to continue to be hotly contested, but there will be implications in regards to other oil and gas producing nations. Of the countries already cited, Libya, Iran and Iraq are highly regarded OPEC members. Moving forward with these restrictions on immigration from these countries, we may see a retaliation against oil imports.

The issue though is that the United States has become much less of a consumer of oil from these countries. If there is a collective effort from these countries or a bigger event that is supported by OPEC, it may not have a direct effect on oil prices here in America. We may see another situation similar to 2016 that puts the rest of the world in another “oil glut”.

Contrary to what many might believe, it was not about OPEC overproducing over the past few years that has created a global crude oil oversupply, but it has been the declining rate of crude oil imports into the United States that has changed the landscape. Considering the agenda to focus solely on American interests (“Buy American, Hire American”), this move to alienate foreign countries will continue to put the focus on less foreign oil import, especially from afore mentioned countries, and put more crude oil on the global marketplace.

Import/Export: Crude Oil

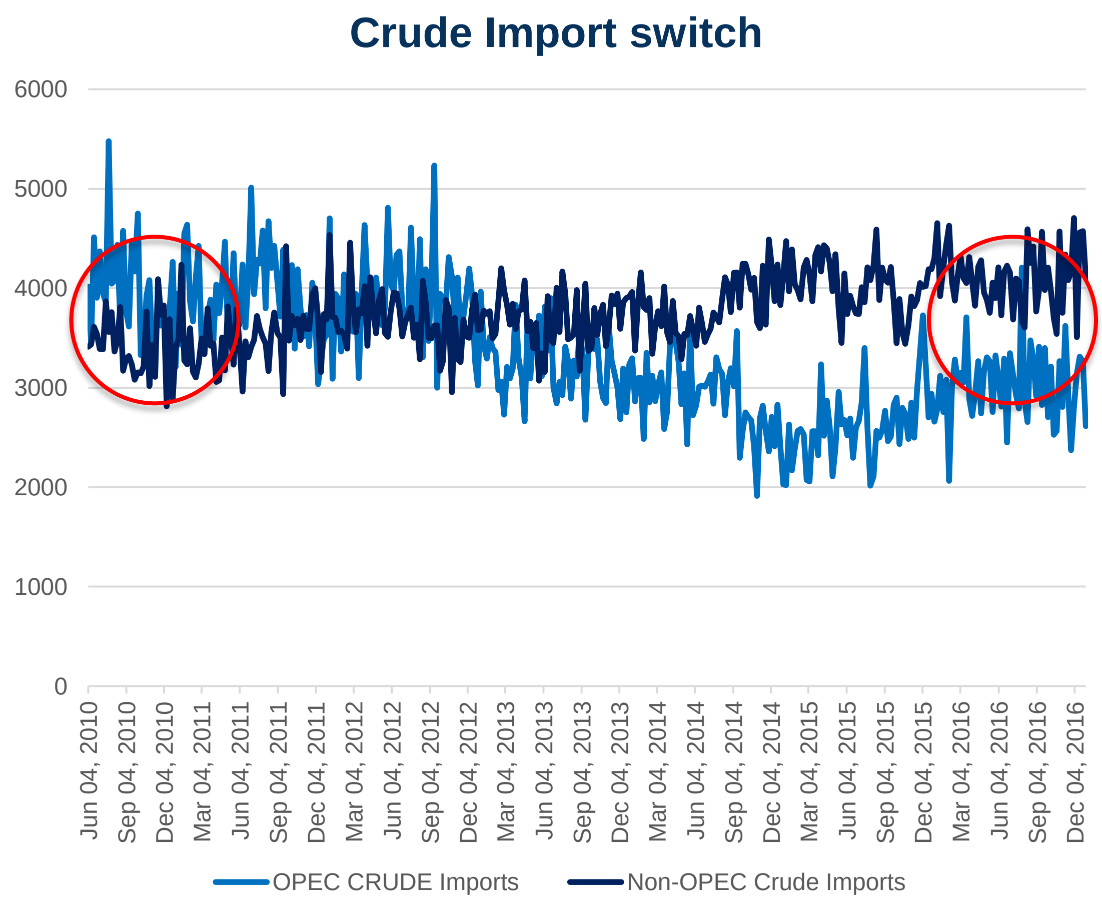
Crude Import switch



Source: EIA, Frost & Sullivan analysis.

Import/Export: Crude Oil (continued)

- 2011 (June – December) OPEC crude imports in surplus to the United States by **+541K b/d**
- 2016 (June – December) OPEC crude imports in deficit to the United States by **-1.135 mm b/d**

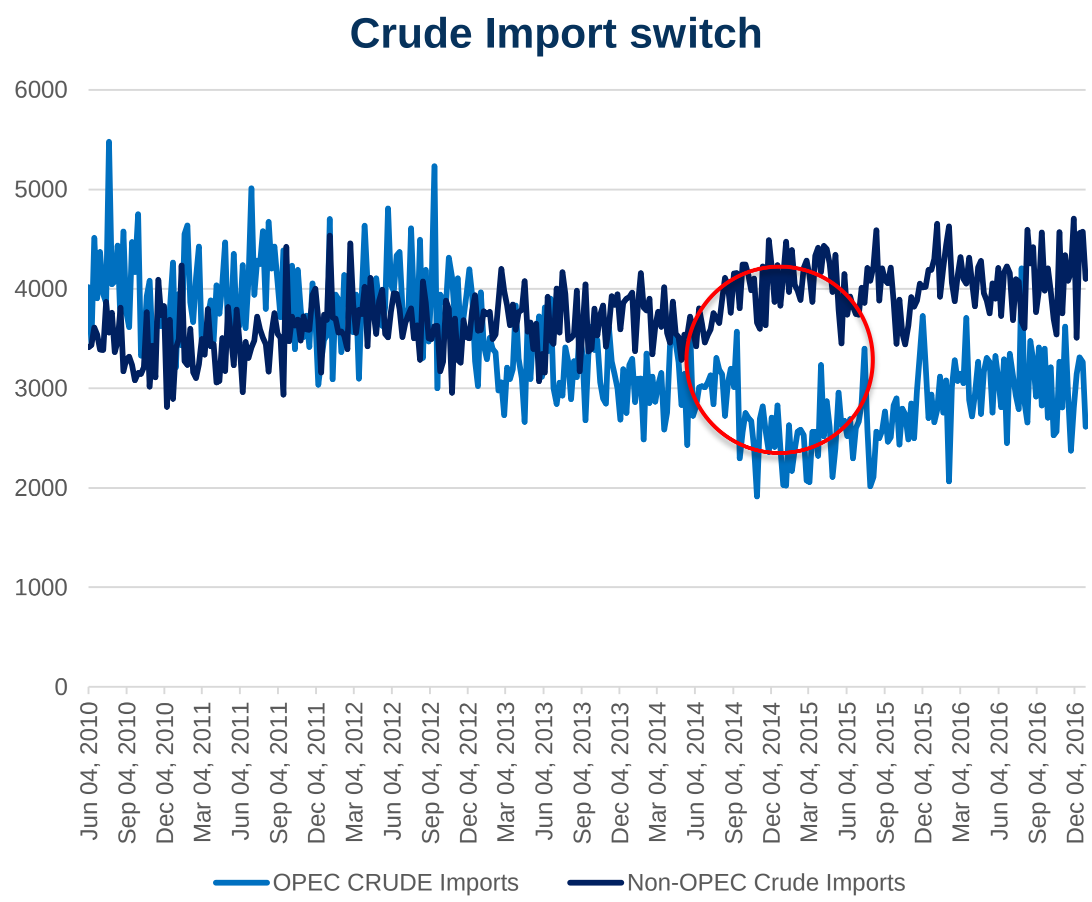


Source: EIA, Frost & Sullivan analysis.

Import/Export: Crude Oil (continued)

Things to Come?

- A major area to note is the period between November 2014 and April 2015. During this time we saw the OPEC/Non OPEC difference widen out to -1.7 mm b/d.
- During this time we saw a slowing of US imports for crude, as the US refining system slowed ahead of refinery maintenance, but also as we saw US crude oil production move steadily above 9 mm b/d.
- It is likely that we are going to see US crude oil production back above 9 mm b/d soon and imports may feel the effect again.



Source: EIA, Frost & Sullivan analysis.

View of the Reviews

14 ***Focus on rebuilding US Military***

The US Government continues to be one of the biggest and best consumers of American fuels. We may see this as a backdoor to helping the refining industry maintain high demand as we transition through a new President Trump economy.

15 ***Restrictions on lobbying and becoming a lobbyist***

Time for us to catch our breath

16 ***All Access Pass***

Another chance for a second breath

17 ***2 for 1 Deal***

Cutting out red tape by executing an order of regulation to be submitted with the purpose of cutting out two other regulations. Another shot at the already frowned upon EPA and more than likely the DOE too. Welcome to an open door policy of getting what you want when you want it in Oil and Gas.

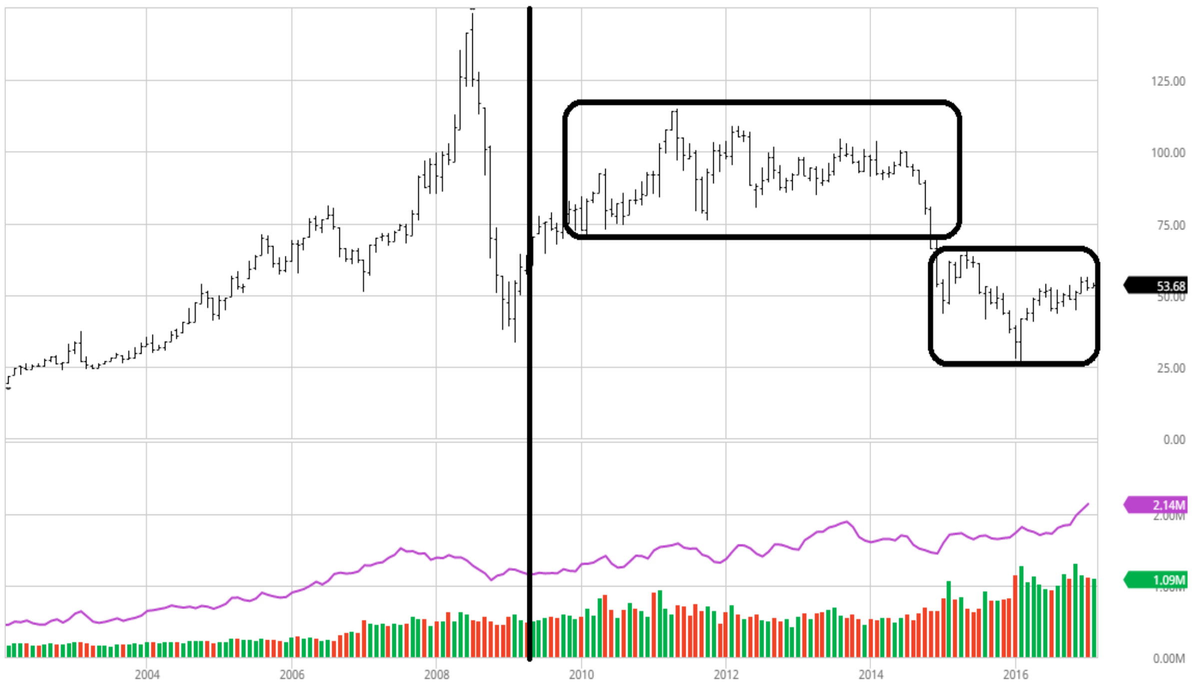
Coming Soon

Financial Re-regulation

- Dodd Frank version 2017.0
- Banks booms and the Yellow Brick Road returns
- The Big Shift
- Faster, Bigger, Better, Stronger

Range bound markets call for strategic planning around 2017 budgets

Pre Dodd Frank 2001-2008



Post Dodd Frank 2009-2017

Source: EIA, Frost & Sullivan analysis.

View of the Reviews

Financial Regulation Rollback

The idea here is that President Trump and his Administration are going to focus on repealing a majority of the Dodd Frank regulations, including tenets of the Volcker Rule. This is one of the more important Executive Orders that can shift the Oil and Gas market without many watching the effects.

Granted much of the purpose of these rules was to avoid overreaching risk at many financial institutions, it also shut the door on a lot of the Oil and Gas industry. Many Banks were deep into Commodity Trading desks with the purpose of directly hedging the financial risks of credit extended to many Oil and Gas producers.

A majority of financial regulation curtailed bank risk operations from holding physical commodities as collateral or as risk instruments. During the implementation of these rules we saw several major Banks shut down Commodity trading/hedging and cut back on the credit exposure to many producers.

Although it may be argued that Oil and Gas production flourished in the years between 2011 and 2015. The main reason is that credit was easier to issue to companies with oil prices well above $70. Now that we are backing off into more stable pricing below $55, we are likely to see production hold under the current financial regulations.

As we see more of these rules and regulations pulled back, it is likely that we are going to see more activity in the Banking industry to once again step into the commodity sector. This will mean more credit exposure to commodity based producers, consumers, and financial institutions that trade around physical commodities. As a result, we should see an increase of activity, production and growth of Oil and Gas production in the United States.

View of the Reviews (continued)

Financial Regulation Rollback

This result may also have its repercussions on foreign Oil and Gas producers. If the rest of the world is not ready to change their views on financial regulation, the effect of returning commodity risk exposure to financial institutions may be limited to only US entities (creditors, producers, and consumers).

Effect

As we show in the accompanying graphic, one can see that during the times of restrictive financial rules and regulations, it is a scenario in which we do not see much price volatility. This may seem to work in favor of budget planning, but the Oil and Gas community has for the most part, always seen the volatile price of oil and gas as a normal part of the production and consumption equation.

Moving ahead with less financial regulation should increase volatility, even if prices move lower (or higher), the US oil and gas industry will be able to expand in a more normalized scenario.

Summary and Action

The year ahead will pose many changes as well as challenges for Oil and Gas in several areas: Upstream, Midstream and Downstream

- Frost & Sullivan can with you to plan and execute your strategy plans with specific Whitepapers, Corporate Presentations and Growth Strategy Workshops

It will be imperative to act quickly, but prudent to capture the opportunities at hand

- Our consulting and research covers not only the Oil and Gas industry, but a broader reach of many other industries that may also affect the outlook of the economic expansion in the year ahead. We are prepared to cover all aspects.

Growth and opportunity come to those ahead of the curve

- We have established our firm as one that not only lays out an opportunistic vision, but one that works with our clients to bring efficiency, productivity, and profitability to their plans.

The Frost & Sullivan Story
The Journey to Visionary Innovation

Global Perspective

40+ Offices Monitoring for Opportunities and Challenges

Industry Convergence

Comprehensive Industry Coverage Sparks Innovation Opportunities

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Frost & Sullivan
331 E. Evelyn Ave. Suite 100
Mountain View, CA 94041