Meridian Energy Group Inc.

Weekly Fundamental Market Report November 13-17, 2017

Market Update

PRODUCTS	11/13/17	11/14/17	11/15/17	11/16/17	11/17/17
WTI Crude Oil	56.76	55.70	55.33	55.14	56.55
Brent Crude Oil	63.16	62.21	61.87	61.36	62.72
Natural Gas	3.17	3.10	3.08	3.05	3.10

- **CME Group**

Headlines

Local North Dakota

- **Production in Bakken cleared 1.1 million barrels per day mark; more increases may be ahead. Williston Herald**
  - For the eighth consecutive month, oil production in North Dakota hovered over the 1 million barrels per day mark, and incrementally climbed its way back to another milestone. September production was 1.107 million barrels per day, up from August's 1.089 million. It is the first time since March 2016 that North Dakota oil production exceeded 1.1 million. Gas production, meanwhile, fell, despite crude oil production increases, a reversal of the trendline during the downturn. The gas ratio in crude oil production had been steadily increasing since Nov. 2014, because oil and gas companies had moved drilling into the core of the Bakken, where it is more profitable — but also more gassy. The reversal reflects activity moving into areas outside the core. These production numbers put state revenues at 17 percent above forecasts, despite prices being a little lower than forecast. "We are still 2 percent low on that," Department of Mineral Resources Director Lynn Helms said. "If we project that through the biennium, production numbers will make up for it, but we are still lagging in terms of prices on revenue forecast." Another strong number for future production figures, Helms said, are the 147 drilling and two seismic permits in September. The jump in numbers is a seasonal effect, Helms said, one he doesn't expect to continue, but it lays a firm foundation for winter production. "Industry in October got really serious about drilling permits and making sure they have locations built before severe winter freeze up sets in," Helms said. "That should provide them with plenty of permits to get through winter." Drilling rigs have remained fairly constant at 55 or 56, and Helms attributed that to Bakken technology. Oil and gas production companies are getting more production more quickly with fewer rigs, and it is helping drive lower and lower break-even costs. "They are pretty much lower across the board," Helms said, "and that is good news for attracting capital to the Bakken. The only real reason I could find was that well productivity has gone up and so, even from the second quarter of 2017 to the third quarter of 2017, you can see the initial production of wells is significantly better." Longer lateral lines are part of what's driving increased production, along with more sand and larger, slick water hydraulic fracturing techniques. "One place that's a standout is what Liberty is doing in northern Mountrail and southern Burke Counties," Helms said. "I took a look at some of those extended lateral wells that are producing 2.5 to 3 times the initial production rate of the 2-mile laterals that were previously drilled in that area. That's pretty encouraging, and it's already affecting Mountrail numbers." Burke County numbers aren't showing an effect yet, since some of the wells production statistics are still confidential. These improvements are keeping the Bakken in the No. 1 and 2 places in terms of production per rig, Helms added. "We still have to compete with the fact that there's a lot of leasehold to procure in the Permian and the Anadarko, but once those basins reach a similar level of maturity, you'd expect companies to bring their capital back here, where they make more money for every dollar invested." The longer laterals are mainly being applied in noncore areas, Helms said. "We have re-spaced a few of the areas from the 1280s to 1920s to fit all that together," Helms said, referring to the size of the state's drill spacing units. "But it's all very encouraging. Not to mention, the new drilling rigs seem to be capable of incredibly fast drill times even

on those longer laterals." In coming months, as more of those long-lateral wells go online, Helms expects that could drive another bump in production. "There are only three of those on production at this point, but they are all 800 to 1,000 barrels per day wells," he said. "So when looking at month-over-month production increases of almost 20,000 barrels, that represents about one-sixth, one-seventh of that increase. It's significant. Once Slawson is able to complete some of these in Van Hook, it looks like that one pad all by itself could potentially breach 20,000 barrels per day." There was, however, one milestone that was a down note. The state temporarily exceeded its gas capture limits, set three years ago, emitting 54 million cubic feet more per day than allowed. It was the first time the state didn't meet its gas capture goals, Helms said, and it was caused by temporary maintenance issues. Justin Kringstad, the state's Pipeline Authority, said many of the problems that contributed to that have already been solved. The numbers he's seeing for October and November look as though the state will meet its gas capture goals in those months.

Domestic U.S.

- **Oil extends losing streak on U.S. oversupply worries. Reuters**
  - Oil prices ended lower again on Thursday on increased concerns about growth in U.S. production and inventories, despite expectations that major world producers will extend a supply-cut deal later this month. Brent crude futures LCOc1 settled 51 cents, or 0.8 percent, lower at $61.36 per barrel, running its streak of losses to five straight days. U.S. light crude CLc1 fell for a fourth consecutive session, ending down 19 cents, or 0.3 percent, at $55.14 a barrel. Oil prices have slipped from the two-year highs hit last week by both crude benchmarks on signs that U.S. supply is rising and could potentially undermine OPEC's efforts to tighten the market. The market has been bolstered of late by funds extending long positions on a bullish outlook for the commodity due to tightening supply worldwide. Expectations that the Organization of the Petroleum Exporting Countries will agree to extend their supply-cut pact with other major world producers in Vienna on Nov. 30 has offset some of the recent pressure on prices. Now, some analysts believe there won't be clarity on the market's direction until after OPEC meets on November 30. "Certainly U.S. oil production is not slowing down. If crude imports remain elevated and exports don't rebound, then the bullish underlying tone begins to fade," said Kyle Cooper, analyst at IAF Advisors in Houston. The U.S. Energy Information Administration on Wednesday showed domestic crude inventories C-STK-T-EIA rising for a second week, building by 1.9 million barrels in the week to Nov. 10. Stockpiles of gasoline also surprisingly rose. The United States is expected to account for more than 80 percent of the growth in world crude supply in the next decade, the International Energy Agency said on Thursday, and weekly data shows ongoing boosts in production. U.S. crude oil production C-OUT-T-EIA hit a record of 9.65 million barrels per day, meaning output has risen by almost 15 percent since its mid-2016 low. By contrast, RBC commodity strategist Michael Tran noted on Thursday that most of the rest of the world's inventories are in line with historic averages. "It is no coincidence that the recent price rally has occurred concurrently with several weeks of record setting surges in exports," he wrote. OPEC and non-OPEC exporters including Russia agreed a year ago to cut crude output by 1.8 million bpd between January this year and March 2018 to bolster prices. Oil ministers have signaled that they are likely to extend the agreement, possibly until the end of next year.

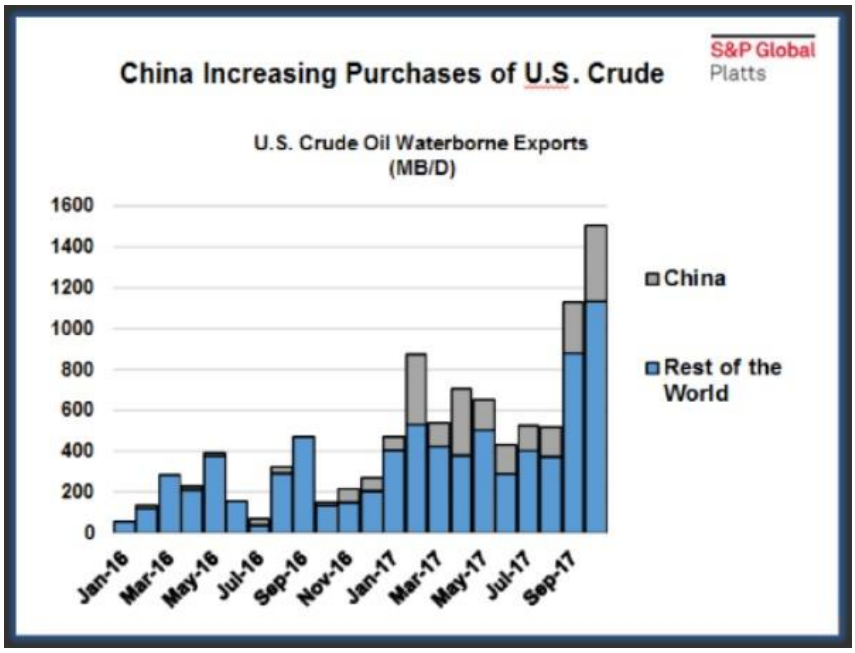
Global

- **Oil Prices Could Double If Middle East Conflict Escalates. Oil Price**
  - Barrel traders recently pushed the price of West Texas Intermediate (WTI) oil above $US 55; the first time in over two years. Scarcity doesn't really justify the upward price movement. There isn't a shortage of oil in the world. But there could be, in the worst case, if missiles start flying between two of the world's largest oil players: Saudi Arabia and Iran. Maybe it won't happen. But maybe it will. And that's what the "geopolitical risk premium" is all about. It's an anxiety surcharge that's tacked onto every barrel of oil, in fear of supply disruption on a moment's notice. And the fear is back. After three years of naivety we're back to acknowledging the known unknowns of the Middle East, the uncertainties that strap a 10-to-20 percent premium on the price of a barrel. Paying a risk premium for oil is nothing new. It's been around for decades and has gone up and down with the hostility thermometer of the Middle East. Unusually, the pricing of risk dropped to zero around 2015. Three main reasons prompted a sense of world peace: the promise of the

Iranian nuclear deal; a feeling that booming oilfields in Texas could offset any disruption; and a growing surplus of oil inventories in storage tanks around the world. Of late, the notion of oil obsolescence has also perpetuated a feeling of nonchalance. "Who cares about the Middle East and their oil?" has been a question driven by the utopian narrative: "I'm not worried, everyone will be driving electric cars in a few years anyway." But it's all been a false sense of security. Electric cars are still rare. Oil remains vital to the world economy. Its geographic concentration is such that a large proportion of the world's needs is produced from underneath layers of geopolitics, religious antagonism, authoritarianism, civil strife and corruption. When I reflect on the extremes of oily politics, I pull out my old copy of Life Magazine from 1973, the year of the Arab oil embargo. Back then, in a rare moment of unity, Arabs came together to curtail oil shipments to the west, demanding that Israel cede lands it captured in the 1967 war. I'm struck by the two-page spread showing a Dutch freeway that's completely empty, not a car on the road due to widespread gasoline and diesel shortages. The disruption was less than three percent of world supply and lasted only a few months, but it was enough to momentarily paralyze transportation in affected countries—and change attitudes about energy security too. The fallout led to big changes in personal mobility—smaller cars, greater fuel economy and alternate modes of transport like high-speed rail—especially in Europe and Japan. Juxtaposed on the fuel-starved image is a photo inset of a meeting between various leaders of the embargo. The snapshot is taken at a moment with lots of laughter, suggesting the not-so-subtle message that they were pleased with their destabilizing accomplishment. Maybe. But no one is laughing now. Regional animosity is elevated, the weaponry is lethal and it's hard to figure out allegiances and regional political ambitions. And the scale of consequence is bigger too: In 1973 oil consumption was almost 56 million barrels a day. Today it's pushing 100 million bpd, with a quarter flowing through the Strait of Hormuz, a narrow, strategic chokepoint between Saudi Arabia and Iran. The geopolitical premium is likely to increase over the next year. Oil markets are slowly heading back towards what OPEC calls "balance" and global inventories are gradually draining. The calculus is pretty simple: Progressively thinner margins for error, plus greater risk of disruption, equals more volatile prices to the upside. If oil supply is pinched again, for whatever machination or military operation, the price of a barrel could easily double (prices quadrupled as a result of the 1973 embargo). And 20 years from now we may look back at a magazine spread of a freeway, this time showing a handful of cars—only the electric variety. Higher oil prices are generally welcomed by petroleum producers and their upstream stakeholders. Yet amplified volatility and the potential of another oil crisis is a greater friend to purveyors of electric vehicles; they are the natural beneficiaries to their rival's instability.

- **US crude oil setting sail for China in record numbers.** **The Hill**
  - United States crude oil exports are soaring this year, and China is its single largest buyer for waterborne sales. This is likely to continue but it is important to separate temporary factors from longer term trends. The U.S. industry was hard hit by Hurricane Harvey, which cut refinery runs much more than production. That led to a backlog of crude inventory. Some of that is currently being exported and is likely to continue to support strong exports over the next few months until the U.S. rebalances. Longer term, rising U.S. production growth will be the key, and that looks set to continue assuming global crude prices stay reasonably healthy. China is the top destination for U.S. waterborne crude exports in 2017. Analysis of U.S. EIA, Census and S&P Global Platts cargo tracking flow data reveals that the U.S. exported on average 203,000 barrels per day of crude oil to China in the first 10 months of 2017, according to analysis by S&P Global Platts Analytics. The main reason the United States has become a major crude exporter is the rapid growth of U.S. light, sweet shale crude production coupled with a U.S. refining system that operates most economically with a heavier slate. Once restrictions on U.S. exports were lifted in late 2015, exports increased rapidly to destinations around the world. U.S. light, sweet crude is readily available for export from multiple terminals, is shipped in vessels of all sizes, is easy to process, helps Chinese refiners to meet tightening product sulfur specifications and, importantly, it is priced to be exported. With Chinese refinery runs increasing, refiners there are looking for crude from all potential sellers. And with OPEC still restraining its output, rising U.S. sales are a logical choice. In 2016, just four vessels left the U.S. destined for China. But in 2017, China has become the largest single buyer of U.S. seaborne crude. According to S&P Global Platts' flow vessel tracking data, which gives a real-time view into seaborne crude trade flows, vessel-level volumes and details of export and destination ports, October was a record high with nine ships carrying a total of 369,000 barrels a day of crude oil leaving the U.S. for China. China might be important to the U.S., but is the U.S. quite so important to China? Important as China is to the U.S. as a growth market, it's worth bearing in mind that when it comes to oil, China buys from a diverse range of countries. The baseload remains Middle Eastern medium-sour grades, accounting for around 44 percent of seaborne imports in 2017. But their share is

declining in favor of lighter and lower-sulfur crudes from not only the U.S. but also West Africa, the North Sea and elsewhere. According to S&P Global Platts' flow data, the U.S. only accounted for 1.2 percent of Chinese seaborne imports in the first 10 months of 2010, well below other suppliers of lighter, sweeter crudes, such as the United Kingdom and the Congo Republic, which accounted for 2.6 percent and 2.0 percent, respectively, of imports. When it comes to oil, China has many options, and the price of U.S. crude after paying for the cost of shipping it from the U.S. Gulf Coast will need to remain attractive for the U.S. to compete.



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Oil and Gas Analysis

o Rotary Rig Count Summary

Location	Date	Week	+/-	Week Ago	+/-	Year Ago
United States	10-Nov-17	907	9	898	339	568
	17-Nov-17	915	8	907	327	590
North Dakota	10-Nov-17	47	0	47	12	35
	17-Nov-17	46	-1	47	12	34
Canada	10-Nov-17	203	11	192	27	176
	17-Nov-17	208	5	203	24	184
International	Oct-17	951	20	931	31	920

- Baker Hughes

o WTI & Bakken Spot Price

November Daily Spot Prices					
	Mon	Tue	Wed	Thu	Fri
Bakken (FH)					
2017 October-30 to November-3	46.25	46.04	49.24	49.24	49.34
2017 November-6 to November-10	51.53	51.63	51.63	51.25	51.62
2017 November-13 to November-20	51.23	50.53	50.34	50.43	50.31
WTI					
2017 October-30 to November-3	54.11	54.36	54.32	54.55	55.63
2017 November-6 to November-10	57.34	57.19	56.82	57.16	56.75
2017 November-13 to November-20	56.77				
Differentials					
2017 October-30 to November-3	7.86	8.32	5.08	5.31	6.29
2017 November-6 to November-10	5.81	5.56	5.19	5.91	5.13
2017 November-13 to November-20	5.54				

- Flint Hills Resource
- EIA

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o Weekly Petroleum Status Report

Stocks (Million Barrels)			
	Four Weeks Ending		
	11/10/2017	11/3/2017	11/11/2016
Crude Oil (Excluding SPR)	459.0	457.1	490.3
Motor Gasoline	210.4	209.5	221.7
Distillate Fuel Oil	124.8	125.6	148.9
All Other Oils	465.6	464.8	480.0
Crude Oil in SPR	669.2	669.9	695.1
Total	1,929.0	1,926.9	2,035.9

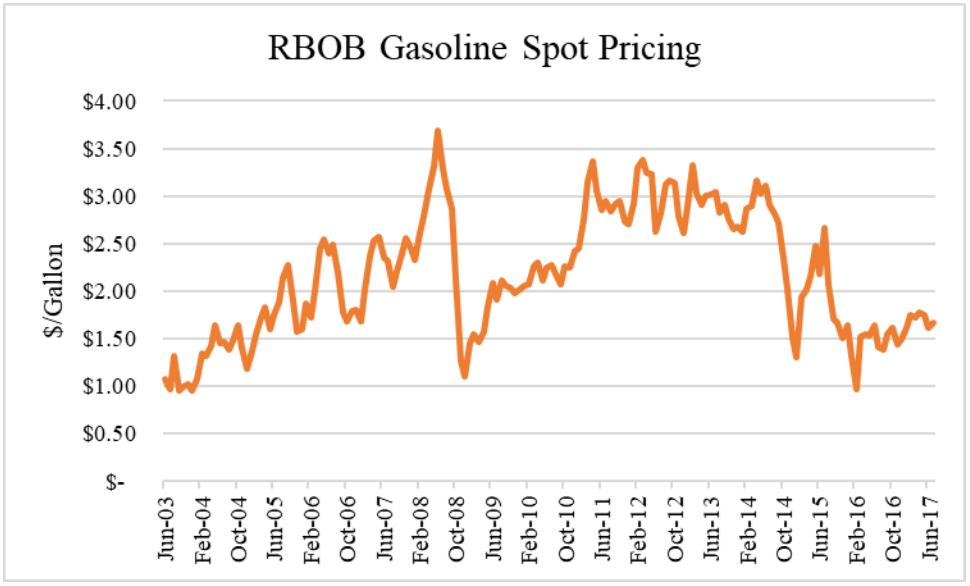
Products Supplied (Thousand Barrels per Day)			
	Four Weeks Ending		
	11/10/2017	11/3/2017	11/11/2016
Motor Gasoline	9,361	9,352	9,218
Distillate Fuel Oil	4,038	3,900	4,004
All Other Products	6,665	6,658	6,750
Total	20,063	19,909	19,972

Refinery Activity (Thousand Barrels per Day)			
	Four Weeks Ending		
	11/10/2017	11/3/2017	11/11/2016
Crude Oil Input to Refineries	16,246	15,946	15,736
Refinery Capacity Utilization	89.1	87.5	86.8
Motor Gasoline Production	10,035	10,080	10,067
Distillate Fuel Oil Production	5,065	4,954	4,742

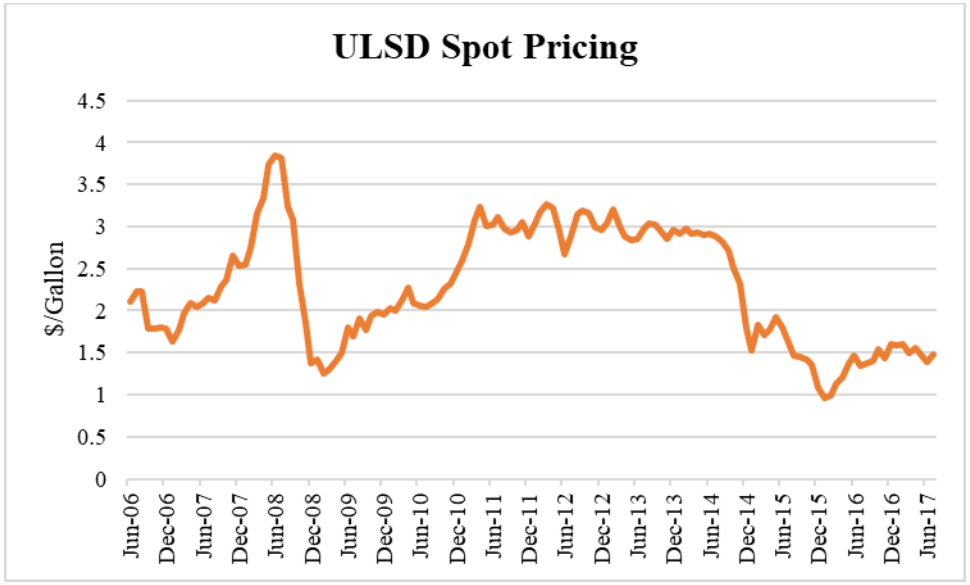
Net Imports (Thousand Barrels per Day)			
	Four Weeks Ending		
	11/10/2017	11/3/2017	11/11/2016
Crude Oil	6,229	5,958	7,542
Petroleum Products	-3,318	-3,289	-2,332
Total	2,911	2,668	5,209

- **EIA**

o RBOB Gasoline



o Ultra-Low Sulfur Diesel



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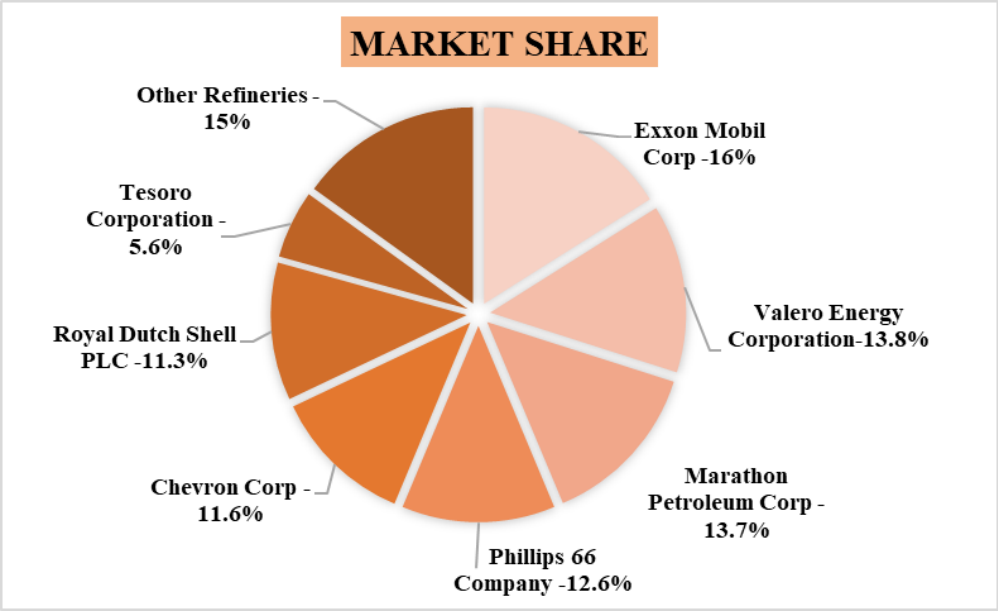
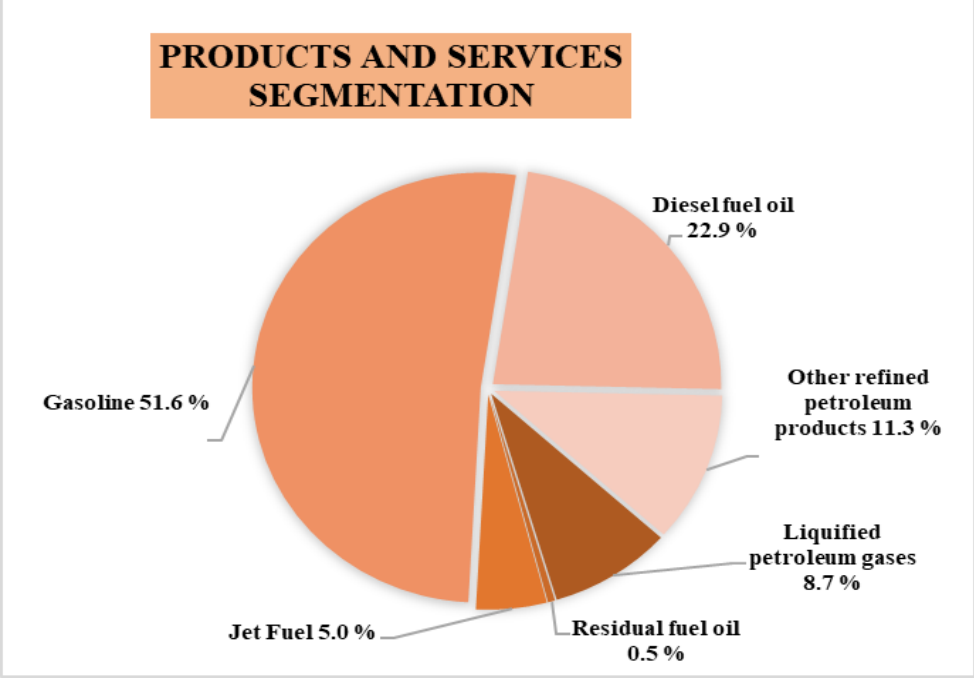
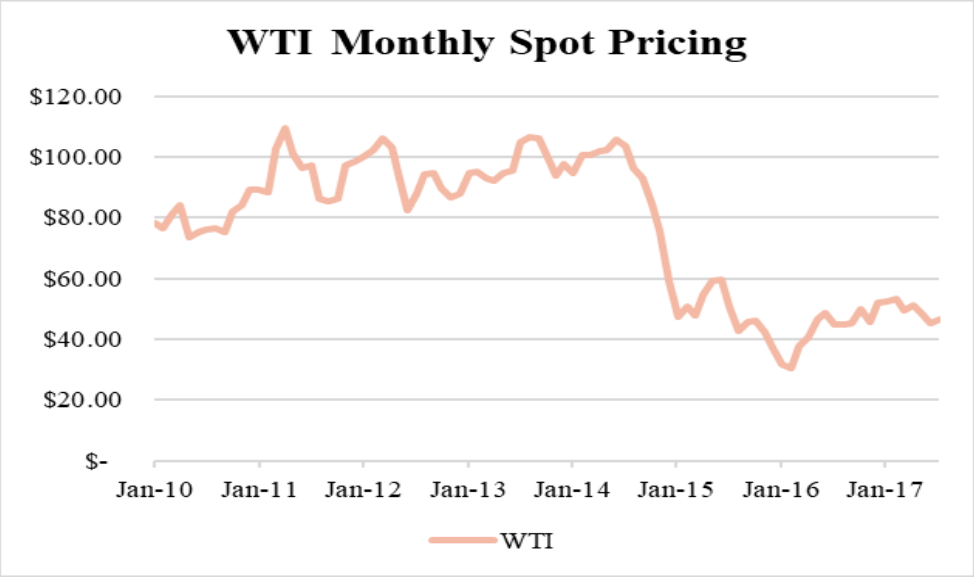
o US Petroleum Refining at a Glance







- **EIA**

o Key External Drivers

- **World price of crude oil**
  - http://markets.businessinsider.com/commodities/oil-price?type=wti
- **Demand from gasoline and petroleum bulk stations**
  - https://www.reuters.com/article/us-usa-natgas-kemp/u-s-natural-gas-prices-rise-as-winter-stocks-look-tight-kemp-idUSKCN1BU1RK
- **GDP of mainland China**
  - https://tradingeconomics.com/china/gdp
- **Trade-weighted index**
  - https://www.investing.com/news/economy-news/top-5-things-to-know-in-the-market-on-friday-541066
- **Total vehicle miles**
  - https://www.advisorperspectives.com/dshort/updates/2017/08/31/vehicle-miles-traveled-another-look-at-our-evolving-behavior