Energy Tidbits

Sept 15, 2019

Produced by: Dan Tsubouchi

Oil Markets Changed Dramatically As Saudi Suspends 5.7 mmb/d Post Abqaiq Attack, For How Long?

Welcome to new Energy Tidbits memo readers. We are continuing to add new readers to our Energy Tidbits memo and energy blogs. The focus and concept for the memo was set in 1999 with input from PMs, who were looking for research (both positive and negative items) that helped them shape their investment thesis to the energy space, and not focusing on day to day trading. Our priority was and still is to not just report on events, but interpret and point out implications therefrom. The best example is our review of investor days, conferences and earnings calls focusing on sector developments that are relevant to the sector and not just a specific company results/guidance. Our target is to write on 48 to 50 weekends per year and to send out by noon mountain time.

This week's memo highlights:

1. We did not write up a number of items due to our time reallocation over the last 36 hours to the Abqaiq drone attack explosion and fire.

2. Oil markets have changed dramatically, the question is for how long it will take to restore Saudi's 5.7 mmb/d of suspended oil from the biggest oil disruption in a very long time from Houthi attacks at Abqaiq, the critical oil processing facility for Saudi oil at ~7 mmb/d processing capacity? (Click Here)

3. Saudi Arabia also confirmed successful drone attacks at its Khurais complex that processes the 1.45 mmb/d Khurais oil fields. (Click Here)

4. Plus the wildcard, how can Saudi Arabia do nothing if they end up agreeing with Pompeo that attacks didn't come from Yemen and was an unprecedented Iran attack? Did Pompeo open up the potential for escalation? (Click Here)

5. Please follow us on Twitter at [LINK] for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.

6. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK].

Dan Tsubouchi
Principal, Chief Market Strategist
dtsubouchi@safgroup.ca

Ryan Dunfield
Principal, CEO
rdunfield@safgroup.ca

Aaron Bunting
Principal, COO, CFO
abunting@safgroup.ca

Ryan Haughn
Principal, Energy
rhaughn@safgroup.ca

Alan Cooper
Vice President
acooper@safgroup.ca

Table of Contents

Natural Gas – Natural gas injection of 78 bcf, storage now +393 bcf YoY surplus

YoY storage at 393 bcf YoY surplus

The EIA reported a 78 bcf natural gas injection and was just below expectations of a 81 bcf injection to bring storage to 3.019 tcf as of Sept 6. This is a widening of the YoY surplus to 393 bcf vs 383 bcf YoY surplus last week, but storage is down 77 bcf against the 5 yr average. The continued expectation is for the YoY storage surplus to keep widening from higher YoY production which is holding HH prices around $2.50. There are 8 weeks to get to Nov 1, the official start of the winter heating season. Below is the EIA's storage table from its Weekly Natural Gas Storage Report. [LINK]

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (09/06/18)		Historical Comparisons: 5-year average (2014-18)	
Region	09/06/19	08/30/19	net change	implied flow	Bcf	% change	Bcf	% change
East	739	714	25	25	676	9.3	756	-2.2
Midwest	864	827	37	37	729	18.5	848	1.9
Mountain	183	177	6	6	165	10.9	191	-4.2
Pacific	275	276	-1	-1	249	10.4	303	-9.2
South Central	958	947	11	11	805	19.0	997	-3.9
Salt	199	197	2	2	182	9.3	251	-20.7
Nonsalt	759	749	10	10	623	21.8	746	1.7
Total	**3,019**	**2,941**	**78**	**78**	**2,626**	**15.0**	**3,096**	**-2.5**

Source: EIA

Natural Gas - EIA forecasts US gas supply +8.0 bcf/d YoY in 2019, +1.80 bcf/d in 2020

EIA forecasts 2019 gas supply +8.0 bcf/d

The EIA released its monthly Short Term Energy Outlook Sept 2019 [LINK] on Tues. The continuing major natural gas price factor is the significantly higher YoY US natural gas production in 2019 vs 2018. The EIA forecasted 2019 US dry natural gas production was revised upwards by 0.36 bcf/d to 91.39 bcf/d for 2019, which is up +8.0 bcf/d YoY vs 2018 of 83.39 bcf/d. Forecast 2020 gas production was revised up by 0.69 bcf/d to 93.19 bcf/d, which is up 1.80 bcf/d YoY vs 2019. The EIA lowered its 2020 HH price assumption $0.20 and kept 2020 oil production flat, meaning the implication of higher gas production must be better performance from gassy plays like the Marcellus, Utica and Haynesville, or some previous underestimation of associated gas levels. Below is our table comparing EIA's STEO forecast by forecast month. Our Supplemental Documents package includes excerpts from the new STEO.

Figure 2: EIA STEO US Natural Gas Supply Forecasts By Forecast Month

bcf/d	2017	Q1/18	Q2/18	Q3/18	Q4/18	2018	Q1/19	Q2/19	Q3/19	Q4/19	2019	Q1/20	Q2/20	Q3/20	Q4/20	2020
Sept 2019	-	79.13	81.17	84.95	88.21	83.39	89.42	90.60	91.98	93.52	91.39	92.97	92.92	93.54	93.32	93.19
Aug 2019	-	79.13	81.17	84.95	88.21	83.39	89.42	90.07	91.54	93.04	91.03	91.97	92.00	92.90	93.13	92.50
July 2019	-	79.13	81.17	84.95	88.21	83.39	89.24	90.62	92.21	93.26	91.35	92.41	92.43	93.13	93.16	92.79
June 2019	-	79.13	81.17	84.96	88.22	83.40	89.14	90.14	91.17	91.93	90.60	91.80	91.84	91.97	91.54	91.79
May 2019	-	79.13	81.17	84.96	88.22	83.40	88.92	89.58	90.65	91.88	90.27	92.13	92.26	92.39	91.98	92.19
Apr 2019	-	79.13	81.17	84.96	88.20	83.39	88.93	90.42	92.06	92.55	91.00	92.51	92.58	92.58	92.21	92.47
Mar 2019	-	79.13	81.17	84.96	88.03	83.35	89.34	90.52	91.29	91.75	90.73	91.74	92.00	92.22	92.13	92.02
Feb 2019	-	79.13	81.17	84.96	87.67	83.26	88.48	90.16	90.80	91.18	90.16	91.63	92.11	92.16	92.31	92.05
Jan 2019		79.13	81.17	84.95	87.87	83.31	89.39	90.17	90.43	90.77	90.19	91.48	91.98	92.37	93.05	92.22

Source: EIA, SAF

Natural Gas – Hot Sept temp makes EIA Nov 1/19 storage est +520 bcf look reasonable

Hot Sept looks to be saving the EIA Nov 1/19 storage estimate

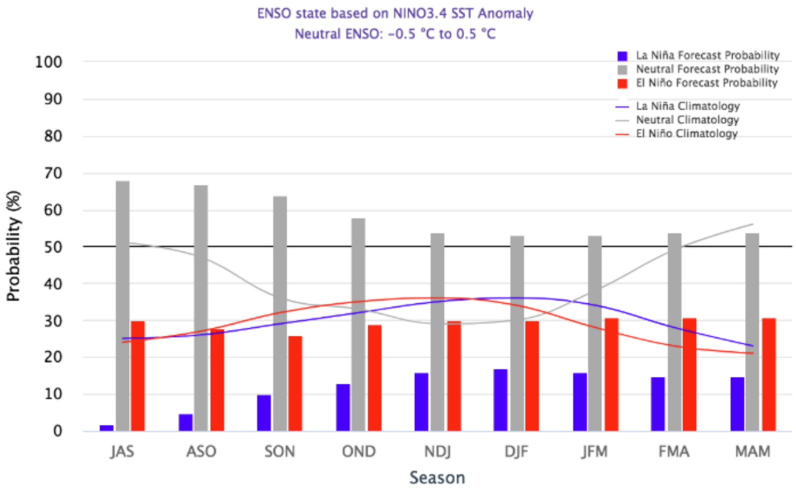
Fortunately. it has been much warmer than normal in the US and this has helped slow down the natural gas storage injections. Plus it looking to be well above normal for the next week or two. The EIA STEO wrote "*EIA forecasts that natural gas storage levels will be 3,769 Bcf by* *the end of October, which is slightly higher than the five year average and 16% higher than October 2018 levels*." This forecast is for Nov 1/19 gas storage to be approx. +520 bcf YoY. The +500 bcf YoY has been pretty consistent estimate. Current storage a of Sept 6 was +393 bcf YoY with 8 weeks to go before Nov 1. If the weather can stay hot, the +520 bcf YoY should be reasonable.

Natural Gas – NOAA reduces El Nino probability for winter 2019/2020

NOAA reduces El Nino probability for winter 2019/2020

The major looking forward oil and gas impact from El Nino forecasts is for winter weather and natural gas demand. There is a much stronger correlation to cold weather and increased natural gas demand than hot weather and increased natural gas demand in the summer. In the winter, it gets cold, the natural gas furnace gets cranked up. Its why cold winters are so important. NOAA issued its monthly El Nino outlook on Thurs [LINK] and the Sept update calls for a lessening probability for an El Nino winter. This month, Dec/Jan/Feb is now down to a 29% probability for an El Nino winter, whereas the probability for Neutral is now up to 58% vs 53% last month. Its still early, but with the higher YoY storage going into the winter, a normal to cold winter is needed to bring some modest support to HH prices in 2020. Below is the CPC/IRI official ENSO forecast.

Figure 3: August CRC/IRI Forecast



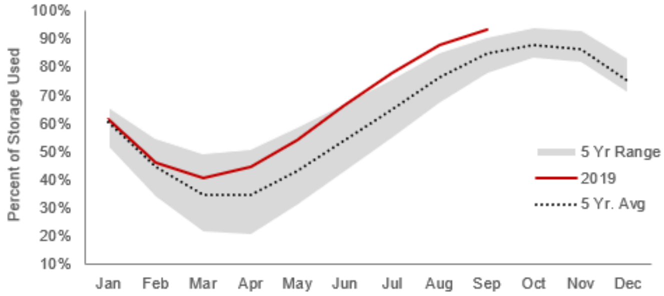
Source: CRI/IRI

Natural Gas – Europe gas storage nearly full at 94.5% utilization

Europe gas storage now 94.5% full

We have been highlighting the linkage between significantly higher than normal Europe storage levels and weak LNG prices. Our thesis is Europe LNG storage is the dumping ground for surplus LNG. As storage fills, LNG has to find another customer in non peak demand season, float around in storage, or LNG output gets held back. With European gas storage reaching max capacity, it means slower LNG flows into Europe, and inevitably it will also push back to North American gas pricing as LNG export terminals may reduce feedstock gas demand. Europe storage is now at 94.5% utilization, whereas last year the highest level reached was 86.9% on Oct 28, 2018. And that must be a reason for the slowing flows to NW Europe. Note, the highest storage utilization over the last 10 years was recorded at 97.4% on Oct 16, 2011.

Figure 4: Europe Gas Storage Utilization



Source: Bloomberg

Natural Gas – Germany expects Denmark approval for Nord Stream 2 soon

Germany expects Denmark approval of Nord Stream 2

We expect that one way or another we should see some clarity on the biggest potential negative to 2020 LNG prices (and some push back on HH) with Denmark deciding on whether to sign off on Gazprom's 5.6 bcf/d Nord Stream 2 pipeline completion. Nord Stream 2 planned in service is Dec 31, 2019. Its in service is being held back by Denmark not yet giving approval for the completion of the ~130 km section within Danish area. On Thurs, Bloomberg @TheTerminal reported *"Germany Confident of Nord Stream 2 Completion by Year's End" "Germany is confident that hitches threatening the Russian-led Nord Stream 2 gas pipeline will be resolved to allow completion of the project on time this year. In a letter to federal lawmakers dated Sept. 6, Deputy Economy and Energy Minister Andreas Feicht said the government expects that Denmark will approve an alternative route for the Baltic pipeline soon. Denmark in 2018 demanded that the stakeholders seek an alternative pipeline route outside its territorial waters, raising the specter of construction delays. The German government "expects the approval process in Denmark to be completed soon permitting operations to start on time," stated the letter, a copy of which was seen by Bloomberg News."* Germany is sounding confident that Denmark is going to approve soon so it can start up for year end 2019. This is different than what we have seen in the past month from Gazprom, who has been more saying they can still complete in time if Denmark approves. It makes sense that there must be huge pressure on Denmark to deal with quickly so it can hit its Dec 31 target. We still think Nord Stream 2 gets done and, if not in time for Dec 31, then for early in 2020. It is the major negative to LNG prices in 2020 and 2021, which is why we wrote our March 30, 2019 blog "*LNG Price Pressures 2020/2021 With Gazprom Adding ~8.9 Bcf/D Export Gas Pipeline Capacity Into Europe And China".* Our Supplemental Documents package includes the Bloomberg story and our March 30, 2019 blog *"LNG Price Pressures 2020/2021 With Gazprom Adding ~8.9 Bcf/D Export Gas Pipeline Capacity Into Europe And China"* [LINK] and the Bloomberg story.

Gazprom believes they can finish Danish section in 5 weeks

Our June 9, 2019 Energy Tidbits highlighted a TASS June 7 story *"Danish section of Nord Stream-2 can be built in five weeks, says Gazprom Chairman*" that reminds it will only take 5 weeks to complete the ~130 km Danish section once they get final approval. Gazprom continues to remind that the rest of the pipeline is on track to be completed for first deliveries by Dec 31, 2019. This probably gives Gazprom another month or so if it wants to deliver gas on Jan 1. They would have to complete the construction of the pipeline, then inspect/test the line, and inject line fill. We don't know the last day for construction to be completed, but we suspect they will need to have that a month, which means they probably need Danish signoff in the next 3 or 4 weeks. Our Supplemental Documents package include the TASS story [LINK]

Figure 5: Nord Stream 2 Route, ~5.6 bcf/d Capaicty

Source: Nord Stream 2

Natural Gas – Russia gas storage to reach 2.55 tcf for the winter

Russia gas storage to reach 2.55 tcf for the winter

There was some good insight into Russia gas storage from the record of the "*working meeting between Vladimir Putin and Alexey Miller*" the Gazprom Chairman. Miller reportedly told Putin "*Our main task at the moment is to prepare for the upcoming autumn/winter period, injecting gas into underground gas storage (UGS) facilities. We need to secure the working gas inventories of 72.2 billion cubic meters in Russian UGS facilities by the start of the withdrawal period. By the autumn/winter period, we will ensure that the potential maximum daily deliverability of UGS facilities in the Russian Federation reaches 843.3 million cubic meters of gas. It will be an all-time high for the domestic gas sector. Before the end of the year, Gazprom will inject at least 11.4 billion cubic meters of gas into European UGS facilities, more than twice as much as last year".* This is equal to 2.55 tcf and a maximum deliverability of 29.8 bcf/d. Our Supplemental Documents package includes the Gazprom record. [LINK]

Natural Gas – Japan spot LNG prices down 51% YoY to $5.30

Japan spot LNG prices down 51% YoY

LNG prices continue to be weak, this week, Japan's Ministry of Economy, Trade and Industry reported [LINK] Japan contract-based spot LNG price for Aug was $5.30, down 51% YoY but up from $4.70 in July. It continues to reflect the weak LNG markets that were driven by the poor start to LNG demand from a warm Asian winter in the face of increasing global LNG supply, which has led to Europe gas storage, the best indicator for surplus LNG, being almost full. China/Japan summer weather. Below is our table of monthly Japan LNG import prices.

Figure 6: Japan Monthly LNG prices

	2014	2015	2016	2017	2017/2016	2018	2018/2017	2019	2019/2018
Jan		$10.20	$7.10	$8.40	18.3%	$11.00	31.0%	$8.30	-24.5%
Feb		$7.60	$6.50	$8.50	30.8%	$10.60	24.7%	$7.50	-29.2%
Mar	$18.30	$8.00	n/a	$6.30	n/a	$8.80	39.7%	$6.40	-27.3%
Apr	$16.00	$7.60	$4.20	$5.70	35.7%	$9.10	59.6%	$5.20	-42.9%
May	$14.80	n/a	$4.10	$5.70	39.0%	$8.20	43.9%	$5.40	-34.1%
June	$13.80	$7.60	n/a	n/a	n/a	$9.30	n/a	$5.50	-40.9%
July	$11.80	$7.90	$5.80	$5.60	-3.4%	$10.00	78.6%	$4.70	-53.0%
Aug	$11.40	$8.10	n/a	$5.80	n/a	$10.70	84.5%	$5.30	-50.5%
Sept	$13.20	$7.40	$5.70	$6.90	n/a	$10.60	53.6%		
Oct	$15.30	$7.60	$6.10	$8.20	34.4%	$10.70	30.5%		
Nov	$14.40	$7.40	$7.00	$9.00	28.6%	$10.80	20.0%		
Dec	$11.60	$7.40	$8.00	$10.20	27.5%	$9.20	-9.8%		

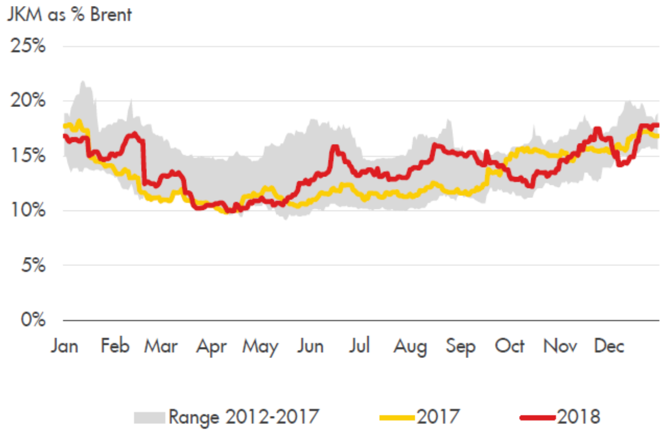
Source: Japan Ministry of Economy, Trade and Industry

Natural Gas – Explaining slope in oil indexed LNG contracts

Explaining LNG slope

We have been commenting on the lower Asian LNG prices in 2019, but an important reminder is that these prices represent spot pricing, not contract pricing. Historically, LNG contracts have typically been indexed to oil pricing, with LNG selling for a certain percentage of the oil index price. This week, Bloomberg Terminal story "What Is The Future Of LNG Pricing? - DLA Piper (UK)" provided a great explanation of the LNG "price slope" used to calculate LNG contract pricing. According to Bloomberg, one MMBtu of natural gas has approx. 17% of the energy content of a barrel of oil, meaning the LNG price per MMBTu will be sold at a similar percentage of the price of one barrel of oil using the applicable oil price index. This percentage is known as the price slope. Another factor to consider here, is coal to gas switching becomes more economic under periods of low oil prices, as the corresponding LNG prices fall in conjunction with oil prices. Below is a graph from Shell's 2019 LNG Outlook, which shows Asian spot prices as a percentage of Brent.

Figure 7: JKM Asia Spot LNG Price as a Percentage of Brent



Source: Shell

Natural Gas – Cameron LNG declares force majeure 3 weeks after in service

Cameron LNG declares force majeure

Our Aug 25, 2019 Energy Tidbits noted the startup of train 1 of the Phase 1 for Sempra's Cameron LNG export project. Phase 1, in total, has 3 trains each with a capacity of ~0.53 bcf/d and total planned capacity of~1.58 bcf/d. Unfortunately, on Friday, Cameron LNG declared force majeure due to unspecified technical problems at the facility. As of our news cutoff 9am this morning, we have not see any more color on the technical problems or how long Cameron LNG exports will be offline.

Oil – US oil rigs down 5 to 733 oil rigs

US oil rigs were -5 this week

Baker Hughes reported its weekly rig data on Friday. US oil rigs were down 5 to 733 oil rigs as of September 13. Increases were in the Others +5, Barnette +3 and Williston +1. Decreases were in Permian -8, Cana Woodford -4, DJ-Niobrara -1, and Eagle Ford -1. This decline is in line with the recently completed Q2 earnings calls that saw the consensus service sector view change from US rigs bottoming in Q2 to a more negative view that US rigs would decline in Q3 and then again before finding a bottom in Q4. Below is our graph of the Baker Hughes weekly US oil rig data.

Figure 8: Baker Hughes Weekly Rig Count – US Oil Rigs

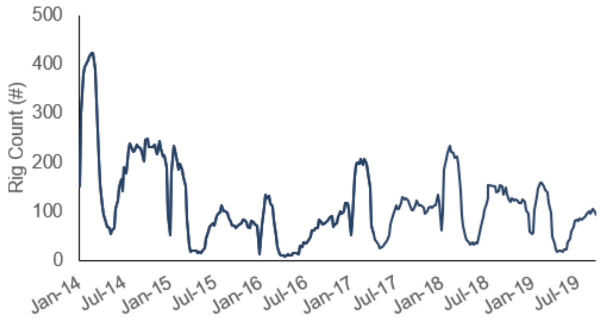
Source: Baker Hughes, SAF

Oil – Total Cdn rigs down 13 to 134 total rigs

Total Cdn rigs -13 this week

It was the first major Cdn sellside energy conference this week in Toronto and the feedback was a little more upbeat given it was the first good week for Cdn oil and gas stocks in some time. However, the feedback we heard from investors is that the Cdn producers are not planning to make any changes to capex until there is some uptick in commodity prices, share prices/access to capital. Its why we are seeing a different fall than historically seen for drilling rigs. Historically, the pre winter period (Sept/Oct/early Nov) has been a fairly flat period for rigs but not one where we see declines. Baker Hughes reported total Cdn rigs were down 13 to 134 total rigs as of September 13, which followed last week's down 3 total rigs. Cdn oil rigs were down 9 to 93 oil rigs (down 55 from 148 a year ago). Cdn gas rigs were down 4 to 41 Cdn gas rigs. The ramp up post the break up trough in 2019 has been very slow, only +73 rigs in the 19 weeks since Cdn rigs bottomed at 61 total rigs. This compares to 2018, where Cdn rigs increased by 116 in the 19 weeks post the 2018 spring bottom. For Cdn oil rigs, they have moved from 17 to 93 oil rigs (+76 oil rigs) in 2019 vs 32 to 148 oil rigs (+116 oil rigs in 2018). For Cdn gas rigs, in spring break up Cdn gas rigs were at 40, but dropped down to 32 in mid July, and are now at 41 gas rigs in 2019, whereas Cdn gas rigs increased from their spring bottom of 43 to 78 gas rigs (+35 gas rigs) in 2018. Below is our graph of the Baker Hughes weekly Cdn oil rig data.

Figure 9: Baker Hughes Weekly Rig Count, Canadian Oil Rigs



Source: Baker Hughes, SAF

Oil – US oil production flat at 12.4 mmb/d

US production at 12.4 mmb/d

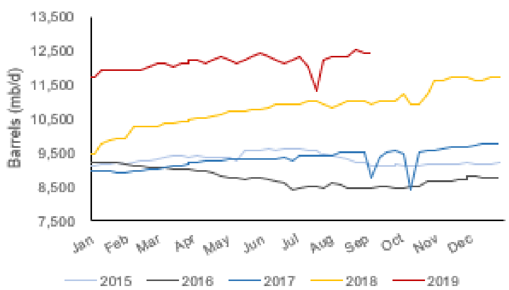
EIA reported US oil production was flat at 12.4 mmb/d for the Sept 6 week, which is 100,000 b/d off the all time high of 12.5 mmb/d two weeks ago. Lower 48 production was flat at 12.0 mmb/d. US production has averaged 12.17 mmb/d so far in Q3, which is in line with the revised down Q3 forecast production of 12.24 mmb/d in the newest STEO. However, we should note that the Q3 ramp up in US oil production has been far less than expected, as two months ago (July STEO) forecast Q3 oil production was expected to average 12.55 mmb/d, ie 380,000 higher than current levels. Below we pasted an excerpt from the EIA weekly oil production data. [LINK]

Figure 10: Weekly US Oil Production

	Week 1		Week 2		Week 3		Week 4		Week 5	
Year-Month	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2017-Jan	01/06	8,946	01/13	8,944	01/20	8,961	01/27	8,915		
2017-Feb	02/03	8,978	02/10	8,977	02/17	9,001	02/24	9,032		
2017-Mar	03/03	9,088	03/10	9,109	03/17	9,129	03/24	9,147	03/31	9,199
2017-Apr	04/07	9,235	04/14	9,252	04/21	9,265	04/28	9,293		
2017-May	05/05	9,314	05/12	9,305	05/19	9,320	05/26	9,342		
2017-Jun	06/02	9,318	06/09	9,330	06/16	9,350	06/23	9,250	06/30	9,338
2017-Jul	07/07	9,397	07/14	9,429	07/21	9,410	07/28	9,430		
2017-Aug	08/04	9,423	08/11	9,502	08/18	9,528	08/25	9,530		
2017-Sep	09/01	8,781	09/08	9,353	09/15	9,510	09/22	9,547	09/29	9,561
2017-Oct	10/06	9,480	10/13	8,406	10/20	9,507	10/27	9,553		
2017-Nov	11/03	9,620	11/10	9,645	11/17	9,658	11/24	9,682		
2017-Dec	12/01	9,707	12/08	9,780	12/15	9,789	12/22	9,754	12/29	9,782
2018-Jan	01/05	9,492	01/12	9,750	01/19	9,878	01/26	9,919		
2018-Feb	02/02	10,251	02/09	10,271	02/16	10,270	02/23	10,283		
2018-Mar	03/02	10,369	03/09	10,381	03/16	10,407	03/23	10,433	03/30	10,460
2018-Apr	04/06	10,525	04/13	10,540	04/20	10,586	04/27	10,619		
2018-May	05/04	10,703	05/11	10,723	05/18	10,725	05/25	10,769		
2018-Jun	06/01	10,800	06/08	10,900	06/15	10,900	06/22	10,900	06/29	10,900
2018-Jul	07/06	10,900	07/13	11,000	07/20	11,000	07/27	10,900		
2018-Aug	08/03	10,800	08/10	10,900	08/17	11,000	08/24	11,000	08/31	11,000
2018-Sep	09/07	10,900	09/14	11,000	09/21	11,100	09/28	11,100		
2018-Oct	10/05	11,200	10/12	10,900	10/19	10,900	10/26	11,200		
2018-Nov	11/02	11,600	11/09	11,700	11/16	11,700	11/23	11,700	11/30	11,700
2018-Dec	12/07	11,600	12/14	11,600	12/21	11,700	12/28	11,700		
2019-Jan	01/04	11,700	01/11	11,900	01/18	11,900	01/25	11,900		
2019-Feb	02/01	11,900	02/08	11,900	02/15	12,000	02/22	12,100		
2019-Mar	03/01	12,100	03/08	12,000	03/15	12,100	03/22	12,100	03/29	12,200
2019-Apr	04/05	12,200	04/12	12,100	04/19	12,200	04/26	12,300		
2019-May	05/03	12,200	05/10	12,100	05/17	12,200	05/24	12,300	05/31	12,400
2019-Jun	06/07	12,300	06/14	12,200	06/21	12,100	06/28	12,200		
2019-Jul	07/05	12,300	07/12	12,000	07/19	11,300	07/26	12,200		
2019-Aug	08/02	12,300	08/09	12,300	08/16	12,300	08/23	12,500	08/30	12,400
2019-Sep	09/06	12,400								

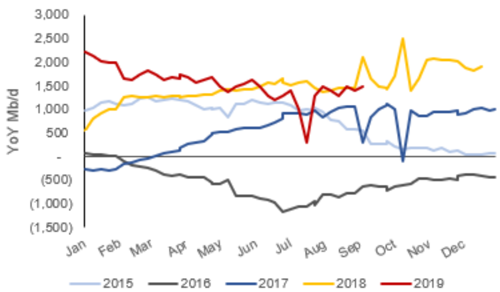
Source: EIA

Figure 11: US Weekly Oil Production



Source: EIA, SAF

Figure 12: YoY Change in US Weekly Oil Production



Source: EIA, SAF

Oil – EIA STEO immaterially lowers US oil production growth forecasts

EIA immaterially lowers oil production growth forecasts

The EIA new STEO for September [LINK] immaterially reduced its estimate for US oil production forecast on a full year basis, and continues to reflect a widening of WTI-Brent diffs even with the updated assumptions on pipeline pricing costs to the US Gulf Coast. 2019 US oil production is now +1.25 mmb/d YoY in 2019 at 12.27 mmb/d, revised down 30,000 b/d vs the Aug forecast. The EIA's 2020 growth forecast is unchanged at +0.99 mmb/d due to 2020 oil growth being revised down 30,000 b/d. The interesting aspect of this forecast is that it is basically unchanged for 2020 despite a $3/b lower WTI forecast. This is implying better than expected well results as a lower assumed WTI oil price generally flows thru EIA forecast model with lower oil production. Below is our ongoing table showing the EIA's forecast by forecast month, and the EIA table of price assumptions in the Aug STEO.

Figure 13: Estimated US Crude Oil Production By Forecast Month

(million b/d	2017	Q1/18	Q2/18	Q3/18	Q4/18	2018	Q1/19	Q2/19	Q3/19	Q4/19	2019	Q1/20	Q2/20	Q3/20	Q4/20	2020
Sept 2019	-	10.27	10.54	11.25	11.89	10.99	11.81	12.11	12.24	12.78	12.24	13.01	13.19	13.3	13.44	13.23
Aug 2019	-	10.27	10.54	11.25	11.89	10.99	11.81	12.09	12.29	12.87	12.27	13.00	13.17	13.33	13.53	13.26
July 2019		10.23	10.54	11.24	11.81	10.96	11.82	12.19	12.55	12.86	12.36	12.97	13.17	13.34	13.56	13.26
June 2019		10.23	10.54	11.24	11.81	10.96	11.81	12.20	12.44	12.83	12.32	13.05	13.24	13.32	13.44	13.26
May 2019	-	10.23	10.54	11.24	11.81	10.96	11.86	12.35	12.58	13.00	12.45	13.27	13.39	13.42	13.45	13.38
Apr 2019	-	10.23	10.54	11.24	11.81	10.96	11.91	12.36	12.51	12.76	12.39	12.93	13.08	13.07	13.30	13.10
Mar 2019	-	10.23	10.54	11.24	11.77	10.95	11.98	12.30	11.32	12.58	12.30	12.79	12.99	13.03	13.29	13.03
Feb 2019	-	10.23	10.54	11.24	11.79	10.96	12.15	12.41	12.42	12.65	12.41	12.97	13.18	13.20	13.45	13.20
Jan 2019	-	10.23	10.54	11.24	11.70	10.93	11.93	12.07	12.04	12.24	12.07	12.55	12.78	12.89	13.23	12.86

Source: EIA, SAF

Figure 14: EIA WTI, Brent, HH price assumptions by forecast month

	WTI Spot			Brent Spot			HH Spot $/mcf		
	2018	2019	2020	2018	2019	2020	2018	2019	2020
Sept 2019	$65.06	$56.31	$56.50	$71.19	$63.39	$62.00	$3.27	$2.66	$2.64
Aug 2019	$65.06	$57.87	$59.50	$71.19	$65.15	$65.00	$3.27	$2.64	$2.85
July 2019	$65.06	$59.58	$63.00	$71.19	$66.51	$67.00	$3.27	$2.72	$2.87
June 2019	$65.06	$59.29	$63.00	$71.19	$66.69	$67.00	$3.27	$2.88	$2.87
May 2019	$65.06	$62.79	$63.00	$71.19	$69.64	$67.00	$3.27	$2.89	$2.88
Apr 2019	$65.06	$58.80	$58.00	$71.19	$65.15	$62.00	$3.27	$2.92	$2.88
Mar 2019	$65.06	$56.13	$58.00	$71.19	$62.78	$62.00	$3.27	$2.95	$2.91
Feb 2019	$65.06	$54.79	$58.00	$71.19	$61.03	$62.00	$3.27	$2.93	$2.90

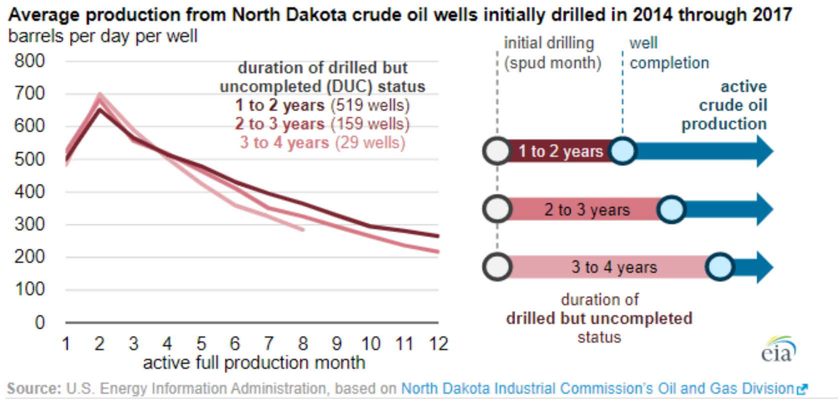
Source: EIA, SAF

Oil – Don't assume Bakken DUCs >5 yrs old are poor quality wells

Old Bakken DUCs better than expectec

An interesting EIA Sept 10 brief "*Time between drilling and first production has little effect on oil well production"* looks at Bakken wells initially drilled in 2014 thru 2017 and compares the production profiles based on the # of years between drilling and completion (fracking). The EIA said "*According to North Dakota production data, the length of time that an oil well has been drilled but remains uncompleted—meaning it has not yet started producing—has little effect on its initial production level. Oil wells are sometimes drilled but remain uncompleted for other operational or economic reasons. The North Dakota data provides insights into oil well completion practices*". The EIA graph below shows that there really isn't a difference between DUCs that were only 1 year old or 3 – 4 yrs old. Its fair to assume DUCs in any play contain a number of poor quality wells that will never justify the cost of completion. That % is impossible to predict. But a linked assumption is that old DUCs are likely in that category, after all, if they haven't been completed after 5 or 6 years, there has to be a reason. But in this case, we thought the EIA analysis was a positive indicator to the quality of the Bakken wells DUCs, or at least a clear reminder that no one should assume Bakken DUCs that are over 5 yrs old are poor quality. We say over 5yrs old because the EIA analysis goes back to wells initially drilled in 2014 ie. DUCs are now >5 yrs old. Its also a positive indicator that wells initially drilled during the high oil prices 2014 were of comparable production as wells drilled in later lower prices when there is less cash flow and the scrutiny is tougher for capital allocation. It just means we shouldn't assume Bakken DUCS drilled more than 5 years ago aren't any good because they haven't been completed as of yet. Our Supplemental Documents package includes the EIA brief. [LINK]

Figure 15: EIA Comparison of Bakken Wells Performance By Yrs To Complete



Source: EIA

Oil – Pioneer CEO significantly reduces his Permian oil growth forecast

Pioneer CEO reduces Permian outlook

It may not be a stampede but, it looks like its playing out as expected and we are starting to see more people lowering their forecasts for Permian oil growth. We started highlighting our concern that Permian growth will be solid, but likely less than expected. This week, it was Pioneer CEO Sheffield who lowered his growth expectations for the Permian to 600,000 to 700,000 b/d for the next few years, down from his prior 1 mmb/d growth expectations. It also reminded of our July 3, 2019 blog "*A Big Plus To Post 2020 Oil if Saudi is Even Directionally Right That Permian Plateau is "In a Year or Two Years or 4 Years".*There was a good Bloomberg @TheTerminal story "*Shale Cheerleader Sheffield Lowers Expectations for Permian Oil*" that added Permian bull, Pioneer CEO Scott Sheffield, to this list of lowering Permian oil growth forecasts. Bloomberg wrote "*Scott Sheffield, one of the earliest executives to recognize the Permian Basin's potential, is scaling back his expectations for the world's largest shale field as producers face pressure to slow spending. The Permian Basin will grow at about 600,000 to 700,000 barrels a day on average over the next few years, Sheffield said Thursday at the Center for Strategic and International Studies in Washington D.C. That's a marked reduction from his previous forecast of 1 million barrels a day.Investors have hammered independent producers recently for plowing too much cash into drilling new wells rather than shareholder returns, causing many companies to slow their production growth. Pioneer Natural Resources Co., where Sheffield is chief executive officer, is among them. "What's slowed beside pipe constraints is the change in investor mindset," Sheffield said. "That's probably taken off about 300,000 barrels of oil a day off the marketplace going forward*." Our Supplemental Documents package includes the Bloomberg terminal story and our July 3 blog.

Oil – Cdn crude by rail imports to Gulf Coast up to 198,000 b/d in June

Cdn CBR 198,000 b/d to Gulf Coast in June

The EIA posted it's monthly *"U.S. Movements of Crude Oil by Rail"* [LINK] on Thurs, which also had good insights on Cdn crude by rail. Falling Gulf Coast heavy oil imports from Mexico and Venezuela have created opportunities for Cdn heavy oil, Columbia, Brazil and others in PADD 3. Cdn heavy oil. Canadian CBR volumes to PADD 3 (Gulf Coast) were 198,000 b/d in June and has been rising since a slump caused cold weather in February. May was 149,000 b/d, April 145,000 b/d, March 90,000 b/d, Feb 82,000 b/d, and Jan 203,000 b/d.

Figure 16: US crude oil movement by rail June 2019

Crude oil movements by rail, June 2019
thousand barrels/day

	Receipts						
Shipments	PADD 1	PADD 2	PADD 3	PADD 4	PADD 5	United States	Canada
PADD 1	0	0	0	0	0	0	0
PADD 2	146	0	51	0	172	369	0
PADD 3	0	0	65	0	6	71	0
PADD 4	0	0	14	0	0	14	0
PADD 5	0	0	0	0	0	0	0
United States	146	0	129	0	178	454	0
Canada	47	37	198	0	27	308	NA
Total	193	37	327	0	205	762	NA

Source: EIA

Oil – Colorado Jr producer files Chapter 11, blames oil and gas laws

Colorado o&g laws affecting small producers

In April (see our April 7, 2019 Energy Tidbits), the Colorado oil and gas industry averted a big hit when there were last minute changes to Colorado's oil and gas bill. It was negative but not the big hit prior to the amendments. At that time, we also said *"Lastly, this is no different than we see in Canada or other places. This is the first major piece of legislation for the new Democrat controlled state govt. I can't believe they are stopping here for anti fossil fuel items for their rest of their term. There will be more to come"*. We just believed Colorado would keep chipping away to try to get to their original ambitions. Ultimately, added regulations leads to added costs and uncertainty, thereby hurting producers and limiting access to capital. This is further evidenced by the small cap (1,300 boe/d) Colorado producer Petroshare filing for bankruptcy last week [LINK]. Petroshare's CEO blamed the new Colorado laws and said *"The new Colorado regulatory environment governing oil and gas permitting in the state and the associated uncertainty on rule-making has made it very difficult to attract new capital investment in this sector … Unfortunately, the collateral damage of Senate Bill 181 has manifested itself in the slowdown of the state's oil and gas sector, resulting in job losses"*. This announcement adds fuel to our concerns for small Colorado o&g producers, and we should expect to see ongoing difficulties for these producers.

Oil – SPR to release an average of 162,000 b/d in Oct/Nov to hit Gulf Coast markets

SPR deliveries ave 162,000 b/d in Oct/Nov

On Tues, we tweeted [LINK] on the US Dept of Energy [LINK] allocates for its awards for Oct/Nov deliveries from its Strategic Petroleum Reserve "*Additional ~162,000 b/d on average to hit Gulf Coast markets in Oct/Nov. US DOE allocated 9.875 mmb awards f/ SPR for Oct/Nov delivery: Phillips 66 3.9 mmb. Motiva (Saudi Arabia) 2.675 mmb. Shell 2.2 mmb. Marathon 1.1 mmb*". The SPR deliveries will be to Gulf Coast markets. The latest EIA estimates are that there is 644.8 mmb in the SPR as of Sept 6.

Oil – We are still surprised, no word when Hibernia will restart production

Hibernia still shut in

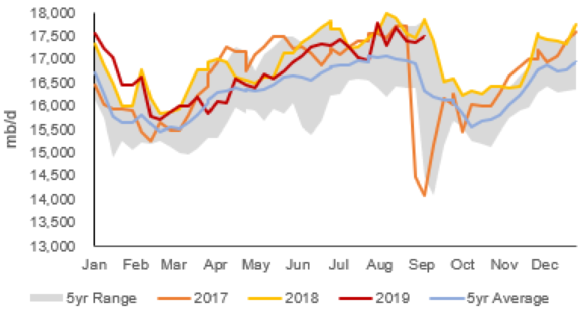
Is been 4 weeks since Hibernia was shut in on Sun Aug 18 and there is still no word when it will be back onstream. In fact, what is surprising is that, as of our news cutoff of 9am MT today, Hibernia hasn't provided any updated news release [LINK] on the status since Aug 20. It was only on Aug 15 that Hibernia restarted oil production after being shut in since July 17 The return to oil production only lasted 3 days and then on Sun Aug 18 night, Hibernia announced [LINK] that production was shut in again following a temporary power outage that led to discharge of some water and oil. We are somewhat surprised that there hasn't been any update since Aug 20 [LINK] , when Hibernia said it "is *continuing response efforts regarding a release of oil and water from the Hibernia platform's drains system on August 17. Observations from surveillance flights, satellite imagery, and the vessel surveillance conducted late Monday indicated the sheen concentration had decreased. Satellite imagery today showed no observable sheen. This is attributed to natural weathering and mechanical collection and dispersion efforts. Additional surveillance flights are planned for when weather permits. Demobilization of vessels will commence, with wildlife observation and water sampling continuing. Production remains shut down. An investigation is ongoing. More information will be released when it becomes available".* Prior to the shut in, Canada Newfoundland Offshore Petroleum Board's latest Hibernia production stats are for May 2019 and it was producing 116,400 b/d of oil. It is a light sweet crude, with API 32-34° and sulphur of 0.4%-0.6%. The Hibernia company is owned by Exxon, Chevron, Suncor, Canada Hibernia Holding Corporation, Murphy Oil and Equinor Canada.

Oil – Oil input into refineries up 114,000 b/d to 17.495 mmb/d

Oil input into refineries up 114,000 b/d

For the Sept 30 week, EIA estimates crude oil inputs to refineries were up 114,000 b/d to 17.495 mmb/d. Overall crude inputs are down 362,000 YoY, which makes sense as PADD 1 refinery inputs are down 325,000 b/d from May/19 highs prior to the closure of the PES Philadelphia refinery complex (335,000 b/d) following the Q2 fire. We may not see much higher refinery crude oil inputs as we continue to see more refinery turnarounds than normal due to unplanted events. Refinery utilization was up by 0.3% this week at 95.1%. Below is our graph of the EIA weekly crude oil input to refineries.

Figure 17: US Refinery Crude Oil Inputs (thousand b/d)



Source: EIA, SAF

Oil – US "NET" oil imports down 414,000 b/d to 3.430 mmb/d

US NET oil imports down 414,000 b/d

US "NET" imports fell 414,000 b/d this week to 3.430 mmb/d. US imports were down 180,000 b/d to 6.725 mmb/d. US exports were up 234,000 b/d to 3.295 mmb/d. (i) Canada was down 224,000, as lower crude by rail volumes have been reported due to the narrow WT-WCS differential, and PADD 2 imports were down 270,000 b/d. (ii) Saudi Arabia was down 78,000 b/d to 271,000 b/d for the Sept 6 week. This represents the lowest Saudi level in the weekly EIA data going back to 2010, partially due to the multi-unit turnaround at Motiva Port Arthur Texas (Saudi's US refinery). (iii) Colombia was -103,000 b/d to 111,000 b/d, which is well below average YTD imports from Colombia. (iv) Iraq showed a big increase of +338,000 b/d to 547,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico was +140,000 b/d to 717,000 b/d this week. (vii) Nigeria was down 291,000 b/d to 326,000 b/d, which follows last week where Nigeria was up 560,000 b/d. Below is our table of the US oil imports by major country.

Figure 18: US Weekly Preliminary Oil Imports By Major Countries

	July 12/19	July 19/19	July 26/19	August 2/19	August 9/19	August 16/19	August 23/19	August 30/19	September 6/19	WoW
Canada	3,535	3,725	3,463	3,728	3,848	3,630	3,201	3,648	3,404	-244
Saudi Arabia	435	466	419	277	556	371	531	349	271	-78
Venezuela	0	0	0	0	0	0	0	0	0	0
Mexico	809	488	670	737	918	527	531	577	717	140
Colombia	297	341	350	235	244	496	283	214	111	-103
Iraq	342	357	424	199	218	507	205	209	547	338
Ecuador	110	184	191	256	453	216	248	218	266	48
Nigeria	240	308	167	282	443	507	57	617	326	-291
Kuwait	0	0	0	88	107	0	47	50	0	-50
Angola	0	0	0	0	0	0	0	0	0	0
Top 10	5,768	5,869	5,684	5,802	6,787	6,254	5,103	5,882	5,642	-240
Others	1,064	1,159	979	1,346	927	964	825	1,022	1,083	61
Total US	6,832	7,028	6,663	7,148	7,714	7,218	5,928	6,904	6,725	-179

Source: EIA, SAF

Oil – Oil markets have changed dramatically? For how long?

How long will it take to restore Saudi 5.7 mmb/d?

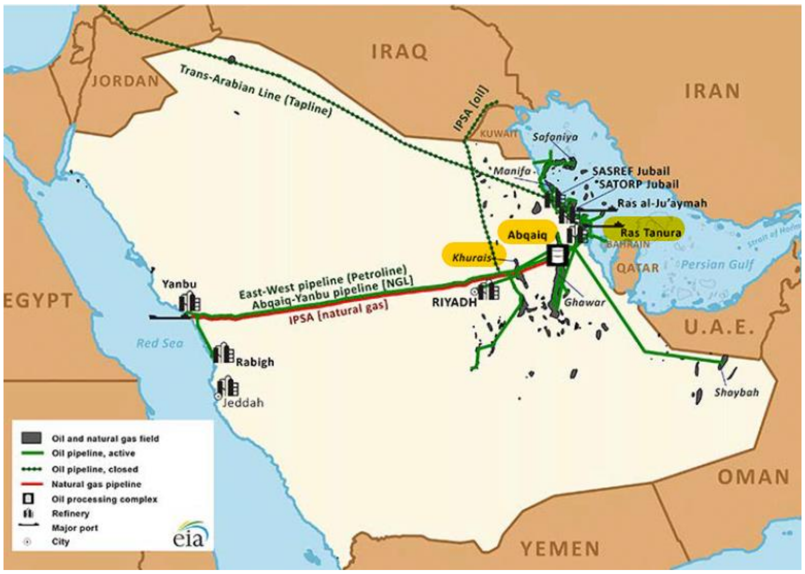
Please keep in mind that we are only 36 hours into the news of the most significant global oil disruption seen in a very long time. We wish we had another day of info, but we don't We believe the question is how long will it take to restore all or a significant portion of the 5.7 mmb/d suspended Saudi production. Oil should be up big tomorrow. We look the last 36 hours and have to believe oil markets have changed dramatically, we just don't know for how long. Saudi Arabia has suspended 5.7 mmb/d, >50% of its current production and approx. 5% of total global oil production. Taking that much oil off the market is a big hit to oil markets, especially as Asian customers have increased their Saudi oil purchases in light of the increasing impact of Iran sanctions. The Houthis claimed multi drone attack hit Saudi Aramco's major oil processing facility at Abqaiq. Everyone has seen the videos of the fires so there is no dispute there was damage. The question is how much damage, how long will it take to repair and over what period can Saudi restore the 5.7 mmb/d production? Its only been about 36 hours so its too early for Saudi Aramco give an estimate. The challenged for oil markets will be to get good information. But until there is a return of the 5.7 mmb/d, or a significant portion thereof, oil markets are changed dramatically. And on top of this, Pompeo seemed to open up the potential for escalation by blaming Iran directly, not the Houthi proxy. What if Saudi agrees with Pompeo's implication that it was a direct Iran event, can they do nothing?

Oil – Houthis long range drone attack knocks out 5.7 mmb/d of Saudi oil

Houthis long range drone hits Abqaiq and Khurais

Oil should be up big tomorrow by the Houthi long range drone attack, explosion and fire at Saudi Aramco's critical Abqaiq oil processing complex, and explosion and fire at its Khurais oilfield complex. We have had numerous tweets on these events starting with our Sat 10:13pm tweet, our Twitter handle is @Energy_Tidbits. Instead of repeating all the events, we will try to summarize where we are as of our new cutoff of 9am MT this morning. (i) We recognize that we are dealing with half a deck without specifics and only with amateur videos (although all consistent video), but its hard for us to see how operations get fully restored in a matter of days (as seemed to be said to be predicted yesterday). No question the logic to the fires is that if it is only tanks were hit and tanks should be able to replaced quickly but less tankage means that operations cannot be at the same full capacity. We need to hear the Aramco update, but its just hard to see how it returns to full capacity in days and not weeks or months depending if any key processing equipment was hit. Ultimately, we think the analysis will soon turn to at what % of capacity will Abqaiq return to and when, and what will be step up periods/events to return to full capacity. (ii) No official indication of how long it will take to restore operations to normal. Yesterday, Saudi Energy Minister Abdulaziz said the next update will be within 48 hrs. (iii) its not clear how many or what type of drones/missiles hit Abqaiq. (iv) Saudi confirms successful attacks at both Abqaiq and Khurais, suspends 5.7 mmb/d of crude oil. The only Saudi Aramco release was Sat [LINK] "*Saudi Aramco emergency crews contained fires at its plants in Abqaiq and Khurais, as a result of terrorist attacks with projectiles. These attacks resulted in production suspension of 5.7 million barrels of crude oil per day*." (v) Last night, we tweeted [LINK] "*Added info f/ Saudi energy minister Abdulaziz: will release oil stocks to help compensate f/ 5.7 mmb/d suspension, lose ~700,000 b/d of NGLs due to shut in of ~2 bcf/d of associated natural gas. JODI data Saudi has 187.9 mmb crude stocks at June 30*." (v) No specifics provided by Saudi Aramco of the damages ie. what parts of the complex were impacted. (vi) It is impossible to tell the extent of damage, but we thought we should at least note some of the satellite pictures posted on twitter that appear to show damage to both oil tanks (expected as they were likely the catalysts) for accelerating the initial explosions) and to parts of the oil processing facilities. (vii) No reports of damage to Khurais complex for the 1.45 mmb/d light oil field. Our Supplemental Documents includes the stories and Twitter satellite pictures.

Figure 19: Saudi Arabia Major Oil and Natural Gas Infrastructure

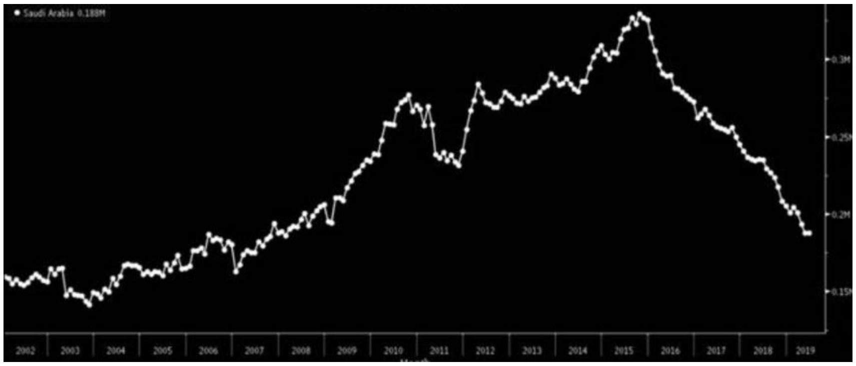


Source: EIA

JODI data shows Saudi crude oil reserves 187.9 mmb at June 30

Saudi Energy Minister Abdulaziz noted the plans to release oil from Saudi oil inventories to help offset the 5.7 mmb/d suspended oil production. We tweeted [LINK] on the JODI data (on the Bloomberg @TheTerminal) that shows Saudi crude oil stocks of 187.9 mmb as of June 30.

Figure 20: Saudi Arabia Crude Oil Stocks June 30/19, JODI Data



Source: Bloomberg, JODI

There must be a bit of a scramble on tanker logistics today

Saudi says they are gong to take oil from their oil stocks. But it isn't clear yet if this will be from oil stocks they hold offshore in Rotterdam, Okinawa or Egypt. We have to believe they will be releasing some of these offshore oil storage and, if so, it should be causing a bit of a tanker logistics scramble today and worse the longer it suspension continues.

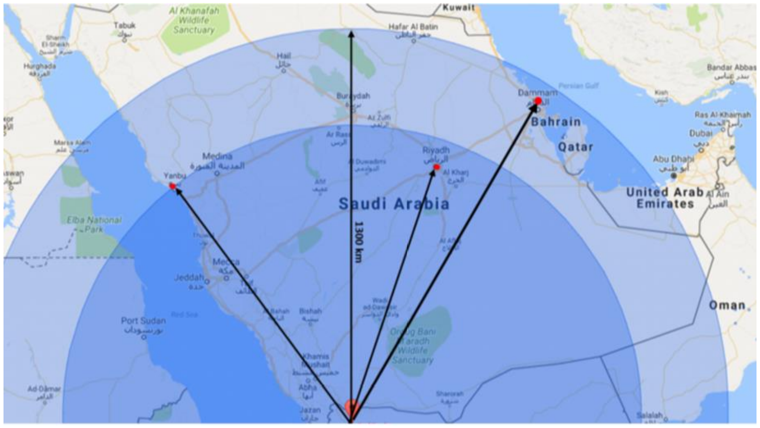
US says ready to deploy SPR if necessary

Yesterday, the US Dept of Energy tweeted [LINK] "*@SecretaryPerry has been briefed on today's drone attack in Saudi Arabia and stands ready to deploy resources from the SPRO if necessary to offset any disruptions to oil markets as a result of this act of aggression."* Note there is a difference in the DOE vs EIA SPR volumes. Yesterday's tweet said "*On background: the SPRO holds 630 million barrels operated and maintained by DOE for exactly this purpose".* The EIA's weekly data [LINK] estimates SPR reserves of 644.8 mmb as of Sept 6.

Houthis can reach all key Saudi oilfields, refineries and export terminals

Our Aug 17 tweet [LINK] on the last successful Houthi long range drone attack at the Shaybah oil field reminded that all of Saudi's major oil infrastructure including its major oil export terminal Ras Tanura are in range. We tweeted "*Reinforces bigger #Oil risk - Houthis long range drones can hit all key Saudi oilfields, refineries & Ras Tanura export terminal."* It is important to remember Shaybah was not the first long range drone or missile. But Shaybah and Abqaiq remind that the Houthis have the capability to hit any Saudi Aramco oil facility or oilfield. That is, of course, unless you ccept the Pompeo Sat tweet "*There is no evidence the attacks came from Yemen*".

Figure 21: Houthi Reported Missile Launch Capability Range



Source: GoogleMaps, SAF

It seems to reinforce the Houthis can locally produce drones/missiles

Our July 21, 2019 Energy Tidbits highlighted what we believe is a potential game changer in the Houthi/Saudi fight – the Houthis are increasingly looking like they have the ability to produce or at least assemble their own drones and missiles. That week, the Houthis unveiled a new winged cruise missile named “Quds 1” and also released images of the Samad 3 drone and Qasif 2K drone that are most often used to target the southern Saudi Arabia airports. It wasn’t so much those missiles, but the Houthis claim that these are locally manufactured. We recognize that most don’t believe the Houthis have this capability, but it has to seem like more of a probability with the increasing number of drones being launched by the Houthis in the past few months. Houthis being able to locally manufacture or at least assemble drones/ballistic missiles is a game changer – it means they don’t have to rely on smuggled drones and missiles from Iran, and they will have a much bigger ongoing arsenal to launch against Saudi Arabia. Our Supplemental Documents package include the Houthis missile story that week.

The 2006 failed al Qaeda attack at Abqaiq spiked oil prices $3.43

The successful Houthi drone attack at Abqaiq is very different than the stopped al Qaeda attack at Abqaiq in 2006. There is no question that oil markets are hugely different today. But the thwarted Al Qaeda 2006 attack on Abqaiq facility spiked oil prices $3.43/b. Abqaiq is Saudi Arabia’s largest oil processing facility and is about 50 km southwest of Dhahran. Abqaiq was the site of an al Qaeda attack in 2006 that spiked oil prices $3.43/b. Al Qaeda attacked this facility on Feb 24/2006 and that was a real terrorist attack that was well reported as involving two pick up trucks, each with suicide bombers. The bombers reportedly tried to drive thru a side gate at the Abqaiq oil facility, security guards opened fire on them, and the bombers detonated their bombs and so they did not cause any major damage to the oil processing facilities. Yet, WTI spiked $3.43/b that day moving from $58.03/b to $61.46/b

Oil – How can Abqaiq not impact Saudi Aramco IPO timing and valuation/risk?

Aramco IPO has to be impacted?

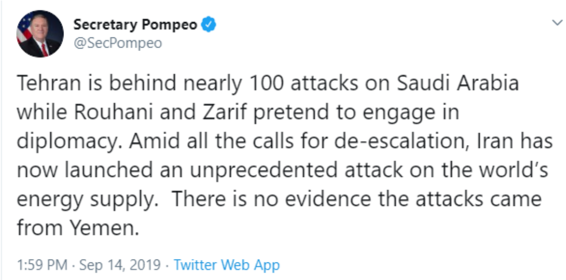
Saudi Aramco has been gearing up for an IPO, with the first step before year end. Earlier this week, we tweeted on the momentum for the Saudi Aramco IPO with the reports that the step 1 [LINK] for a 1% IPO on the Saudi exchange and how they had reached out to Saudi wealthy families including some who had relatives in the Nov 2017 anti corruption purge. And then we tweeted [LINK] "*Should be other key investors, in addition to Saudi wealthy families, to drive Aramco IPO success who might be less sensitive to IPO pricing. Perhaps as part of broader relationship building with KSA, how about sovereign wealth funds?"* However, we have to believe this weekend's events have to impact the timing and valuation of the IPO. Its hard to disagree with the comments yesterday that it may not impact the valuation for the Saudi wealthy families (less price sensitive), but how can outside institutional investors not see an impact on valuation or, at a minimum risk when a terrorist event takes out half of Saudi production. Readers of the SAF Energy Tidbits memos and blogs know that we have been long worried about the Houthis increasing ability to impact critical Saudi Arabia oil infrastructure and specifically the Aramco IPO. Our Aug 25, 2019 Energy Tidbits wrote "*Are the Houthis the wildcard in the Aramco IPO timing?On Tues, we tweeted* [LINK] *"… wildcard for IPO timing? UAE moving troops out of Yemen, escalating fighting between the coalition Yemen partners, escalating Houthi attacks, incl successful long range drone hit Aramco 1 mmb/d Shaybah complex don't point to end to Houthi war. What to do with Houthis? " Could you imaging if Aramco was marketing for the IPO and the Houthis were successful at another long range attack on a major Aramco oil facility? Plus don't forget the significance of the Houthi long range drone attack at Shaybah is that if proves the Houthis have the capability to reach any and all Aramco major oil fields, refineries and export terminals. It makes us wonder what do the Saudis do on the Houths if they are in fact thinking of a potential IPO in the spring? Do they escalate bombing??"*

Oil – Pompeo seems to open the potential for a big escalation vs Iran

Pompeo opens door for escalation

Earlier this morning, we tweeted [LINK] "*Oil mkt focus is 5.7 mmb/d Saudi suspension, when Abqaiq back to normal. Pompeo tweet (Iran denies) stays in my mind (didn't think Iran wanted war). Saudi still investigating, but how can Saudi/allies do nothing if Iran (not Houthi proxy) directly did it as Pompeo implies? #OOTT"*. We recognize that the oil market focus today should be rightly on Abqaiq – what is the status, how long will the Saudis need to suspend 5.7 mmb/d, will that volume change, how long will it take to fix and return Abqaiq to normal, will the Saudi oil storage deliveries offset any shortfall, etc. However, we tweeted on the Pompeo tweet as it didn't seem to get attention. Pompeo clearly says the US doesn't see evidence the attack came from Yemen and Iran launched an unprecedented attack ie. not an Iran proxy attack, and he is implying a direct Iran attack. We have been of the view that Iran did not want a direct war with the US and Saudi Arabia. Saudi Arabia has not yet blamed Iran, nor has UAE who is waiting for Saudi's investigation, Iraq has denied any attack came from its territory. If this was a direct Iran attack on Saudi's critical oil infrastructure, how can Saudi Arabia and its allies do nothing? If so, we have no idea of where it goes in the US/Saudi et al versus Iran. This morning US cable political shows are highlighting the Lindsey Graham tweets [LINK] – he says "*Iranian supported Houthi rebels who attached Saudi oil refineries*" and then "*it is now time for the U.S. to put on the table an attack on Iranian oil refineries if they continue their provocation or increase nuclear enrichment*" and *"Iran will not stop their misbehavior until the consequences become more real, like attacking their refineries, which will break the regime's back*." I wonder what the US comments would be if the hawk John Bolton was still in his position.

Figure 22: Secretary Pompeo Tweet


Secretary Pompeo
@SecPompeo

Tehran is behind nearly 100 attacks on Saudi Arabia while Rouhani and Zarif pretend to engage in diplomacy. Amid all the calls for de-escalation, Iran has now launched an unprecedented attack on the world's energy supply. There is no evidence the attacks came from Yemen.

1:59 PM · Sep 14, 2019 · Twitter Web App

Source: Twitter

Oil – OPEC MOMR: Lower oil demand, US oil growth, but a lesser call on OPEC

Decreasing call on OPEC in 2020

OPEC released its Monthly Oil Market Report on Wed. (i) There are plus and minus in the report but our key concern remains that OPEC+ has to keep cuts thru 2020 and at higher levels ie. there is a lesser call of 1.2 mmb/d in 2020 on OPEC. (ii) Headline is Aug was +136,000 b/d to 29.741 mmb/d per "secondary sources" vs 29.605 mmb/d in July. Saudi Arabia was +118,000 b/d to 9.805 mmb/d. This is a little higher than expected as Saudi Arabia has been guiding to ~9.7 mmb/d in Aug and Sept. Iran basically unchanged at down 24,000 b/d to 2.194 mmb/d. Iran's production continues to hang in there and the ongoing question is where is the oil going. Iraq +43,000 b/d to 4.779 mmb/d, again the biggest cheater vs quota at +267,000 b/d over quota. Nigeria +181,000 b/d to 1.866 mmb/d, so, based on secondary sources, now back to being a bigger cheater at +181,000 b/d over quota. Libya down small, -22,000 b/d to 1.056 mmb/d, which was due to the still lower loadings at Zawiya port due to the force majeure. Venezuela -43,000 b/d to 712,000 b/d. This was interesting as it had hung in there for months looking like it had established a bottom, but this may be the first sign that it may crack below 700,000 b/d. (iii) OPEC is still 158,000 b/d below quota thanks to Saudi. (iv) Oil demand growth forecasts lowered for 2019 and 2020. No surprise here, OPEC lowers oil demand growth rate for 2019 to +1.02 mmb/d YoY (was 1.20 mmb/d), and for 2020 to +1.08 mmb/d YoY (was +1.14 mmb/d). (v) US oil supply growth revised down by 65,000 b/d in 2019 and by 165,000 b/d in 2020. "I*n contrast, non-OPEC oil supply growth in 2020 was revised down by 136 tb/d from last month's assessment to 2.25 mb/d. This is mainly due to a large downward revision to US oil supply, which is now expected to grow by 1.54 mb/d. The forecast for next year remains subject to many uncertainties, mainly relevant to capital spending discipline and a slowdown in drilling and completion activity in the U*S." (vi) Reminder we are now moving into the peak oil demand period for oil. OPEC forecasts Q3/19 oil demand of 100.63 mmb/d, which is +1.55 mmb/d vs Q2/19. OPEC sees Q4/19 +0.26 mmb/d vs Q3/19. But then sees the normal seasonal drop from Q4 to the following Q1. OPEC forecasts Q1/20 to be -1.11 mmb/d vs Q4/19. (vii) OPEC estimates July 31 OECD oil stock were 36 mmb above the 5 yr average, and still 108 mmb above last year. But this is better than June 30 that was 67 mmb above the 5 yr average. Note the split oil stocks are below the 5 yr, but products are over the 5 yr. (viii) The big takeaway remains what we have been highlighting – a decreasing call on OPEC and need to continue cuts thru 2020, not stop at March 31/2020, but also at higher levels. OPEC wrote "*Demand for OPEC crude in 2019 was revised down from the previous report to stand at 30.6 mb/d, which is 1.0 mb/d lower than the 2018 level. Demand for OPEC crude in 2020 remains unchanged from the previous report, to stand at 29.4 mb/d, around 1.2 mb/d lower than the 2019 level*." Our Supplemental Documents package includes excerpts from the OPEC MOMR.

Figure 23: OPEC MOMR Secondary Sources 2019

	2017	2018	4Q18	1Q19	2Q19	May 19	Jun 19	Jul 19	Jul/Jun
Algeria	1,047	1,042	1,055	1,026	1,019	1,029	1,005	1,027	22
Angola	1,634	1,505	1,496	1,443	1,427	1,476	1,408	1,395	-14
Congo	252	317	318	326	334	327	337	326	-10
Ecuador	530	519	517	526	525	530	515	520	5
Equatorial Guinea	133	125	114	115	114	114	115	120	5
Gabon	200	187	188	208	209	216	217	200	-16
Iran, I.R.	3,813	3,553	2,982	2,725	2,407	2,367	2,260	2,213	-47
Iraq	4,446	4,550	4,669	4,631	4,705	4,749	4,721	4,753	32
Kuwait	2,708	2,745	2,774	2,715	2,694	2,710	2,674	2,678	5
Libya	811	951	1,056	965	1,154	1,170	1,120	1,078	-42
Nigeria	1,658	1,718	1,739	1,736	1,781	1,721	1,808	1,786	-21
Saudi Arabia	9,954	10,311	10,749	10,019	9,770	9,717	9,832	9,698	-134
UAE	2,916	2,986	3,236	3,066	3,063	3,060	3,070	3,071	1
Venezuela	1,911	1,354	1,191	975	772	762	774	742	-32
Total OPEC	**32,014**	**31,864**	**32,084**	**30,478**	**29,975**	**29,945**	**29,855**	**29,609**	**-246**

Notes: Totals may not add up due to independent rounding.

Source: OPEC

Oil – IEA OMR warns on the "daunting" challenge to balance oil markets in 2020

IEA warns on "daunting" challenge

The IEA published its monthly Oil Market Report on Thurs morning. They only release very limited public info, but, fortunately, the Bloomberg terminal provides the key data tables and a number of insights in its IEA OMR wrap. (i) On Thurs, we tweeted [LINK] "*IEA OMR, negative takeaway, no reduction to oil demand growth rates, ~1.4 mmb/d lesser call on OPEC"* . This was IEA's big warning – the look ahead challenge to H1/2020 when call on OPEC will be ~1.4 mmb/d less than OPEC's Aug production. (ii) IEA made no change to oil demand growth forecasts of +1.1 mmb/d in 2019 YoY and +1.3 mmb/d in 2020 YoY. We were surprised there was no change and tweeted [LINK] "*Surprised experienced Birol wasn't more precise on his "about 1 mmb/d of growth" for 2019 oil demand growth Mon comment. IEA OMR today "Our 2019 and 2020 global oil demand growth forecasts are unchanged at 1.1 mb/d and 1.3 mb/d, respectively*". One of the positives to oil on Mon was the Bloomberg interview on Monday with IEA's Birol saying he expected oil demand growth "about" 1 mmb/d in 2019. We recognize its only 0.1 mmb/d, but were surprised that an experienced Birol would be a little sloppy with the numbers especially when he knows demand growth is a major watchpoint for oil markets. ((iii) We still think there is more downside to the IEA oil demand forecasts, The math to get to +1.1 mmb/d YoY in 2019 seems challenging in light of the IEA comments "*Growth was 0.5 mb/d in 1H19 and fell as low as 0.2 mb/d in June. For 2H19, we assume no further deterioration in the economic climate and in trade disputes. Oil demand growth will be significantly higher helped by a comparison versus a low base in 2H18, lower oil prices versus a year ago and additions to petrochemicals capacity. July data show y-o-y growth of 1.3 mb/d*." Not clear how much their forecast model relies on lower prices, but the math looks challenging given the increasing impact on trade and slowing global economies. (iv) Really big seasonal oil demand growth assumed in Q3/19 vs Q2/19 of +1.9 mmb/d, this compares to OPEC's +1.55 mmb/d noted above. (v) Non-OPEC oil supply growth unchanged in 2019 at +1.9 mmb/d YoY, and increased by 0.1 mmb/d in 2020 to +2.3 mmb/d YoY. (vi) OECD oil stocks down to 19.7 mmb above 5 yr ave at July 31, down from 67 mmb above at June 30. (vii) The big warning in the IEA OMR was that oil stock relief is only temporary, and there is a big reduction of the call on OPEC in H1/2020. This is the item we have always highlighted – the normal seasonal reduction in oil demand in Q1 every year relative to the preceding Q4 means its tougher on OPEC in Q1/2020. The demand table above shows the IEA forecast that Q1/20 demand is down 1.4 mmb/d in Q1/20 vs Q4/19. Bloomberg wrap notes "*As OPEC and its allies meet in Abu Dhabi, the IEA said it faces a significant challenge in managing the market into 2020. Demand for the group's crude in the first half of 2020 will be 1.4 million barrels a day below its August output as production surges* *from their competitors, including the U.S. Though an increase in stockpiles has taken a pause for now, growth in other countries, including Brazil and Norway means that 2020 could see a significant increase in oil stockpiles and pressure on prices*". The worse is yet to come was highlighted in the IEA writing "*While the relentless stock builds we have seen since early 2018 have halted, this is temporary. Soon, the OPEC+ producers will once again see surging non-OPEC oil production with the implied market balance returning to a signifcant surplus and placing pressure on prices. The challenge of market management remains a daunting one well into 2020".* Our Supplemental Documents package includes the IEA releaser and the Bloomberg IEA OMR wrap.

Figure 24: IEA OMR OPEC Aug 2019 Production Vs Quota Cut Levels

OPEC (thousand bpd)	Reference Production	Voluntary Adjustment	Voluntary Production Level	IEA OMR For Aug 2019	Aug Less Quota	IEA OMR For July 2019	Aug Less July
Algeria	1,057	-32	1,025	1,020	-5	1,030	-10
Angola	1,528	-47	1,481	1,350	-131	1,340	10
Congo	325	-10	315	340	25	340	0
Ecuador	524	-16	508	540	32	540	0
Eqauatorial Guin	127	-4	123	120	-3	120	0
Gabon	187	-6	181	220	39	220	0
Iraq	4,653	-141	4,512	4,810	298	4,780	30
Kuwait	2,809	-85	2,724	2,640	-84	2,670	-30
Nigeria	1,738	-53	1,685	1,840	155	1,800	40
Saudi Arabia	10,633	-322	10,311	9,750	-561	9,650	100
UAE	3,168	-96	3,072	3,060	-12	3,070	-10
OPEC Quota	26,749	-812	25,937	25,690	-247	25,560	130
Iran				2,190		2,230	-40
Libya				1,060		1,090	-30
Venezuela				800		810	-10
Total OPEC				29,740		29,690	50
Note: Totals may not add due to rounding							

Source: IEA, SAF

Oil – EIA, OPEC lower oil demand growth forecasts, IEA kept unchanged

Some lower oil demand forecasts

It looks like we were only 2/3 right on our call in our Aug 25, 2019 Energy Tidbits that all three energy agencies (EIA, IEA and OPEC) would lower their oil demand growth forecasts in light of the China/US trade war, slowing European economy and even slower US growth. In their monthly updates: (i) EIA STEO: The new EIA oil demand growth forecast for 2019 is +0.89 mmb/d YoY and 2020 is +1.40 mmb/d YoY. Aug STEO for 2019 was +1.00 mmb/d YoY and 2020 +1.43 mmb/d YoY. EIA wrote "*Lower expected oil demand growth mainly reflects lower forecast gross domestic product growth and lower forecast demand from countries in the Organization for Economic Cooperation and Development. If realized, 2019 would be the first year when demand growth is less than 1.0 million b/d since 2011*." And "*It also marks the seventh consecutive month in which EIA has lowered its 2019 consumption outlook, after EIA had forecast growth of 1.5 million b/d for the year in the January 2019 STEO*." (ii) IEA OMR on Thurs did not change its oil demand growth forecast. This was a surprise to us in light of the IEA Executive Director Birol comments on Mon at the World Energy Congress in Dubai. On Mon, we tweeted [LINK] on Bloomberg's report of its interview with Birol "*The International Energy Agency cut its forecast for global oil-demand growth again, blaming the economic impact of the U.S.-China trade war. "We expect this year on average about 1 million barrels a day of growth," IEA Executive Director Fatih Birol said in an interview with Bloomberg TV on the sidelines of the World Energy Congress in Abu Dhabi. That's about 10% lower than the agency's previous forecast".* But when the OMR was released on Thurs, there was no reduction of oil demand growth. We then tweeted [LINK] "*Surprised experienced Birol wasn't more precise on his "about 1 mmb/d of growth" for 2019 oil demand* *growth Mon comment. IEA OMR today "Our 2019 and 2020 global oil demand growth forecasts are unchanged at 1.1 mb/d and 1.3 mb/d, respectively".* (iii) OPEC MOMR lowered its oil demand growth rate for 2019 to +1.02 mmb/d YoY (was 1.20 mmb/d), and for 2020 to +1.08 mmb/d YoY (was +1.14 mmb/d). OPEC says 2019 reduction "*can be attributed to weaker-than-expected data in 1H19 from various global demand centres and slower economic growth projections for the remainder of the year. Both OECD and non-OECD demand growth forecasts were revised lower, by 0.03 mb/d and 0.05 mb/d, respectively. In 2020, world oil demand is projected to increase by 1.08 mb/d. This also represents a downward adjustment of 0.06 mb/d from the previous month's assessment, mainly to accommodate changes to the world economic outlook for 2020."* Below is our table comparing the new Sept EIA, IEA and OPEC demand forecasts.

Figure 25: YoY Increase In World And China Oil Demand - EIA, IEA and OMR

	EIA STEO Sept 2019			IEA OMR Aug 2019			OPEC MOMR Aug 2019		
	Total mmb/d	YoY mmb/d	China YoY	Total mmb/d	YoY mmb/d	China YoY	Total mmb/d	YoY mmb/d	China YoY
Q1.18	99.17			98.60			97.93		
Q2/18	99.62			98.90			98.18		
Q3/18	100.49			100.00			99.48		
Q4/18	100.43			99.50			99.72		
2018	99.93			99.30			98.82		
Q1/19	99.81	0.64	0.48	99.10	0.50	0.30	98.75	0.82	0.35
Q2/19	100.32	0.70	0.57	99.40	0.50	0.70	99.08	0.90	0.35
Q3/19	101.32	0.83	0.57	101.30	1.30	0.40	100.63	1.13	0.35
Q4/19	101.83	1.40	0.56	101.50	2.00	0.60	100.89	1.17	0.36
2019	100.82	0.89	0.55	100.30	1.00	0.50	99.84	1.02	0.35
Q1/20	101.12	1.31	0.55	100.10	1.00	0.30	99.78	1.03	0.28
Q2/20	101.64	1.32	0.46	101.00	1.60	0.20	100.10	1.02	0.31
Q3/20	102.93	1.61	0.44	102.70	1.40	0.40	101.71	1.08	0.30
Q4/20	103.16	1.33	0.46	102.80	1.30	0.20	102.06	1.17	0.34
2020	102.22	1.40	0.47	101.60	1.30	0.30	100.92	1.08	0.31
Notes: OPEC MOMR Sept did not provide quarter splits for China 2018, estimated based on OPEC MOMR June splits									

Source: EIA, IEA, OPEC

Oil – JMMC: cheaters to comply, Saudi to keep over comply, likely more needed

No surprise from OPEC+ JMMC

The OPEC+ Joint Ministerial Monitoring Committee meeting was on Friday and it ended with no real surprises, nor were there any surprises from the reporting of comments from the sidelines. There were 3 key takeaways from the JMMC meeting, release and sideline comments. (i) It looks like new Saudi energy minister Abdulaziz has been able to get the cheaters (Iraq, Nigeria and Russia) to agree to move to comply with quota in the next month. The release said "*All participating countries present, particularly those who are yet to reach full conformity with their adjustments, were unequivocal in providing steadfast assurances of their determination to achieve at least 100% conformity for the remainder of the year*." Plus reports that all three parties intend to comply. (ii) Saudi Arabia to continue to produce well below quota. The JMMC said "*Those countries who have over-conformed also reiterated their voluntary contribution. Resultantly, overall conformity will be brought to record levels*." (iii) Recognition that deeper cuts will likely be required at the Dec 4 meeting. The formal notice noted the JMMC recognizing the macro conditions "*In light of these macroeconomic uncertainties, the JMMC agreed that enhanced cooperation and dialogue are more important than ever*". But then the reports post the meeting were noting that the expectation that there will be a need for deeper cuts. Our Supplemental Documents package includes the JMMC release. [LINK]

Oil – Platts estimates Iran floating storage now 50 mmb of oil and condensate

Platts: Iran floating storage now 50 mmb

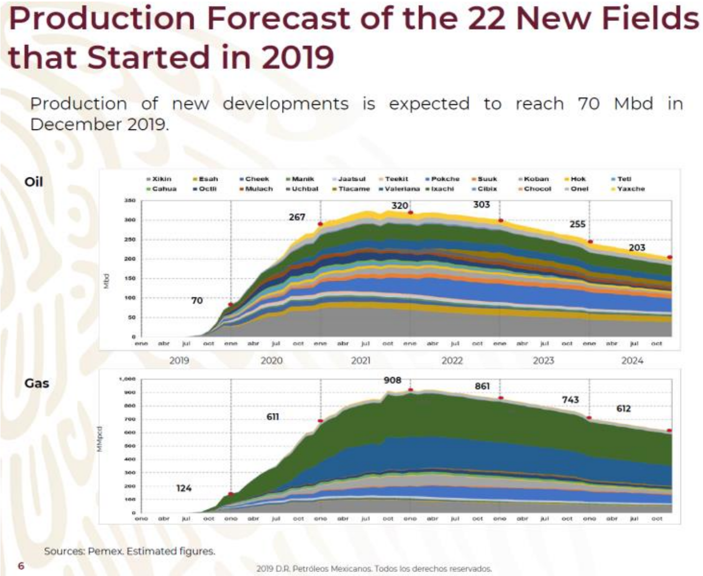
The IEA's Oil Market Report included their updated estimate of floating storage levels. On Thurs, we tweeted [LINK] "IEA OMR "*Floating storage of crude oil rose by 7.9 mb in August* *to 66.1 mb due to an increase of numbers of tankers storing crude oil in Iran" ie. ~250,000 b/d Iran to floating storage. Iran 2.190 mmb/d in Aug means oil is being snuck out somewhere. #OOTT*". On Friday, Platts posted a good story "*Analysis: Iran builds 50 mil barrel oil armada as exports plunge*" that seemed to be reasonably aligned to the IEA estimates. (i) Platts sees Iran now up to 50 mmb of floating storage, infers just over 300,000 b/d for the month of Aug. "*Iran's oil tankers are now holding almost 50 million barrels of oil at sea, the highest since early January 2016, just before US then-President Barack Obama's administration and its Western allies agreed a nuclear pact with Iran and lifted key oil sanctions. This compares with around 40 million barrels of floating storage in July and up from around 15-20 million in May, according to Platts estimates*". (ii) Reminds a "bulk" of the floating storage is condensate. "A *bulk of the oil in floating storage is condensates, rather than crude, shipping and trading sources say. The majority of these volumes lie off Iran's main oil terminals -- Kharg Island, Assaluyeh and Soroosh*." (iii) Platts estimates Iran oil exports down to 424,452 b/d in Aug. "*Iranian oil shipments in August continued to languish at just over a fifth of the level a year before. Iranian crude oil and condensate exports, which averaged about 1.98 million b/d in August, have fallen by just over 1.5 million b/d in the past year. Shipments of Iranian oil fell to 424,452 b/d in August from 509,226 b/d in July and 549,730 b/d in June, data from shipping sources and provisional tanker tracking showed. The bulk of this oil continues to flow to China and Syria*." Our Supplemental Documents package includes the Platts story. [LINK]

Oil – Mexico's oil production is returning to growth, and so will oil exports to PADD 3

Mexico looks to be returning to oil growth at year end

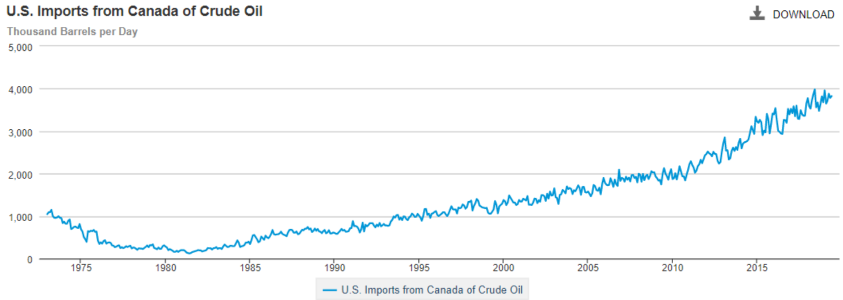
One of the emerging 2020 oil themes for Cdn heavy/medium oil is that, this summer, Pemex started providing support for its prediction that it would e returning to oil growth at the end of 2019. Our concern is that increasing Mexico oil production leads to increasing oil exports to the Gulf Coast refineries and competing against an increasing market for Cdn heavy/medium crude. Its why we posted our July 30 blog "*TMX Is Needed Even More Now, Mexico Oil Production Looks To Be Returning To Growth And More Exports To US Gulf Coast*" [LINK]. On Friday afternoon, Pemex posted a new slide deck that that reinforces the Pemex expectation for a ramp up in Mexico's oil production at year end 2019. he presentation has an immaterial reduction in the average oil production for 2019 to its new forecast of 1.710 mmb/d, was 1.725 mmb/d. But the key ramp up of the 20+ fields under development that will be driving the growth is unchanged. The new presentation also reinforced that Mexico should see decreasing imports of petroleum products. Declining US oil imports into PADD 3 from Mexico and Venezuela have created a big opportunity for Canada. Note there are different scales for the EIA Mexico/Venezuela below graphs compared to the Canada scale. Below is also the Pemex key 20+ oil growth slide. Our Supplemental Documents package includes excerpts from the new Pemex slide deck [LINK] and our July 30 blog.

Figure 26: Pemex 22 New Fields Development



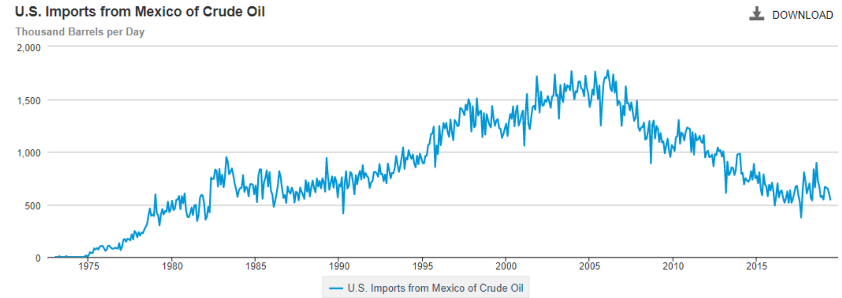
Source: Pemex

Figure 27: PADD 3 Gulf Coast Crude Oil Imports From Canada



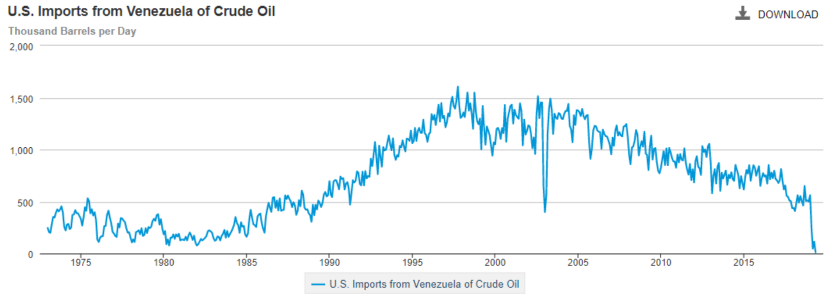
Source: EIA

Figure 28: PADD 3 Gulf Coast Crude Oil Imports From Mexico



Source: EIA

Figure 29: PADD 3 Gulf Coast Crude Oil Imports From Venezuela



Source: EIA

Oil – IMO 2020: IEA and Platts forecast HSFO consumption for scrubbers

IEA/Platts forecast HSFO consumption

IMO 2020 is now just over 3 months away on Jan 1, 2020 and there is increasing color on scrubber penetration. The biggest issue for scrubber penetration has been the scrubber installation capacity limitations and its why it is important to remember that scrubber penetration will keep increasing after Jan 1, 2020 and we expect also after Jan 1, 2020. This week, we saw two updated estimates. (i) IEA. Bloomberg does an IEA OMR wrap that provides some good color on the OMR including on IMO 2020 and scrubbers. Bloomberg wrote "*** 2.5k scrubbers to be installed by the end of this year, consuming 510k b/d of HSFO; almost 4k by end 2020, consuming total 820k b/d HSFO".* We tweeted [LINK] on this point because it was a good reminder that scrubber installation capacity limits mean that, after IMO 2020 starts on Jan 1, 2020, the installation of scrubbers and consumption of HSFO will keep increasing. And we expect it will continue to do so in 2021. here just wasn't the scrubber installation capacity to get all scrubbers installed for Jan 1, 2020. (ii) Platts has a higher estimate of HSFO consumption by scrubbers. Platts tweeted [LINK] on its slide at its 35th Annual Asia Pacific Petroleum Conference in Singapore and said "*Latest on scrubber watch: you can expect there to be 2,400 scrubbers in place on January 1, allowing the consumption of 600,000 b/d of HSFO. By the end of 2020, look for more than 3,500 scrubbers*". Platts didn't estimate HSFO consumption at the end of 2020, but if we just extrapolate, it would be 875,000 b/d of HSFO. We expect this is likely more than most expect.

Capital Markets – No surprise, TSX Index rebalancing deletes several oil & gas names

7 oil and gas names deleted from TSX index

On Friday, we tweeted [LINK] "*No one should be surprised to see the announced changes to S&P/TSX Composite Index, effective open of trading on Mon Sept 23. Deletions incl 5 E&P (Birchcliff, Kelt, Nuvista, Peyto and TORC) and 2 service (Ensign and Precision)*". It has been well expected that there would be several oil and gas names deleted from the index with most of these specific names in the sell side expectations. Our Supplemental Documents package includes the S&P/TSX announcement. [LINK]

Energy Tidbits – Now on Twitter

Energy Tidbits now on Twitter

For new followers to our Twitter, we are trying to tweet on breaking news or early views on energy items, most of which are followed up in detail in the Energy Tidbits memo or in separate blogs. Our Twitter handle is @Energy_Tidbits and can be followed at [LINK]. We wanted to use Energy Tidbits in our name since I have been writing Energy Tidbits memos for over 19 consecutive years. Please take a look thru our tweets and you can see we aren't just retweeting other tweets. Rather we are trying to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

Energy Tidbits – Sign up on our email distribution for tidbits and blogs

Please note that we have set up our Energy Tidbits memo on our SAF website alongside our blogs. The distribution for the Energy Tidbits memo will be via the same notification system used for our blogs. To ensure you receive Energy Tidbits memos, please go to our blog sign up. We will be using the blog notification list for Energy Tidbits. The blog sign up is available at [LINK].

Sign up to receive future Energy Tidbits memos

LinkedIn – Look for quick energy items from me on LinkedIn

I can also be reached on Linkedin and plan to use it as another forum to pass on energy items in addition to our weekly Energy Tidbits memo and our blogs that are posted on the SAF Energy website [LINK].

Look for energy items on LinkedIn

Misc Facts and Figures.

During our weekly review of items for Energy Tidbits, we come across a number of miscellaneous facts and figures that are more general in nature.

Japan's centenarians exceed 70,000, a new record

One of the items that I am most proud of from my Japanese heritage is how the culture is unchanged in its care and respect for older people. Its no different than any baby boomer in Canada knew growing up in the 50's and 60's when all of our parents, not just my Japanese parents, hammered home "respect your elders". On Fri, Japan Times reported [LINK] "*Ahead of Respect for the Aged Day, number of centenarians in Japan tops 70,000:",* Its indicative of Japan to still have a day to honor the elderly as tomorrow is the annual Japan's Respect for the Aged day that is held the 3rd Mon of Sept. Japan Times wrote "*The number of people aged 100 or older in Japan has exceeded 70,000 for the first time after marking an increase for the 49th consecutive year in the aging society whose birth rate remains low, government data showed Friday. Women centenarians vastly outnumber the men, accounting for 88.1 percent of the total 71,238. The figure represents a roughly 23-fold increase from a centenarian population of 3,078 in 1989, according to the data released by the Health, Labor and Welfare Ministry ahead of Monday's national holiday in Japan for Respect for the Aged Day."* There isn't any official database of centenarians by country, but the US was estimated to be #1 (Japan #2) with over 72,000 centenarians at the end of 2017. Couldn't find current data on Canada but is likely around 8,400 centenarians including my Aunt who just turned 100 in late July.

A classy man, T. Boone Pickens, passed away this week

Boone Pickens passed away this week at the age of 91. Boone was well known in Calgary and any baby boomer oilman, especially from Dome Petroleum, knows of his Boone from when his Mesa Petroleum sold its Cdn operations to Dome Petroleum. There is no question that he was a major oil and gas figure for over 40 years. Boone had this bigger than life persona and the media always had him as this big, brash Texas oilman. That may well be the case, but I remember him as a gracious and classy person. I only me him once, when I had the chance to have lunch with Boone and my boss. Arguably I didn't say too much, because I was there with my boss who was having lunch with Boone. But the point I remember is that Boone, much like the other great oilmen of the 80s treated young people with respect and made you feel like you deserved to be at the lunch. A classy man. The Calgary Herald memory story is found at: [LINK]

Today is the middle of Palindrome ten day period

Most will think of palindromes in terms of words, where the letters forwards or backwards spell the same word. Everyone knows simple every day palindrome words like mom, dad, noon, But there are also palindrome numbers and today 9-15-19 is right smack middle of a 10 day palindrome period. That is assuming you use the date format of month/day/year, where the numbers are the same whether they are spelled forward or backward. Today is 9-15-19. So from 9-10-19 to 9-19-19 is our 10 day palindrome period.