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STREAM | Asset Financial Management

Energy Tidbits

March 10, 2019

Produced by: Dan Tsubouchi

Is The US Resigned That A Maduro Regime Change Won't Happen As Quickly As Expected/Hoped?

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. Telemundo's interview with VP Pence makes it seem like the US is resigned to a longer time for a Maduro regime change. (Click Here)
2. Tougher for Alberta to reduce curtailments with lower crude by rail in Feb due to cold weather. (Click Here)
3. Libya's 315,000 b/d Sharara oil field is already back up to ~200,000 b/d after Libya NOC lifts force majeure. (Click Here)
4. Saudi Arabia says can wait to the June meeting before looking at the OPEC+ cuts. (Click Here)
5. Exxon reminds of the challenge to replace the annual decline of global oil production. (Click Here)
6. Excellent sector insights from Exxon's analyst day this week. (Click Here)
7. Excellent sector insights from BMO's mini energy conference in Calgary this week. (Click Here)
8. Interesting comments from Pembina on Jordan Cove LNG and Chevron on Kitimat LNG. (Click Here)
9. 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].

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Natural Gas – Storage is now at a 243 bcf YoY deficit

YoY storage now at 243 bcf YoY deficit

The EIA reported a storage withdraw of 149 bcf which was in line expectations of a 145 bcf draw, to bring storage to 1.390 tcf as of Mar 1, which is down 243 bcf YoY and down 464 bcf vs the 5-year average. This is a widening of the YoY deficit from 154 bcf deficit last week. With only two weeks until the end of winter, the market continues to keep HH well below $3 because of the 9 to 10 bcf/d higher YoY US natural gas supply. Cold weather has given some modest relief to HH prices, but it won't be lasting given the higher YoY US gas production. 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 (03/01/18)		Historical Comparisons: 5-year average (2014-18)	
Region	03/01/19	02/22/19	net change	implied flow	Bcf	% change	Bcf	% change
East	311	354	-43	-43	362	-14.1	372	-16.4
Midwest	338	385	-47	-47	383	-11.7	430	-21.4
Mountain	73	79	-6	-6	98	-25.5	120	-39.2
Pacific	112	122	-10	-10	179	-37.4	204	-45.1
South Central	557	598	-41	-41	612	-9.0	728	-23.5
Salt	180	199	-19	-19	188	-4.3	203	-11.3
Nonsalt	377	399	-22	-22	424	-11.1	525	-28.2
Total	**1,390**	**1,539**	**-149**	**-149**	**1,633**	**-14.9**	**1,854**	**-25.0**

Source: EIA

Natural Gas – LNG projects are moving more to an integrated LNG model

Moving to an integrated LNG model

Later in the memo, we note several insights from our attending the March 4 BMO Analyst Calgary Energy Mini Conference. However, we also wanted to separately highlight an interesting big picture sector theme that they see shaping LNG projects – more LNG projects are moving to an integrated model. It doesn't mean that there will only be LNG projects that are integrated, but more LNG projects will be moving to this model. BMO sees the buyers of LNG have been wanting to get away from the traditional JCC (Japan Crude Cocktail) price or take or pay contracts, in part because take or pay contracts put the credit on the buyer balance sheet. But also because of the volatility in the LNG prices that led to LNG prices being far below a long term contracted price. This is the key, they just don't see major LNG buyers just wanting to buy offtake under older style deals. We have seen this play out in particular with some renegotiated LNG deals (see our below excerpt from the Sept 17, 2017 Energy Tidbits). The renegotiated contracts came about because of the volatility in LNG prices that led to LNG buyers locked into higher long term LNG prices. As a result, BMO sees a movement to the LNG Canada (Shell) integrated model with Shell's partners in LNG Canada being involved in the upstream, liquefaction, and ultimately being the end consumer of the LNG. LNG Canada is an example of an integrated LNG model for all the partners, but we took away that LNG projects are increasingly going to have partners participate on an integrated basis, and can't just rely on traditional long term take or pay or JCC price linked contracts. It also means that it will be more difficult for LNG export projects to get done if they don't have a significant element of this integrated model.

Reported 2017 LNG take or pay renegotiated contracts

The following is what we included in the Sept 17, 2017 Energy Tidbits memo on the reports of renegotiated long term take or pay LNG deals in the face of volatile prices. "*Natural Gas – Exxon reportedly agrees to cut LNG prices to Petronet. There were no press releases on ExxonMobil or Petronet websites, but there were multiple media reports that ExxonMobil agreed to cut the price of its LNG from Gorgon (Australia) under long term contract with Petronet (India) in return for additional long term LNG volume commitments. We aren't sure we agree with the characterization of the deal such as Reuters story "ExxonMobil slashes LNG price to India in bad omen for producers".*

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Slashing is what we would have described the early 2016 renegotiation of the Qatargas/Petronet deal that saw long term LNG prices cut by ~50% (see our Jan 3, 2016 Energy Tidbits). The reports on the price cuts are consistent. Reuters reported it as "The original LNG supplies would be priced at less than 14 percent of the Brent oil price, down from about 14.5 percent earlier, while the additional supplies would be priced about 12.5 percent of Brent, the sources said." This does not sound like a "slash". At the time of the original Qatargas/Petronet renegotiation, we thought that would be a catalyst for more renegotiations. And at the end of 2015/early 2016, there was a clear view that LNG was in oversupply and the LNG buyers (Petronet) were able to negotiate a big slash to its contracted long term LNG price. But the reality is that new 2016 and 2017 LNG supply has been absorbed by the market, which is why the reported Exxon lower prices are not slashes like happened at the beginning of 2016. Our Supplemental Documents package includes the Fitch advisory "Fitch: Petronet-Exxon Deal May Spur More LNG Renegotiations" that was on the Bloomberg terminal."

Natural Gas – New China off-takers have non-binding agreements w/Jordan Cove

Jordan Cove has non binding offtake with China buyers

Interesting comments from Jordan Cove LNG executives from Singapore that they apparently have signed non-binding agreements with some Chinese offtake LNG buyers. Reuters reported *"Jordan Cove LNG project signs non-binding sales deals exceeding capacity"* and "*Jordan Cove liquefied natural gas (LNG) project in Oregon, in the United States, has signed non-binding sales agreements for volumes exceeding the terminal's planned capacity, a senior company official said on Thursday. Jordan Cove has signed to sell about 11 million tonnes per year of LNG to buyers in initial contracts, said Stuart Taylor, senior vice president of marketing and new ventures for Pembina Pipeline Corp, owner of the project. Capacity for the LNG plant is set at 7.5 million tonnes a year."* This wasn't new disclosure, rather it was in the recent 2018 annual report [LINK] as was that they were working to conclude off-take agreements in Q1/19. As a reminder, to date, Jordan Cove has agreements with Japanese entities for 3 million tonnes per year - Itochu and JERA. JERA is the joint venture between Tokyo Electric and Chubu Electric. But there was one interesting tidbit in the Reuters story – they have been able to sign up Chinese off-takers, at least at this stage for non-binding agreements. Reuters wrote "*There is a good chance that some of it (the sales volume) is Chinese," Taylor said on the sidelines of LNGA 2019 conference held in Singapore, when asked if any of the potential buyers included Chinese companies. He said the company expects to convert some of the deals into binding ones in a few months. "We think in a couple of months, we could be well into announcing some signatures. They take time, and we are in detailed negotiations exchanging drafts of the agreements ... and then we will lock agreements down," he said."* These are pretty encouraging comments and Jordan Cove is certainly pointing to the likelihood of signing up enough LNG off-takers to lock up the remaining 4.5 million tonnes per annum capacity. Our Supplemental Agreements package include the Reuters story [LINK].

Natural Gas – LNG Canada doesn't see any chance to stop Coastal GasLink pipeline

LNG Canada sees no chance to stop gas pipeline

How can anyone not like LNG Canada CEO's bullish comments on TransCanada's Coastal GasLink gas pipeline that will be bringing the natural gas to the LNG liquefaction facility. Bloomberg terminal posted a Friday story "*LNG Canada CEO Sees No Scenario That Would Stop Its Project*". And also wrote "*The head of LNG Canada said he does "not see a single scenario" that would stop the nation's largest infrastructure project from getting built, dispelling concerns that the $30 billion gas export facility is at risk of mounting opposition from pipeline foes. The liquefied natural gas project in northern British Columbia was approved by Royal Dutch Shell Plc and four Asian partners in October after obtaining the support of the province and 20 First Nation groups. But it continues to face a legal challenge disputing the constitutionality of the project's approval, as well as protests by a group of indigenous holdouts. "I do not see a single scenario that would cause the construction of this pipeline to be stopped," Andy Calitz, LNG Canada's chief executive officer, said in an interview in Vancouver. TransCanada Corp. is planning to build the pipeline that will carry the gas from western Canada's prolific Montney*

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shale formation to the coastal export facility in Kitimat. The whole project -- including the gas fields, pipeline and liquefaction terminal -- fall within British Columbia and was authorized by the provincial regulator". Our Supplemental Documents package includes the full Bloomberg terminal story.

Natural Gas – Is Chevron Pointing To A Potential FID of Kitimat LNG in 2020/2021?

Chevron seems positive on Kitimat LNG

Later in the memo, note sector items from Chevron's analyst day on Tues. But one item that caught our attention was mgmt's response in the Q&A on its LNG inventory. We were a little surprised as they seemed to present Kitimat LNG as one of their next potential LNG projects. We weren't looking for anything new on its Kitimat LNG project but their verbal comments got us to dig deeper. In the Q&A, mgmt. was asked if "*Is it multiple years of just working out Gorgon and Wheatstone and then pulling the trigger? Or is there something you're looking for in the broader LNG sort of financial returns potential before you make another move in that area?*" Mgmt discussed Gorgon/Wheatstone, and then said "*And then we've got other options. Certainly, we've got Kitimat. We've looked at things in other parts of the world and continue to look for the right opportunities. The key on big LNG investments is to be down the cost curve. You do not want to be out at the high-end of the cost curve, really want to be in the lower cost facilities because those are the ones that are likely to get funded to get built into the economic. And so that's how we're thinking about it.*" But what got our attention even more was the Chevron slide deck. We think of supermajors being exceptionally careful on written disclosure, which is why we mention the single Kitimat LNG reference in the entire slide deck. The single reference seems to point to a potential Kitimat FID in 2020 or 2021. Its not just that Kitimat LNG is the first LNG project named after Australia, its that Chevron listed Kitimat LNG as one of their 12 upstream major projects Chevron describes these major projects as "*The projects in the table are considered the most significant in the development portfolio and have commenced production or are in the design or construction phase. Each project has an estimated project cost of more than $500 million, Chevron share*." We recognize that Chevron says Kitimat is startup 2023+, but we can't believe they would put that 2023+ unless it was within a 2 to 3 years of 2023 ie. suggesting to investors that that Kitimat LNG could go FID in 2020 or 2021. We just can't believe they would put a major project startup of 2023+ if they were looking at a start up of 2027 to 2029. That would seem too long to start up to deserve inclusion on that list that they are highlighting at their analyst day. Whereas a FID 2020 would likely point to a 2025 or 2026 start up.

Oil – US oil rigs were -9 to 834 oil rigs

US oil rigs were -9 this week

Baker Hughes reported US oil rigs were -9 to 834 oil rigs as of Mar 8. Increases were in Cana Woodford +2, and Granite Wash +2. Decreases were in Others -6, Williston -3, Barnett -1, Eagle Ford -1, Mississippian -1 and, Permian -1. Oil rigs have now fallen for the third straight week, which is in line with the comments from the service sector Q4 call's regarding producer plans to reduce capital spending and remove rigs from service in 2019. Below is our graph of the Baker Hughes weekly US oil rig data.

Figure 2: Baker Hughes Weekly Rig Count – Total US Oil Rigs

Source: Baker Hughes, SAF

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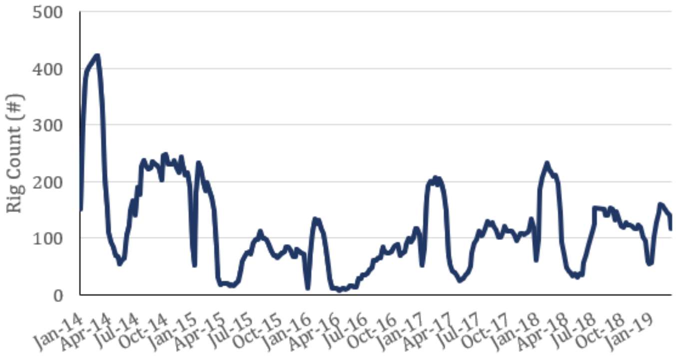
Oil – Total Cdn rigs were down 22 to 189 total rigs

Total Cdn rigs down 22 this week

Baker Hughes reported total Cdn rigs were down 22 to 189 total rigs as of Mar 8. Cdn oil rigs accounted for the entire decrease, as Cdn oil rigs were down 22 to 118 oil rigs. Cdn gas rigs were flat at 71 gas rigs. This follows last week, where rigs were down 1 in total. Continued strong cold winter drilling conditions are allowing a normal winter drilling season. But we are still surprised the rig count has declined further now that we are in March. Below is our graph of the Baker Hughes weekly Cdn oil rig data.

Figure 3: Baker Hughes Weekly Rig Count, Canadian Oil Rigs



Source: Baker Hughes, SAF

Oil – EIA says oil production of 12.1 mmb/d, unchanged from last week

US record production of 12.1 mmb/d

The EIA reported US oil production was flat at 12.1 mmb/d for the Mar 1 week, unchanged from last week's all-time record production. Lower 48 was also unchanged at 11.6 mmb/d for the Mar 1 week. There is no change to our view that the weekly estimates for March are still likely too low by ~100,000 b/d for Q1/19 but the estimates are at least closer to the actuals. Note that the revised EIA Short Term Energy Outlook for Feb 2019 estimated average US oil production in Q1/19 (see our Feb 17, 2019 Energy Tidbits) to be 12.15 mmb/d which is still approx. 50,000 b/d above of 12.1 mmb/d for the Mar 1 week. Below we pasted an excerpt from the EIA weekly oil production data. [LINK].

Figure 4: Weekly Oil Production

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	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								

Source: EIA

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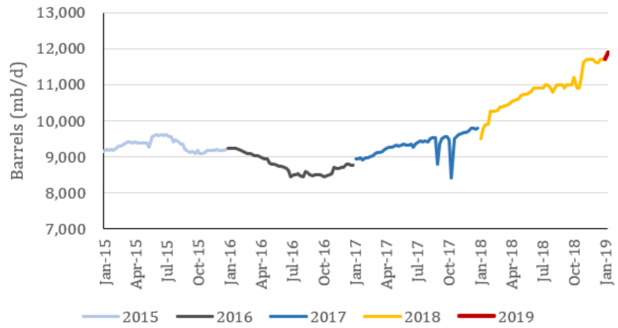
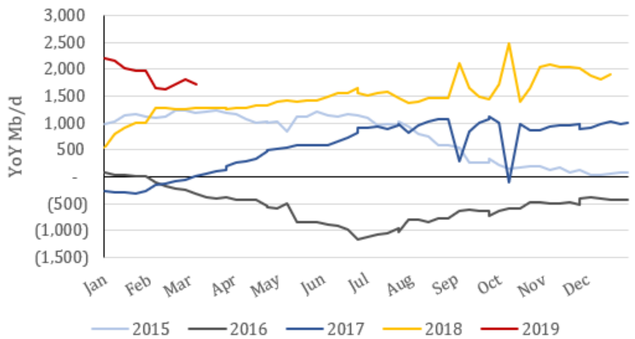
Figure 5: US Weekly Oil Production



Source: EIA, SAF

Figure 6: YoY Change in US Weekly Oil Production



Source: EIA, SAF

Oil – API warns Colorado's proposed oil bill threatens hundreds of thousands jobs

Colorado oil bill threatens hundreds of thousands jobs

Last week's (March 3, 2019) Energy Tidbits memo was titled "*Colorado Democrats Proposed Friday Night Bill Will Be A Massive Blow To The Oil Industry*" based in the new oil and gas bill introduced late on Friday in Colorado. We were surprised by the lack of interest in this bill, but we suspect that interest will pick up with the American Petroleum Institute's Wed comment on the bill "*Senate Transportation & Energy Committee Passes Bill That Threatens Hundreds of Thousands of Jobs, Billions of Dollars of State Revenue, and Hundreds of Millions In Education Funding*" [LINK]. And more importantly, this bill is moving quickly to a law. As of Friday night, the bill had been approved in committee and is reportedly going to the floor of the state senate on Tues. If approved by the Senate, it will go to the House of Reps for hearings and a floor vote. If the House deals with as quickly, that would be another week or so. This bill is moving fast and could be law within 10 days to 2 weeks! The API leads off "*Tonight, the Colorado State Senate Transportation & Energy Committee passed SB19-181 on a party-line vote. The bill would at the very least hinder, if not prohibit energy development in Colorado, directly threatening hundreds of thousands of jobs, billions of dollars of state revenue, and hundreds of millions in education funding. Further, the Democratic Senate and House leadership seems intent on pushing this misinformed bill forward, despite it being fraught with unintended consequences".* Our concern is that this bill, if passed, will hugely reduce capital allocation to Colorado oil and gas. We just don't see how an oil and gas company can continue spending their 2019 capex plan in the face of the huge added risk just brought to the value of oil and gas assets in Colorado. Plus we remind that this is really only the opening push from this new Colorado state government on their push against the oil and gas industry. The API release has other specific concerns, but their comments are focused solely on this bill and not making any comment that this is simply the first bill of this new legislature and that there will be more to come. We recognize that the bill still has to be passed, but our preference is to look ahead and warn of the major negative from this bill if passed. Our Supplemental Documents package includes the API release and the Denver Post March 8 update [LINK] .

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Colorado Dems proposed bill will be a massive blow to the oil and gas sector

The following is what we included in the March 3, 2019 Energy Tidbits memo on the bill. "There is no way to describe it, but to say the Colorado oil and gas sector was dealt a massive blow late Friday, when the Colorado Democrat controlled senate and house legislature introduced "*Senate Bill 19-181: A Bill For an Act Concerning Additional Public Welfare Protections Regarding the Conduct of Oil and Gas Operations*". This bill is worth a read. We don't see it as an end around to pass a defeated Proposition 112, rather its worse than Proposition 112. Its hard to see an oil and gas company deciding to allocate capital to Colorado if this bill is passed. There are multiple negatives to the oil and gas sector if the bill is passed in its current form. Small companies will be unable to operate due to new required indemnifications and insurance, and big companies won't want the unknown risks. (i) It fundamentally changes the way oil and gas is conducted and controlled in Colorado. Local governments would be involved in all parts of oil and gas operations. Approval of well permits in their areas is one key area, but there is much more. They can require more indemnifications and insurance. Section 4 give the local govt approval of location and siting of oil and gas facilities and well locations. The local govt can "*regulate oil and gas operations to address*" items including the location and siting of oil and gas facilities, (ii) oil and gas locations, water quality and source noise vibration, odor, light, dust, air emissions and air quality. Financial securities, indemnification and insurance as appropriate to ensure compliance with the regulations of the local governments, All other nuisance type effects of oil and gas development, and Otherwise planning for and regulating the use of land so as to provide planned and orderly use of land and protection of the environment in a manner consistent with constitutional rights. Section 4 has more. Local govt will have authority to inspect all facilities subject to local govt regulation, and impose finds for leaks, spills and emissions. And also to impose fees on operators to cover reasonably foreseeable direct and indirect costs of permitting and regulation and the costs of any monitoring and inspection program… (ii) Major shift in the regulatory board, which is the Colorado oil and gas conservation commission. The Bill says *The 9-member commission currently includes 3 members who must have substantial experience in the oil and gas industry and one member who must have training or experience in environmental or wildlife protection. Section 8 reduces the number of industry members to one and requires one member with training or substantial experience in wildlife protection; one member with training or substantial experience in environmental protection; one member with training or substantial experience in soil conservation or reclamation; one member who is an active agricultural producer or a royalty owner; and one member with training or substantial experience in public health*." (iii) As expected, the new law is broader and includes a clear overriding mandate to minimize emissions, but it isn't clear what level of emissions. And don't forget above, local govts have their emissions regulation. (iv) if the bill is passed, there will be no well permits issued until all the new regulations/laws are enacted, which has to take several months. (v) the bill also says no more forced poolings, which causes increasing problems as well lengths become longer. (vi) then there are wildcards like this clause "*it is not neither the intent nor the purpose of this article Article 60 to require or permit the proration or distribution of the production of oil and gas among the fields and pools of Colorado on the basis of market demand. It is the intent and purpose of this article Artlcle 60 to permit each oil and gas pool in Colorado to produce up to its maximum efficient rate of production, subject to the protection of public health, safety and welfare, the environment, and wildlife resources and the prevention of waste …….*" (vii) There is much more, but this is the big picture focus for what Colorado wants to do. This is the opening salvo, it's a massive blow, but there has to be more based on this direction. Our Supplemental Documents package includes the full 27-pg bill. [LINK] and a good Denver Post recap of the bill [LINK].

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Oil – Cdn crude by rail exports hit 189,000 b/d to Gulf Coast in Dec

Cdr crude by rail to Gulf Coast hits 189,000 b/d

On Fri, the EIA released its movements of crude oil by rail for Dec [LINK]. It estimates Cdn crude oil imports in Dec were 346,000 b/d. This is just below the EIA's record of 350,900 b/d in Oct 2018, and up YoY 204,900 b/d from Dec 2017. The EIA's estimates are not a surprise given the National Energy Board previously reported [LINK]its estimate that Cdn crude by rail exports in Dec were 353,789 b/d (see our Feb 24, 2019 Energy Tidbits). However, the EIA data provides a split of Cdn crude by rail exports by PADD. The EIA estimates Cdn crude by rail exports were 189,000 b/d to PADD 3 Gulf Coast, 88,000 b/d to PADD 2 Midwest, 58,000 b/d to PADD 1 East Coast, and 11,000 b/d to PADD 5 West Coast. Below is the EIA's table.

Figure 7: U.S. Movements of Crude Oil By Rail (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	84	0	28	0	182	294	0
PADD 3	1	0	85	0	1	87	0
PADD 4	15	0	34	0	3	52	0
PADD 5	0	0	0	0	0	0	0
United States	100	0	147	0	186	433	0
Canada	58	88	189	0	11	346	NA
Total	158	88	336	0	197	780	NA

Source: EIA

Oil – Alberta crude by rail loadings estimated down 49% in Feb vs Jan

Alberta crude by rail down ~49% MoM in Feb

Our Feb 24, 2019 Energy Tidbits noted CN mgmt. comments that week on how very cold weather like early Feb can cut crude by rail train loads in half. CN mgmt. discussed very cold weather days (Tier 3 weather conditions) like early Feb and said "*And to Keith's point, when you look at the number of days that we were under a Tier 3; Tier 3 means that we have to reduce the size of our train by half, so which means that we need double the number of trains to move the same amount of volume*." Bloomberg terminal article on Thurs referenced Genscape crude by rail loadings in Feb for Alberta and how they were down about 50% vs Jan. Note this was data for Alberta only and did not include Sask crude by rail loadings. Bloomberg wrote "*Feb. Alberta Crude-by-Rail Loadings at Lowest Since May: Genscape. Regional crude-by-rail average in Feb. was 144k b/d, a m/m drop of 137k b/d, Tara Goode, spokeswoman for Genscape, says in an email. * Genscape monitors ~80% of Western Canadian rail volumes*".

Lower crude by rail is stopping a faster reduction to Alberta curtailment

We suspect the person most disappointed by the cold weather is Premier Notley as she undoubtedly wants to be able to cut as much of the curtailment as possible before she announces the election call. Our Feb 3, 2019 Energy Tidbits noted her initial 75,000 b/d reduction in the curtailment and how the Alberta announcement [LINK] then said "*Since the production limit was announced in December 2018, storage levels in Alberta have dropped ahead of schedule, declining by five million barrels to a total of 30 million barrels in storage. Analysis based on independent data suggests storage levels have been decreasing roughly one million barrels per week since the start of 2019 and are on track to continue clearing the storage glut that led to unprecedented discounts for Alberta oil in late 2018*." Using the Genscape estimates above, a drop of 137k b/d for Feb is 3.836 million barrels less of a fix to Alberta oil storage in Feb.

Oil – Oil input into refineries up 100,000 b/d to 15.990 mmb/d

Oil input into refineries up 100,000 b/d

Crude oil input to refineries was up 100,000 b/d to 15.990 mmb/d for the Mar 1 week. This compares to last week, when crude oil inputs were up 179,000 b/d, and two weeks ago when crude inputs were down 57,000. Refinery utilization was also up 0.5% to

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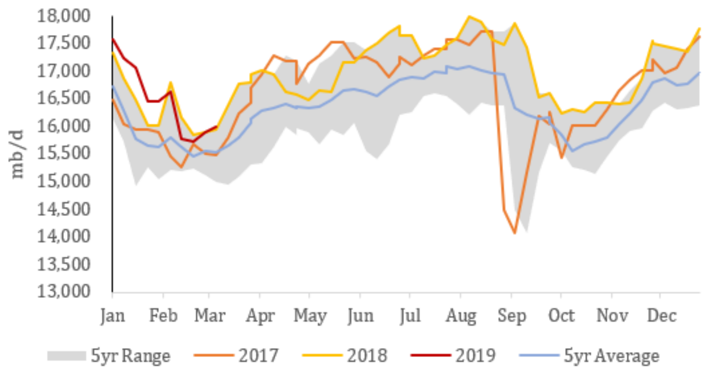
87.5% utilization. Seasonal refinery turnarounds and unplanned outages pushed crude oil inputs lower in early Feb. Increasing crude oil inputs for the Feb 22 and Mar 1 is in line with the normal seasonal trend. Below is our graph of the EIA weekly crude oil input to refineries.

Figure 8: US Refinery Crude Oil Inputs (thousand b/d)



Source: EIA, SAF

Oil – Great Falls refinery damage not significant, Cdn heavy ~8,000 b/d should be fine

Only minor damage at Great Falls refinery

It looks like the Thursday afternoon Calumet Great Falls (Montana) refinery small explosion and fire didn't have any major damage to the refinery. The refinery owner, Calumet Specialty Products, said "*Calumet Montana Refining Operations Continue with Limited Impact Great Falls, Montana – Calumet Montana Refining is open and operating following a fire today. The fire was isolated to a small portion of the plant and the rest of the refinery continues operation. No injuries occurred. While an investigation into the cause of the fire and damage assessment continues, the impact on plant operations and production is limited. Full staff is still reporting to work and working full shifts.*" If this had stayed down, it would have had a minor impact on Cdn heavy oil. Calumet notes the refinery has a capacity of approx.. 25,000 b/d. The EIA notes that the oil imported from non-OPEC countries is ~8,000 b/d and is 20.1 API and 1.21% H2S ie. Cdn heavy oil pipeline spec. Our Supplemental Documents package includes the Calumet refinery update. [LINK]

Oil – US "NET" oil imports up 1.640 mmb mmb/d

US NET oil imports +1.640 mmb/d

US "NET" oil imports were up a big 1.640 mmb/d to 4.198 mmb/d for the Mar 1 week. This represents a big change from last week, when net oil imports were down 1.357 mmb/d to 2.558 mmb/d for the Feb 22 week. Oil imports were +1.084 mmb/d to 7.001 mmb/d for the Mar 1 week, vs 5.917 mmb/d last week. Oil exports were lower than last week, down 556,000 b/d to 2.803 mmb/d for the Mar 1 week, vs 3.359 mmb/d last week. We suspect the data was impacted by Houston Ship Channel interruptions, at times due to fog conditions. Some items to note on the oil import by country data. (i) Canada was up 506,000 b/d which was in part due to warmer weather allowing for increased crude by rail volumes when compared to mid-Feb. Note that our Feb 24, 2019 Energy Tidbits memo highlighted CN Rail's comments on the how the cold weather severely reduces crude by rail capacity. (ii) Venezuela was down 125,000 b/d to 83,000 b/d, which is what we would have expected due to the US sanctions. (iii) Mexico was up 455,000 b/d to 915,000 b/d, which is a big import level relative to increasing US oil production, which may signal that the 915,000 b/d is not sustainable. (iv) Ecuador was up 227,000 b/d to 327,000 bd. This is a big increase for Ecuador and is almost up to the recent high of 341,000 b/d that was set for the Feb 1/19 week. [LINK]

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Figure 9: US Weekly Preliminary Oil Imports By Major Countries

	Jan 4/19	Jan 11/1	Jan 18/1	Jan 25/1	Feb 1/19	Feb 8/19	Feb 15/1	Feb 22/1	Mar 1/19	WoW
Canada	3,760	3,571	4,063	3,544	3,701	3,190	3,288	3,047	3,553	506
Saudi Arabia	1,007	684	970	442	610	415	594	346	697	351
Venezuela	704	598	523	587	345	117	558	208	83	-125
Mexico	270	759	492	566	497	529	911	460	915	455
Colombia	393	455	143	415	268	124	388	349	292	-57
Iraq	380	343	618	299	343	406	845	310	217	-93
Ecuador	150	242	203	176	341	119	99	100	327	227
Nigeria	93	76	427	63	87	0	0	29	0	-29
Kuwait	0	67	0	0	0	0	138	176	111	-65
Angola	0	0	0	0	0	0	0	0	0	0
Top 10	6,757	6,795	7,439	6,092	6,192	4,900	6,821	5,025	6,195	1,170
Others	1,089	732	752	991	954	1,310	701	892	806	-86
Total US	7,846	7,527	8,191	7,083	7,146	6,210	7,522	5,917	7,001	1,084

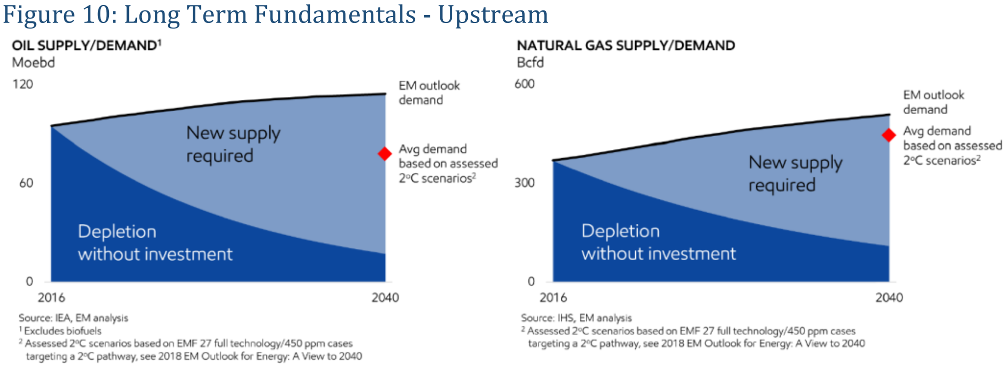
Source: EIA, SAF

Exxon reminds need to replace oil declines every year

Oil – Exxon reminds of the challenge of replacing existing global oil decline rates

There were many great sector insights from the Exxon analyst day (see later item in the memo), but one we wanted to highlight was Exxon reminding of the challenge to replace decline rates in the existing global oil production base. They aren't calling for any peak oil supply fears of the 2000's, but rather highlighting industry has to add significant oil production every year just to replace declines and stay even. Exxon forecasts *"Oil demand is expected to increase about 0.7% per year, driven by commercial transportation and chemical feedstock. Gas demand is expected to grow by 1.3% per year and that's to meet electricity and industrial demand."* And then highlights the challenge saying "*Now these demand projections to some seem like a low growth. There are industry, the low growth industry. But I will tell you that that discounts the impact of depletion. When you factor in depletion rates, the need for new oil grows at 8% per year, and new gas at close to 6% per year. You can see this when I overlay these demand charts with the depletion curves. The dark blue areas on the chart shows existing supplies that decline over time. The light blue area shows the additional supplies needed to meet the expected demand. I think you can all see from this chart that under any demand scenario, the depletion nature of this business in and of itself supports the need for significant industry investment."* Exxon then says "*So even under a 2 degree demand scenario, depletion drives the need for significant industry investment. So for us this suggests that perhaps the biggest risk to the industry today is underinvestment. There is an additional perspective on the magnitude of this challenge. The amount of new resources required is extraordinary; estimated at 550 billion barrels of new oil and 2,100 trillion cubic feet of new gas between 2016 and 2040. In a 2 degree scenario, the need for new resources drops to 370 billion barrels of oil and 1,800 trillion cubic feet of gas. That is still a lot of volume, requiring a lot of investment*." Below are the key Exxon graphs on this depletion risk.

Figure 10: Long Term Fundamentals - Upstream



Source: Exxon

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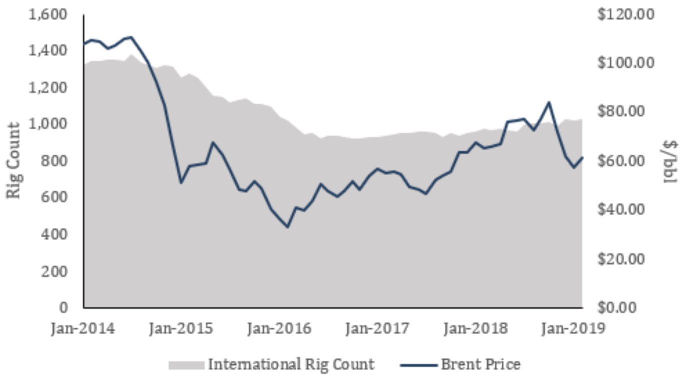
Oil – Baker Hughes international rigs +4.9% YoY to 1,017 rigs in Feb

Baker Hughes updated its monthly international rig count this week that has 1,027 international rigs at work in Feb, which is 4.9% YoY from 979 international rigs in Feb 2018. There is a modest increase in international rigs, which is consistent with the major oil and gas service company conference calls. However, our graph of the Baker Hughes international rigs also illustrates Exxon's concern on underinvestment. There were 1,341 international rigs in Feb 2014.

International rigs +4.9% YoY

Figure 11: Baker Hughes International Rig Count Vs Brent Oil Price



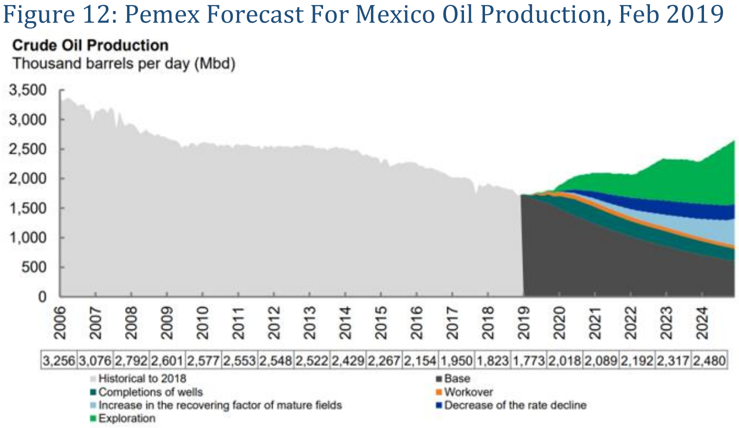
Source: Baker Hughes, Bloomberg

Oil – Pemex forecasts Mexico 2019 oil production to be down 2.9% YoY to 1.773 mmb/d

Its really too bad that Canada doesn't have pipeline capacity to take heavy oil down to the Gulf Coast given the continued decline in Mexico and Venezuela heavy oil production. One of the items we forgot to include last week was the recent Feb Pemex investor presentation [LINK], which included Pemex's forecast for Mexico crude oil production to average 1.773 mmb/d, down 2.9% YoY vs 1.823 mmb/d in 2018. We wanted to paste in the below Pemex graph that shows oil production has steadily decreased from 3.256 mmb/d in 2006. Pemex is expecting oil production to increase in 2020.

Mexico 2019 oil production down 2.9% YoY

Figure 12: Pemex Forecast For Mexico Oil Production, Feb 2019



Source: Pemex

Oil – Is the US resigned to a longer time for a Maduro regime change?

US seems resigned it will take time for Maduro to go

A continuing positive to oil prices, especially heavy oil prices is that Venezuela's oil industry continues to deteriorate under Maduro staying in power. The situation in Venezuela could change overnight, but this week seemed to reinforce our views last week, post the US State Dept comments, that it feels like a regime change may not be as imminent (ie in March) as we have been expecting. It's not because Venezuela isn't facing an increasing financial and social

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crisis from the impacts of US sanctions. Rather with Russia stepping up to support Maduro, it seems the US realizes it has to try to get Russia onside for any quick force Maduro out. Plus the military so far hasn't deserted Maduro. And if so, the US seems resigned that they may have to let the events in Venezuela play out (with their impact being on sanctions) and see if and when the people will force Maduro out. (i) Reports on Monday that Russia was stepping up to also send naptha to Venezuela. We believe the key for Maduro is does he have enough life preservers to hang on. This week, he was thrown a critical life preserver with Russia sending naptha. This is critical for PDVSA that needs naptha to blend with its heavy oil to lighten it up enough to pipeline to its export terminals. The US has been the supplier of naptha and the US sanctions cut off the naptha. PDVSA needs naptha to try to keep oil production up. (ii) US seems resigned to a longer time for a regime change, or at least letting the events play out as they will (of course with the US doing all they can indirectly to speed up the change). Last week's (March 3, 2019) Energy Tidbits highlighted the good news for Maduro when the US State Dept seemed to take military options off the list of "all options". On Wed, Telemundo [LINK] had an exclusive interview with VP Pence. Pence's comments did not suggest a regime change was likely to happen quickly. Telemundo is owned by NBCUniversal and NBCUniversal provided a transcript. [LINK] . Pence had said "*….we're going to continue to stand with all the freedom loving people in Venezuela until democracy is restored".* Telemundo then asked "*How much longer? Do you have a timeline*?" Pence replied "*There is no timeline. We believe that the people, through their duly elected National Assembly have spoken. Interim President Guaidó has assumed authority under their constitution, but our focus is on seeing a restoration of the rule of law and democracy in Venezuela. The humanitarian crisis in that nation impacting the entire region is almost hard to imagine. Some three million people have fled Venezuela, many going through Colombia and Brazil. When my wife and I travelled to the region, more than a year ago, we met with families that had fled the depravation and the oppression under the Maduro rule. The truth is if things don't change this year, we anticipate that maybe two million more will flee. The time has come for Maduro to go. The time has come for the world to rally around interim President Juan Guaidó and America will continue to stand with him until their freedom is restored.*" Our Supplemental Documents package includes the transcript of the Telemundo interview.

Oil – But more bad news for PDVSA in trying to generate cash flow

More bad news for PDVSA

We still believe that a lack of cash flow will be the tipping point for a Maduro regime change – he needs money to fight the fight. And unfortunately for Maduro, it was another bad week for PDVSA in its ability to generate cash flow. (i) Reuters report [LINK] this morning "*U.S. pressing India to stop buying Venezuelan oil: envoy*", "*The United States is pressing India to stop buying Venezuelan oil that is a major source of revenue for President Nicolas Maduro's government, Washington's top envoy for Venezuela said, as the Trump administration this week threatened more U.S. sanctions to cut off Maduro's financial lifelines",* and "*Abrams described the U.S. approach as "arguing, cajoling, urging.*" Reuters reported shipping data estimates were 297,000 b/d of Venezuela crude to India in Feb. (ii) The massive blackouts this week had to impact Venezuela oil production. Maduro immediately blamed the US and right wing opposition. But the reality is that the likely cause of the blackout is the deteriorating Venezuela infrastructure. And there have been a number of major electricity issues in the past year. A big recent blackout that hit all 23 states was in Oct. Our Oct 21, 2018 Energy Tidbits noted how a key transformer explosion power outage hit all 23 Venezuela states. Electricity is needed along the entire oil supply chain from the field to pumping stations along the pipeline to export loading terminals. The blackout had to impact Venezuela oil production. (iii) Upcoming $70 mm interest payment. Bloomberg terminal article on Friday wrote "*Citgo Petroleum Corp. is looking to get a $1.2 billion loan to fund its daily operations as U.S. sanctions cripple its parent company, state oil giant Petroleos de Venezuela SA*" and "*Petroleos de Venezuela, or PDVSA, has an upcoming interest payment of around $70 million coming due next month on its 2020 bonds. Those notes are backed by a stake in Citgo. Failure to pay could be catastrophic for PDVSA, and may lead bondholders and other creditors to attempt to seize the Citgo assets. The presentation doesn't mention the PDVSA notes, and U.S. sanctions currently prevent Citgo from paying*

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dividends to PDVSA. A new Citgo board appointed by Venezuelan National Assembly President Juan Guaido has considered using an escrow account that may hold up to $560 million to pay the PDVSA 2020 bond. It's unclear how the U.S.-backed Guaido, the Venezuelan legislature or President Nicolas Maduro are involved in the new Citgo loan." (iv) National Post [LINK] and others reported "*A World Bank arbitration panel ruled on Friday that Venezuela must pay U.S. oil giant ConocoPhillips more than $8 billion as compensation for a decade-old expropriation dispute, roughly the same amount as the South American country's foreign currency reserves. The bank's ICSID tribunal had ruled in 2013 that the 2007 expropriation of ConocoPhillips investments in two heavy crude oil projects violated international law*".

Oil – Libya NOC changed Haftar position led to lifting of the Sharara force majeure

Libya lifts Sharara force majeure

One of the big oil news this week was the Libya National Oil Corporation March 4 lifting of the force majeure at its 315,000 b/d Sharara oil field. The reports this morning are that Sharara is already back up to ~200,000 b/d. The NOC said this was possible "*following the removal of the armed group responsible for its blockade and production loss of 1.8 billion USD. Sharara operating company Akakus has received written assurance from the Libyan National Army's Brigadier General Al Rifi Kennah Ahmed Ali, Commander of the Oil Assets Protection Unit, that all individuals subject to Public Prosecutor arrest warrant have been removed from the field and will not be readmitted to site. Additional security measures for on-site staff are being implemented, with perimeter security and safe 'green zones' a priority.*" The NOC said "*Production is expected to resume within the next few hours, with regular output to be reached over the coming days. Plans are also in place to repair the 20,000 barrels per day lost production capacity destroyed by looting and vandalism during the blockade*". This sudden lifting of the force majeure was in line with last week's (March 3, 2019) Energy Tidbits. There was a key Libya news story on Tues Feb 26 that showed a subtle, but significant change in the Libya NOC position on Sharara. This key story led to the posting of our Feb 27 blog "*Libya NOC Changed Position On Haftar Armed Forces Points To An Earlier End To Force Majeure At 315,000 b/d Sharara Oil Field*" [LINK]. On Feb 26, the NOC indicated a change in their position with respect to the Haftar armed forces that we believed pointed to the potential for the lifting of the Dec 10, 2018 force majeure of the 315,000 b/d Sharara oil field in a matter of weeks and not months. Up until Feb 26, it seemed the force majeure would last unless the Haftar armed forces decided to, or were forced to leave southwest Libya and return to the east. But on Feb 26, Libya's NOC brief announcement looked significant as the Libya NOC seems to have backed away from its initial requirements that all military forces withdraw from the oil facilities to a position to remove all members of the "*Civilian*" armed militia (the ones that led to the Dec 10 force majeure). Most importantly, there was no Libya NOC requirement for the Haftar armed forces to leave the facilities for any lifting of the force majeure. Rather on Feb 26, the Libya NOC said "*Despite all concerned parties not being present at the meeting, NOC is seeking assurances from the General Command of the Libyan National Army that all outstanding arrest warrants will be served - and that wanted parties will be removed from the field*." On Feb 27, we also saw the first operational signs that the Libya NOC is comfortable with the security at Sharara oil field – the Daily Mail reported this morning that the first plane in more than two weeks has brought back oil field workers back to Sharara. Oil field workers are needed, Sharara can't be brought back on stream until the oil field workers assess the field and then work to bring the oil field production back onstream. These events led to our Feb 27 blog. Our Supplemental Documents package includes our Feb 27 blog and the Libya NOC force majeure lifting announcement.

Oil – Iran continues to comply with the 2015 nuclear deal

Iran complies with 2015 nuclear deal

We don't believe Trump removes US sanctions on Iran, partly because we see his sanctions as his one tool to help control/regulate oil prices. If oil prices are too low and hurting the US oil industry and overall economy, he can ramp up the compliance to the sanctions. If prices get too high, he can, like he did in Q4/18, give waivers. The US imposition of sanctions against Iran last year has taken away the focus from whether or not Iran has been complying with its nuclear obligations under the 2015 nuclear deal. This week, the IAEA (International Atomic Energy Association) posted its "*IAEA Director General's Introductory Statement to the Board of*

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Governors" [LINK],which noted that Iran continues to comply with its obligations under the 2015 nuclear deal. It wasn't a big reporting item in the overall statement, but the IAEA wrote "*My report on Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015) covers relevant activities of the Agency in that country in the last few months. Iran is implementing its nuclear-related commitments under the Joint Comprehensive Plan of Action. It is essential that Iran continues to fully implement those commitments. The Agency continues to verify the non-diversion of nuclear material declared by Iran under its Safeguards Agreement. Evaluations regarding the absence of undeclared nuclear material and activities in Iran continue. In implementing verification activities in Iran, the Agency analyses all safeguards-relevant information, which normally takes time, and takes action when appropriate. The Agency undertakes analysis and takes action in an impartial, independent and objective manner, within the existing safeguards framework and in line with established safeguards practice*."

Oil – Saudi Arabia says no need to look at OPEC+ cuts until June

Saudi say wait till June to look at cuts

Reuters reported yesterday [LINK] on its exclusive interview with Saudi energy minister al Falih that he sees no reason for OPEC to look at its quota levels in April unless there is some unforeseen disruption. Rather al Falih says they can look at in June. Reuters wrote "*The Organization of the Petroleum Exporting Countries and its allies such as Russia — known as the OPEC+ alliance — will meet in Vienna on April 17-18 and another gathering is scheduled for June 25-26. Falih said the group was unlikely to change its output policy in April and if required will make adjustments in June. "We will see what happens by April if there is any unforeseen disruption somewhere else but barring this I think we will just be kicking the can forward," Falih said. "We will see where the market is by June and adjust appropriately," Falih said".*

Oil – al Falih says Aramco IPO will be within two years

Aramco IPO within 2 years

It probably won't have the same early impact as last time, but Saudi energy minister al Falih told reporters [LINK] in Riyadh on Wed that Saudi Arabia expects the Saudi Aramco IPO within two years. It is a positive, but not likely to have an impact on oil prices in 2019. Rather the test is more likely to come in 2020 in the setup for oil prices for the IPO and how Saudi Arabia is working to manage global oil prices.

Oil & Natural Gas – Excellent sector insights from BMO's mini energy conference

Excellent insights from BMO's team

We had the opportunity to attend the BMO Analyst Calgary Energy Mini Conference on Monday. It's a great conference for investors as there were only 3 clients in the meeting and the meeting format was mostly an hour of Q&A with Calgary, Houston and New York based BMO institutional team members. Presenters have to know their material in this format and we thought the BMO team did an excellent job. Some of the key takeaways were (i) Bearish long term view of AECO, but look for HH to get stronger post 2019. (ii) Right now, LNG Canada's two phases are the only BC LNG projects expected to go. BMO reminds that the economics of LNG Canada phase 2 will be excellent given it builds on the key infrastructure being put in place for phase 1. (iii) A good example is Coastal GasLink pipeline that can be expanded for phase 2 with only added compression. (iv) See Marcellus gas growth slowing down from 2 bcf/d/yr to 0.5 to 1.0 bcf/d. (v) Excellent recaps of US shale/tight plays including their database on well productivity per play. (vi) SCOOP/STACK play has lost the lustre it had 18 months ago, when it was expected to be the #2 play behind Permian. The downspacing didn't work, and well spacing is moving back away from 6 to 8 wells per unit to 3 to 5 wells per unit. (vii) Niobrara is another play that isn't working as well as expected, or isn't providing the expected growth outlook. BMO did not mention the new oil bill (discussed earlier in this memo) that was introduced on Fri night, but we suspect they didn't see it as they traveled to Calgary on Sunday. (viii) Eagle Ford,. Have had good results by EOG and COP in the sweet spot of the play, but outside the sweet spot (ie. down to the south west), the play has struggled. (ix) Powder River Basin. There was a lot of interest as this play was "*hyped*" up in Q2 as the next big play. Investors are still on the sidelines, but EOG, Devon are keen on PRB. (x) Bakken,. Good 2018, but concerns that drilling sweet spots. But viewed as better play than the

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SCOOP/STACK, Niobrara and non-sweet spot Eagle Ford. (xi) Permian oil pipelines will be overbuilt relative to near term capacity. (xii) See US oil growth in 2019 of approx. +1.1 million b/d, which would be up ~12% YoY vs 2018, but slowing US growth on the 2019 exit rate to only 4% to 5% YoY vs 2018 exit rate.

Oil & Natural Gas – Excellent sector insights from Exxon's analyst day

Excellent insights from Exxon analyst day

We listened to Exxon's analyst day on Wed. There were many excellent sector insights from the webcast and we note some of the key insights. (i) Earlier, we noted the Exxon reminder on the challenge to replace declines in existing oil production. (ii) IMO 2020. *"Demand for fuel oil which is at the bottom of the barrel declines pretty significantly after 2020, as a result of the IMO low sulfur standards."* (iii) Distillates. *"Demand for distillates, we anticipate growing by 20% by 2025, due the economic growth that I've talked about and the corresponding increase in commercial transportation and aviation activity.* (iv) Chemical products. *"Significant growth for chemical products as people move into the middle class and their standards of living improve, drive an increasing demand for chemical feedstocks."* (v) EVs. *"While efficiency improvements and deeper penetration of electrification in light new vehicles leads to a relatively flat gasoline consumption."* (vi) Headline is Permian to be >1 mmboe/d by 2024. They didn't provide liquids % but said they have high liquids ratio. They had questions on the hyperbolic Permian growth post 2020 and noted that is because the focus to date is on delineating and building out infrastructure to set up the accelerated growth. (vii) Highlighted how the Permian is moving to more of a manufacturing process with multi well pads. Their multi well, multi bench/zone development is to maximize resource recovery ie. drill all the benches/zones at one time. (viii) Push to drill all benches/zones at one time is also a reminder that this approach is difficult for smaller companies as all the capex for these multi well pads has to be spent up front and cash flow can be several months away. (ix) Guyana's latest discoveries are not in their >750,000 b/d by 2025 or in the 5.5 billion boe recoverable resource. (x) Mozambique LNG FID should be in 2019 with startup in 2024. (xi) PNG LNG. No specific comments on FID timing or when startup would be for the next phases. In the recent Q4, we highlighted surprise that it wasn't in the FID potential projects in 2019, and this seems to reinforce that. However, based on the capex slide for 2019/2020 showing PNG, we assume they are pointing to 2020 FID. (xii) LNG supply gap by 2025. They see LNG demand to exceed 460 mm tonnes by 2025 ,which is ~60 bcf/d, and that current and FID's projects on supply 90% of this amount so there is a need for significant more LNG ie. ~6 bcf/d just to meet the gap. (xiii) Not too much on Kearl. Kearl on track to increase to 240,000 b/d by 2020. Their focus is on step out technologies ie. upgrading the bottom of the barrel to improve quality to reduce diluent, believe we can provide our downstream capability to do this. (xiv) Good map showing all exxon refining /chemcals on gulf coast. (xv) Shot a Rachel Notley, they said the western Canada diffs used in the projections were back when western Canada had a free market. Our Supplemental Documents package includes from the slide deck.

Oil & Natural Gas – Sector insights from Chevron's analyst day

Sector insights from Chevron analyst day

We listened to Chevron's analyst day on Tues. There were only a fraction of the sector takeaways vs the Exxon analyst day because the live webcast was extremely short. Webcast listeners were at a significant disadvantage to the in person meetings, which we assume were substantially longer. (i) Earlier we noted the question if Chevron's disclosure was pointing to the potential for a Kitimat LNG FID in 2020 or 2021. (ii) The headlines from the meeting were the Permian growth numbers. As expected, they increased their Permian growth expectations. "*we're raising our guidance in the Permian. We're projecting Permian unconventional production to reach over 600,000 barrels a day by the end of 2020, and over 900,000 barrels a day by the end of 2023. Our updated guidance is still based on a fleet of 20 operated and 7 to 10 net non-operated rigs over the period. And we still expect to be cash flow positive in 2020 at $55 a barrel WTI. We have the capability, and the land position to further expand our drilling fleet and obviously, this would represent upside to what we're showing you today*." (iii) Permian has the best IRRs in their portfolio. "*The second thing I would say about that is that, while the Permian may dilute the cash margin a little bit, the returns on the Permian investments are far*

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and away the highest within the portfolio. So, these are the most economic barrels that we have to invest in." (iv) Short cycle makes Chevron stronger. "*Let me say it again, we're a much stronger company than we were just a few years ago. We've completed multiple major capital projects. Those projects are now generating strong cash flow. We have significantly reduced our pre-productive capital. We've refocused our investment priorities for shorter cycle projects that deliver returns more quickly, and expect 70% of this year's spend to deliver cash flow within two years*" (v) Chevron is positive on the Duvernay, but it was interesting that they chose to highlight the Vaca Muerta second, following the Permian. They don't provide the IRRs, but the Duvernay is bigger, has more locations, and lower onstream costs than the Vaca Muerta. However, there is no question that the Vaca Muerta is moving into a more aggressive development phase by Chevron and others. (vi) One issue for Vaca Muerta is that they need infrastructure in the north part of the play. (vii) In their forecast of global product demand, mgmt. reminds that the best growth is in petrochemicals. (viii) They try to remind investors that fossil fuels still have a good future. We wonder how that plays out with the global investor audience that seems to increasingly believe the demise of oil is coming sooner than expected. In the Q&A, mgmt. is asked about renewables, climate change on power generation. "*today, as I said, there is 7.5 billion people on the planet. A billion of those people don't have electricity today. It's hard to believe, but it's true. Nearly three billion of those people still use biomass or animal dung for indoor heating and cooking. By 2040, there'll be nine billion people on the planet. The 1.5 billion that are added are generally going to be in developing countries. There is a need for more energy around the world of all types and there's room for all types. And so we have core competencies in investing in the business that we know. We also invest in renewables. We've invested in wind and solar and biofuels, and intend to continue to learn in those areas of -- just as Jay said, deepwater has got to compete with other things within our portfolio for investment, so do renewables. And we need to find things that are economic, that are scalable for us to invest. And it doesn't mean that other shouldn't and others won't, but we see a very attractive set of opportunities for the foreseeable future that leverage our core strengths and wouldn't pull us away into things that perhaps we don't have as much experience in or that may still not be established at scale and with the same robust economics*." Our Supplemental Documents package includes excerpts from the analyst day slide deck.

Oil & Natural Gas – AER board appointees will raise concern with oil sector

New AER board appointees

There is a lot of consternation from industry on the news that the Alberta government issued an Order in Council [LINK] to appoint Ed Whittingham to the Alberta Energy Regulator (AER) board. He is extremely well known in the oil patch for his role as the former Executive Director for the Pembina Institute. This is significant when you consider the AER's description of its mandate [LINK] "*Our Mandate. The AER ensures the safe, efficient, orderly, and environmentally responsible development of oil, oil sands, natural gas, and coal resources over their entire life cycle. This includes allocating and conserving water resources, managing public lands, and protecting the environment while providing economic benefits for all Albertans."* The Calgary Herald [LINK] wrote "*Corbella: NDP government appoints anti-oil activist to the Alberta Energy Regulator. Alberta's NDP government has done it again — it has appointed an enemy of Alberta's oil and gas industry to oversee it, regulate it and advise on it. Ed Whittingham — the former executive director of the Pembina Institute from 2011 to 2017 — was appointed to a five-year, part-time, $76,500 per year directorship at Alberta's Energy Regulator (AER), with an additional $750 for each day he participates in meetings with the organization, which is tasked with ensuring "the safe, efficient, orderly, and environmentally responsible development of oil, oilsands, natural gas, and coal resources over their entire life cycle."* The media coverage missed the other same day Order in Council [LINK] whereby Alberta also appointed Linda Coady to the AER board. She used to be Enbridge's Chief Sustainability Officer who led Enbridge's "*public reporting and disclosure on its social and environmental performance and advises Enbridge's Senior Management and Board on the implementation of the company's Climate Policy and other strategies related to sustainable development challenges and opportunities*." We don't know Ms Coady, but the feedback we heard was positive on her ability to improve

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relationships with environmental groups. Its looks like those skills will be even more needed now on the AER board.

Oil & Natural Gas – Algeria's President to return in the midst of protests

Algeria president reportedly returning to Algeria today

The watch on Algeria will continue in the run up to the April 18 presidential election. As of our news cutoff at 7am mountain this morning, we haven't seen any confirmation that Algeria President Bouteflika's plane has landed in Algeria. It was supposed to land around 5 am mountain. He has been in Geneva for "routine" medical check for the past couple weeks. Protests have increased against his plan to run for a 5th term in the April 18 presidential election. There were even deaths and injuries in the protests last week. He has tried to quell the protests with the reports that he will only serve 1 yr if he is re-elected. Regardless, it sounds like this will be an increasing geopolitical risk story for the next five weeks. Algeria is in OPEC, produces around 1 mmb/d but is better known for being one of the big suppliers of natural gas to Europe via pipeline at just under 3.5 bcf/d or so. We've always wondered if and who is the power behind the throne. Bouteflika has been rarely seen since his 2013 stroke (he spent ~3 months in a Paris hospital) and any pictures of him show a frail man. He has been a hospital in Geneva for the past couple weeks. We also wonder if there is any spillover impact from the Libya conflict in southwest Libya. It was a week ago that the Haftar forces took control of southern Libya right to the border of Algeria

Figure 13: Middle East North Africa Map

Source: ResearchGate

Oil & Natural Gas – Oil and gas insights this week with CERAWeek in Houston

CERAWeek in Houston March 11 - 15

It should be a good week for oil and gas sector insights with the big CERAWeek being held in Houston from March 11-15. The news flow is normally excellent given that it is in Houston and there is huge media and analyst coverage. I only had the chance to attend CERAWeek once as a sellside oil and gas analyst and it is one of the best weeks for insights/tidbits on the energy call. The speaker list at CERAWeek includes all major global oil and gas people from industry, governments, agencies, advisories, banking, etc. There is a huge benefit to being in attendance as there aren't any webcasts. However, Bloomberg terminal typically has excellent reporting.

Capital Markets – Key S&P slides from their credit insights to Cdn oil and gas/midstream

Key S&P Cdn credit slides

Last week's (March 3, 2019) Energy Tidbits memo highlighted some excellent credit insights to Cdn oil and gas/midstream from the S&P Midstream Refining and Oil & Gas Breakfast Forum in Calgary on March 1. S&P provided the slide deck to attendees this week. We won't repeat all the insights, but two of the key insights were (i) S&P sees increasing funding and liability risk for Cdn midstreamers.. They were able to refinance in 2018, but they see funding risk become elevated with the increased volatility in capital markets. S&P sees $12 to $14b refinancing in 2019 that has to be done, and $24b of growth spending that is to be done in 2019 for a total of $36 to $38b. E&P sees this $36 to $38b in volatile markets elevates the funding risk and they will be closely watching. (ii) Environmental, safety and governance (ESG) has been below the radar for many. S&P notes that ESG is becoming an increasing factor in the actual credit rating.

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They said ESG was referenced in 1,325 ratings, and ESG was a ratings driver in 225 ratings split 106 for environmental, 77 for governance and 42 for social reasons. ESG is only gong to increase in impacting ratings. (iii) There were more insights in last week's memo. Our Supplemental Documents package includes a few of the S&P slides.

Capital Markets – Norway's wealth fund to sell >US$620mm of Cdn upstream equities

Norway to sell >US$620 mm of Cdn E&P stocks

One of the market news on Friday was that Norway's sovereign wealth fund would be selling its upstream E&P equities but retain its integrated oil equities. This means that >US$620 million of Cdn E&P stocks are to be sold. The Cdn E&P list as of Dec 31/18 included Advantage, ARC, Baytex, Birchcliff, Canacol. Cdn Natural, Crescent Point, Encana, Enerplus, Gran Tierra, Kelt, Manitok (note this was only $26k), NuVista, Obsidian, Paramount, Parex, Peyto, PrairieSky, Seven Generations, Tourmaline, Vermilion and Whitecap. Note we did not include Cdn service companies or integrated companies. Our Supplemental Documents list includes the energy portfolio as of Dec 31/18.

Capital Markets – Reducing energy exposure in flagship S&P/TSX 60 Index

S&P deletes ARX and CPG from TSX 60

No one will be surprised to see reduced energy exposure in the Friday night announcement "*S&P Dow Jones Indices Announces Changes to the S&P/TSX Composite Index and S&P/TSX 60 Index*". The changes to the flagship S&P/TSX 60 Index were to add Brookfield Infrastructure Partners and Shopify, and to delete ARC Resources and Crescent Point Energy. Our Supplemental Documents package include the S&P announcement. [LINK]

Energy is even more irrelevant to US investors

We were reminded this week of the irrelevance in the US to small/mid cap energy stocks at the March 4 BMO Analyst Calgary Energy Mini Conference. BMO noted that energy is irrelevant to Russell growth index with a 0.74% weighting vs 1.5% recently and a historical of 4% to 5%. And energy is only 9% of Russel value index. BMO noted that the significance of this is that most investors really don't follow energy closely, which leads to sensitivity on multiple gaps ie. a premium multiple can quickly get erased

Demographics – Singapore to raise retirement age

Singapore to raise retirement age

We have to believe that almost every region of the world outside Africa and parts of South America will be looking to do what Singapore is doing – raise the retirement age. The financial burden of old age/medical, etc benefits is increasing dramatically. There will inevitably be a push to try to control these costs, but we believe that the trend in many western countries is for increasing taxation of the wealthy and businesses to help with that burden. This week, the Straits Times reported [LINK] "*The first step for raising the retirement and re-employment ages beyond 62 and 67 respectively has been taken, as the Government, unions and employers agreed on the need for these changes. The tripartite consensus is a "significant milestone", said Manpower Minister Josephine Teo on Tuesday (March 5), sharing an update given to her by the Tripartite Workgroup on Older Workers, which has been looking at this issue and others since May last year. The group will now work towards a tripartite agreement on how far and how fast the ages should be raised*." The Straits Times also explains "re-employment", "*The re-employment age, up to which firms must offer eligible workers re-employment, though they have the flexibility to change job scopes and employment terms, also remains useful.*"

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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 Stream Asset Financial 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

Fukushima nuclear reactor disaster was March 11, 2011

It was on March11, 2011 that the huge 9.0 earthquake offshore Japan sent a huge 15 metre tsunami that hit Fukushima and its three Daichi nuclear reactors. The World Nuclear Association [LINK] writes "*causing a nuclear accident on 11 March 2011. All three cores largely melted in the first three days. The accident was rated 7 on the INES scale, due to high radioactive releases over days 4 to 6, eventually a total of some 940 PBq (I-131 eq). Four reactors were written off due to damage in the accident – 2719 MWe net. After two weeks, the three reactors (units 1-3) were stable with water addition and by July they were being cooled with recycled water from the new treatment plant. Official 'cold shutdown condition' was announced in mid-December. Apart from cooling, the basic ongoing task was to prevent release of radioactive materials, particularly in contaminated water leaked from the three units. This task became newsworthy in August 2013. There have been no deaths or cases of radiation sickness from the nuclear accident, but over 100,000 people were evacuated from their homes to ensure this. Government nervousness delays the return of many. Official figures show that there have been well over 1000 deaths from maintaining the evacuation, in contrast to little risk from radiation if early return had been allowed.*"

Hopefully, this trend will lead to the end of telephone surveys

We can't believe that anyone is thrilled when the phone rings at dinner time, you pick up the phone and say hello, there is about 4 or 5 seconds of silence, before a voice comes on the line asking if this is mr abc saying they are conducting a survey. And then most say no interest. It appears that not everyone does that, but its close at 94%. Pew Research posted its "*Response rates in telephone surveys have resumed their decline*" [LINK] that noted "*After stabilizing briefly, response rates to telephone public opinion polls conducted by Pew Research Center have resumed their decline. 2018, typical telephone survey response rates fell to 7% and 6%, respectively, according to the Center's latest data. Response rates had previously held steady around 9% for several years*". This is down from 36% 20 years ago in 1997 and 15% a decade ago in 2007.

"The last row of mom and pop shops" along Vancouver's Robson Street to close

Any long term resident or regular visitor to Vancouver will feel nostalgic to read the Business in Vancouver story "*Robson Street's last independent shops say goodbye*" [LINK]. Anyone who has strolled along Robson will know these old shopa. BIV wrote "*The last row of "mom and pop" shops along Vancouver's famous Robson Street will be closing its doors this summer, and in doing so, will mark the end of an independent retail era. Between Granville and Seymour Streets, on Robson's south side, you'll find a one-storey 1914 building that still houses Simon's Bike Shop, India Gate Restaurant and Time Frame Gallery. All three independent businesses have been in their current locations for more than 30 years. Newer tenants on the block include Red Burrito and Vancity Weed*. "

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