SAF GROUP

Energy Tidbits

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China's Winter Focus is For Energy/Electricity Security So It Will Load Up on Fossil Fuels

Welcome to new Energy Tidbits memo readers. We are continuing to add new readers to our Energy Tidbits memo, energy blogs and tweets. 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 just focusing on daily trading. Our priority was and still is to not just report on events, but also try to 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. Our target is to write on 48 to 50 weekends per year and to post by noon mountain time on Sunday.

This week's memo highlights:

1. China prioritizes energy/electricity supply this winter so will be building up, not reducing coal, natural gas, crude oil reserve and storage capacity (Click Here)
2. Reminder Nord Stream 2 faces a 2-mth EU review period after the 4-mth Germany review period ie. not likely a help this winter. (Click Here)
3. IEA seems to warn that a more realistic scenario is that peak oil demand isn't until around 2030 (Click Here)
4. Positive for OPEC+, White House ducks answering why keep a lid on US oil production instead of asking OPEC for more oil supply. (Click Here)
5. Unique thesis from DEBKA of a potential US/Russia/Iran/Israel different nuclear deal. (Click Here)
6. 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.
7. 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 – Natural gas injection of 118 bcf, storage now -532 bcf YoY deficit

YoY storage at -532 bcf YoY deficit

The EIA reported a 118 bcf injection (vs 111 bcf injection expectations) for the Oct 1 week, which was above the 5-yr average injection of 81 bcf, and above last year's injection of 75 bcf. Storage is 3.288 tcf as of Oct 1, decreasing the YoY deficit to -532 bcf, from from 575 bcf last week and storage is 176 bcf below the 5-year average vs 213 bcf below last week. Below is the EIA's storage table from its Weekly Natural Gas Storage Report [LINK].

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf) 10/01/21	09/24/21	net change	implied flow	Historical Comparisons: Year ago (10/01/20) Bcf	% change	5-year average (2016-20) Bcf	% change
East	810	779	31	31	890	-9.0	855	-5.3
Midwest	971	934	37	37	1,058	-8.2	990	-1.9
Mountain	206	201	5	5	235	-12.3	215	-4.2
Pacific	248	243	5	5	318	-22.0	301	-17.6
South Central	1,054	1,013	41	41	1,319	-20.1	1,104	-4.5
Salt	259	239	20	20	365	-29.0	274	-5.5
Nonsalt	795	774	21	21	954	-16.7	830	-4.2
Total	**3,288**	**3,170**	**118**	**118**	**3,820**	**-13.9**	**3,464**	**-5.1**

Source: EIA

Natural Gas – Could the Biden Administration halt LNG exports?

Could US LNG exports be halted?

With HH gas went over $6 this week and closed over $5.50, there have been more questions if the Biden administration can or should halt LNG exports until it is clear there won't be any natural gas price explosion like being seen in Europe this fall. After all, this is the shoulder season and the peak season for natural gas demand is winter. We have seen different views on the question of can the Biden administration halt LNG exports. Our September 26, 2021 Energy Tidbits highlighted the request that week by the Industrial Energy Consumers of America (IECA) to Energy Secretary Granholm [LINK] urging her to "*take immediate action under the Natural Gas Act (NGA) to prevent a supply crisis and price spikes for consumers this winter by requiring LNG exporters to reduce export rates in order to allow U.S. inventories to reach the 5-year average storage levels, and to place a hold on all existing, pending, and prefiling permits and approvals on LNG export facilities in the lower 48, and to conduct a review of whether they are in the public interest under the NGA."* At that time, we also discussed the issue of "can" the Biden administration halt US LNG exports and asked the question "Are US LNG exports "consistent with the public interest"? The Industrial Energy Consumers of America didn't specify what clause they were referring to for Granholm to restrict exports. But we believe one clause that might be applicable is [LINK] "*§ 717b. Exportation or importation of natural gas; LNG terminals (a) Mandatory authorization order After six months from June 21, 1938, no person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the Commission authorizing it to do so. The Commission shall issue such order upon application, <u>unless, after opportunity for hearing, it finds that the proposed exportation or importation will not be consistent with the public interest</u>. The Commission may by its order grant such application, in whole or in part, with such modification and upon such terms and conditions as the Commission may find necessary or appropriate, and may from time to time, after opportunity for hearing, and for good cause shown, make such supplemental order in the premises as it may find necessary or appropriate".*

Natural Gas – Blueberry River First Nations and BC gov reach first step agreement

Oil and gas permits given approval in interim

On Thursday, there was good news for BC natural gas supply this winter with the British Columbia and Blueberry River First Nations announcing they had reach an interim agreement [LINK] that is the first step agreement. This should provide the near term ability to get industry going for winter programs. This may be the first step but it looks like a positive indicator that they can reach an interim and final agreements. The release noted "*The <u>initial</u> agreement is a first step in responding to the B.C. Supreme Court's decision, which requires the Province and Blueberry to work together to develop land management processes in*

Blueberry territory that restore and protect the ability of the land to support Indigenous ways of life, and ensure future development authorizations manage cumulative effects on land and wildlife and their impact on the Nation's treaty rights". And "*The Province and Blueberry are now working to finalize an interim approach for reviewing new natural resource activities that balance Treaty 8 rights, the economy and the environment. Once an interim approach is in place, the negotiation teams will work to reach long-term solutions that protect Treaty 8 rights and an Indigenous way of life."* As part of the agreement the 195 forestry and oil and gas projects permitted before the court ruling will proceed with 20 currently approved authorizations put on hold pending further negotiation. We have to believe that all parties didn't want to put at risk winter natural gas programs. So it may be an initial agreement but it sounds like the parties should get the interim and long term agreements completed. Our Supplemental Documents package includes the BC release.

Natural Gas – LNG Canada Project Surpasses 50% Completion

LNG Canada Project passes 50% completion mark

LNG Canada announced October 6, that the LNG Canada project has just surpassed 50% completion [LINK]. The report indicates that LNG Canada is moving swiftly towards commissioning and start-up, to deliver LNG to their facility in Kitimat in British Columbia. However, LNG Canada highlighted that they are still concerned about the cost and schedule increases that were disclosed by TC Energy in reference to the completion of the Coastal GasLink pipeline that will connect to the Kitimat LNG facility. Its not clear how this disagreement will be settled. LNG Canada is a major demand factor for western Cdn natural gas. LNG Canada continues to expect first LNG by the middle of the decade. Our Supplemental Documents package includes the LNG Canada announcement.

Natural Gas – Good LNG data & low carbon gases insight from IEA Gas Market Report

IEA's gas market report

On Tuesday, the IEA released its "*Gas Market Report Q4-2021*". We reviewed the report and not just the press release. (i) This is a good resource report. There is some great LNG market recap data of what has happened in LNG markets in 2021 from LNG supply to demand by region. The section is a good read and update on LNG. (ii). The release is short so the question is what does the IEA choose to highlight on a 100-pg report. And it seemed that the IEA wanted to highlight some caution on natural gas supply. The IEA talked about the transition to low carbon gases and said "*policy makers should take into consideration new security of supply challenges that are likely to emerge in this transition."* In reading the report, we didn't really see "new" security of supply challenges just old ones that haven't been highlighted before, It just looks like another indicator of changing messaging and changing priority of messaging inevitably leads to changing forecasts. (iii) One key section of the report to read was on this transition to low carbon gases. If you flip thru report pgs 56-62. Just think of what they are describing and you can't help but wonder how anyone can remotely think this will end up with a reliable, affordable and available natural gas supply. We find it unbelievable. Its like the key is just get people to keep repeating the mantra of what the goal is but without figuring out if its remotely doable. And the extra costs, there is going to be a massive overbuild of "gas" infrastructure. Its not like trading in a car where you get rid of the old one and drive out with a new one. This section is worth a read. Our Supplemental Documents package includes the release and the section on transition to low carbon gases.

Natural Gas – Qatar says "they are queuing up for LNG"

Qatar LNG demand still high despite price

Last week's (Oct 3, 2021) Energy Tidbits highlighted another key indicator for LNG strength thru the 2020s – Asian LNG buyers have pivoted to locking in long term LNG supply with Qatar Petroleum's Sept 29 announcement [LINK] it had entered into a 15 year SPA with China's CNOOC, to supply of 0.5 bcf/d (3.5 mmtpa) of LNG beginning January 2022. On Thursday, Bloomberg reported on comments from Qatar's energy minister that they do not want LNG/natural gas prices to remain at current levels. [LINK]. Qatar sees current record high prices as being unhealthy for both producers and consumers. The Bloomberg report also remined of prior comments from Qatar Energy Minister Saad Al-Kaabi saying *"they are queuing up for LNG. We have huge demand from all our customers and unfortunately we can't cater for everyone."* Our Supplemental Documents package includes the Bloomberg article.

Asian LNG buyers abruptly change and lock in long term supply

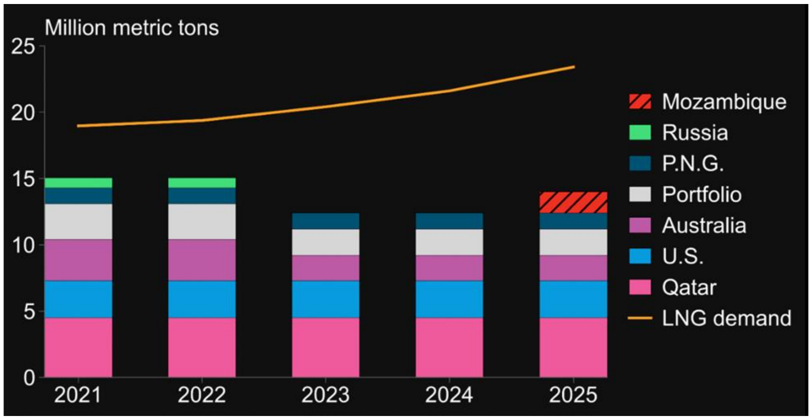
We don't think anyone could have predicted the JKM spot price rise in the past couple months but, we have been highlighting the key indicator of LNG supply/demand tightness in the 2020s – Asian LNG buyers are now rushing to lock up long term supply. On July 14, 2021 we posted our 8-pg "*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs".* Here is an excerpt from the blog "*The last 7 days has shown there is a sea change as Asian LNG buyers have made an abrupt change in their LNG contracting and are moving to lock in long term LNG supply. This is the complete opposite of what they were doing pre-Covid when they were trying to renegotiate Qatar LNG long term deals lower and moving away from long term deals to spot/short term sales. Why? We think they did the same math we did in our April 28 blog "Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?" and saw a much bigger and sooner LNG supply gap driven by the delay of 5 bcf/d of Mozambique LNG that was built into most, if not all LNG supply forecasts. Asian LNG buyers are committing real dollars to long term LNG deals, which we believe is the best validation for the LNG supply gap. Another validation, Shell, Total and others are aggressively competing to invest long term capital to partner in Qatar Petroleum's massive 4.3 bcf/d LNG expansion despite plans to reduce fossil fuels production in the 2020s. And even more importantly to LNG suppliers, the return to long term LNG contracts provides the financing capacity to commit to brownfield LNG FIDs. The abrupt change by Asian LNG buyers to long term contracts is a game changer for LNG markets and sets the stage for brownfield LNG FIDs likely as soon as before year end 2021. It has to be brownfield LNG FIDs if the gap is coming bigger and sooner. And we return to our April 28 blog point, if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? LNG Canada Phase 1 at 1.8 bcf/d capacity is already a material positive for Cdn natural gas producers. A FID on LNG Canada Phase 2 would be huge, meaning 3.6 bcf/d of Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub. And with a much shorter distance to Asian LNG markets. This is why we focus on global LNG markets for our views on the future value of Canadian natural gas."* Our Supplemental Documents package includes our July 14 blog.

Natural Gas – Taiwan has large exposure to spot LNG

Taiwan relies on spot LNG despite high prices

On Tuesday, Bloomberg posted a good recap of Taiwan's LNG market that recaps Taiwan's LNG import facilities, its LNG contract mix and Bloomberg's outlook. One of the highlighted themes was Taiwan's large exposure to currently high spot LNG prices. And Bloomberg's expectation that Taiwan's dependency on spot LNG imports is expected to increase as contracts expire, and both nuclear capacity and coal dependency decrease. Bloomberg noted state owned CPC Corp purchased 7 cargoes for delivery from Nov-Feb, as is normal for the upcoming winter season. The purchase has been made at a premium to the European benchmark TTF, as opposed to JKM or Brent, in effort to attract supply away from Europe. Taiwan's LNG demand is limited by import capacity at 2.20 bcf/d. Shipping draft constraints further limit the range that these terminals can accept. Bloomberg also noted *"The gap between Taiwan's LNG demand and contracted volume is expected to widen as purchase agreements with BP Plc, Chevron Corp. and Russia's Sakhalin LNG project expire in 2022. The delay of TotalEnergies' Mozambique LNG start-date to 2026 deals a blow to Taiwan's long-term LNG supply procurement line up. This pushes the start of its joint supply deal with Jera Co. by a year. Taiwan will continue to rely significantly on the LNG spot market until more long-term purchase agreements are potentially announced."* There was one item not included in the Bloomberg report. Our July 14, 2021 blog "*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs"* highlighted the July 9 Qatar Petroleum announcement of a new 15 yr supply deal with CPC Corporation (Taiwan) for 0.16 bcf/d. Below is the Bloomberg forecast of Taiwan's LNG demand and contracts. Our Supplemental Documents package includes the Bloomberg report.

Figure 2: Taiwan LNG Demand and Contracts



Source: Bloomberg

Natural Gas – Vietnam starting LNG imports in 2022, target 1.3 bcf/d by 2030

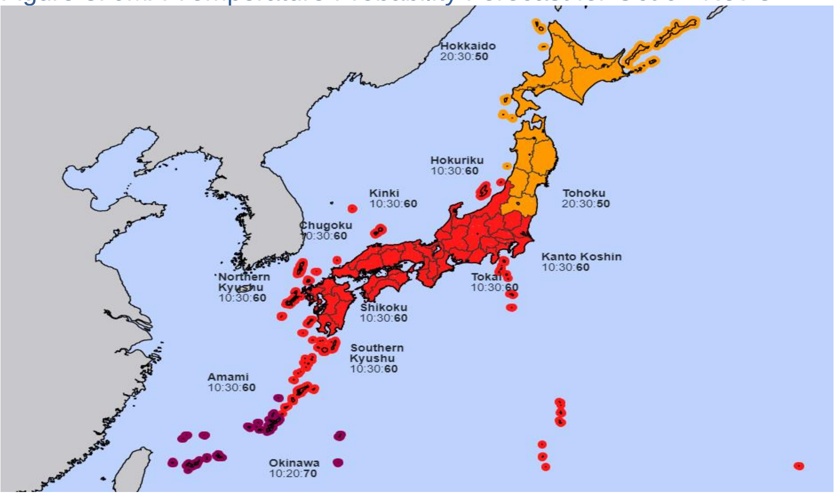
Vietnam starts LNG imports in 2022

We didn't see the recent Platts Sept 14, 2021 report "*Vietnam to start LNG imports in 2022 as key step in lowering emissions, energy security: minister"* [LINK] that noted "*Vietnam aims to start importing LNG in 2022 and sees LNG among its solutions for lowering carbon emissions and ensuring the country's energy security, Vietnam's Minister of Industry and Trade Nguyen Hong Dien said. "With the goal to start importing LNG in 2022, import demand will increase to about 5 million mt of LNG in 2025, 10 million mt by 2030 and 15 million mt by 2035".* That's a target of 0.7 bcf/d in 2025, 1.3 bcf/d by 2030 and 2.0 bcf/d by 2035. On Friday, there were news of other steps towards the 2030 goal. Viet Nam News reported [LINK] "*The People's Committee of central Quảng Trị Province on Friday granted a decision to a consortium of T&T Group from Việt Nam, Korea Gas Corporation (KOGAS), Hanwha Energy Corporation (HANWHA) and Korea Southern Power (KOSPO) to approve the investment of VNĐ54 trillion (US$2.3 billion) Hải Lăng LNG power plant's first phase." "Covering an area of 120ha, the project is located in Hải Lăng District's Hải An and Hải Ba Communes. The project would have an LNG terminal receiving LNG carriers from 170,000 - 226,000 cu.m, 1.5 million tonnes of LNG a year and Hải Lăng Power Centre's phase 1 with a capacity of 1,500MW."* This LNG terminal is a capacity of 0.2 bcf/d. Our Supplemental Documents package includes the Viet Nam News and Platts reports.

JMA forecasts warm Oct

Natural Gas – Not major natural gas demand pull in Japan looking to mid Nov
This is shoulder season for natural gas demand in Japan and it looks like there won't be any major natural gas demand pull over the next month due to weather in Japan. Japan is expected to experience above average temperatures for the remainder of October and into November. After the next few days, AccuWeather is calling for daily highs in the low 20s and night lows in 10 to 15C range. So it looks like not hot enough or cold enough for any significant natural gas demand pull. The Japan Meteorological Agency issued its updated month ahead weather forecast for Oct 9 – Nov 8 on Thursday [LINK], which calls for warmer weather in central Japan with closer to average temperatures in the north. The southern islands have a high chance of being above seasonal norms. Below is the current JMA forecast for Sept and into early Oct.

Figure 3: JMA Temperature Probability Forecast for Oct 9 - Nov 8



Source: Japan Meteorological Agency

Natural Gas – Bearish Wood Mackenzie long term China LNG demand forecast

Wood Mackenzie China LNG forecast

Bearish might not be the right adjective, but the Wood Mackenzie long term China LNG demand outlook certainly looks like less than expected growth to 2030. On Tuesday, Wood Mackenzie posted its opinion piece by its Research Director, APAC Gas &LNG, Miaoru Huang "*the future of China's gas demand*" [LINK]. Wood Mackenzie forecasts China's LNG demand only increases by 5.9 bcf/d from 2020 to 2030. The modest LNG demand growth is due to a combination of factors such as increasing domestic natural gas production and increasing pipeline impots from Russia. One thing that isn't clear from the short opinion piece is what do they assume for natural gas share of China's energy mix. China's stated target is for natural gas to be 15% of its energy mix by 2030. We suspect that the key upside potential for LNG is how fast and how much does China move to renewables. If +5.9 bcf/d growth in LNG demand to 2030 is the over/under, we would take the over but with the caveat that LNG is back to the low to mid teens. If LNG moves to a +$20 price, then we suspect China will just ramp up coal. Below is our running table of China's LNG monthly imports. As we are seeing this week, China is not prepared to sacrifice energy security and support for the economy just to be greener. Our Supplemental Documents package includes the Wood Mackenzie opinion piece.

Figure 4: China Monthly LNG Imports Jan 2016 thru Aug 2021

China Monthly LNG Imports									
bcf/d	2016	2018	18/17	2019	19/18	2020	20/19	2021	21/20
Jan	3.84	8.03	50.0%	10.20	27.1%	10.31	1.1%	13.15	27.6%
Feb	3.10	6.84	66.9%	7.46	9.1%	7.26	-2.7%	9.52	31.1%
Mar	2.60	5.04	64.5%	6.28	24.8%	6.49	3.3%	8.74	34.6%
Apr	3.00	5.43	57.8%	7.27	34.0%	8.16	12.3%	10.77	32.0%
May	2.20	6.39	41.9%	6.87	7.6%	8.10	18.0%	10.89	34.4%
June	3.51	6.31	30.1%	7.25	14.9%	9.27	27.8%	10.76	16.1%
July	2.46	6.40	33.4%	7.56	18.1%	7.79	3.1%	8.78	12.7%
Aug	3.54	7.26	49.2%	8.04	10.8%	9.23	14.8%	10.30	11.6%
Sept	4.05	7.00	26.3%	8.16	16.7%	9.17	12.4%		
Oct	2.85	7.13	29.6%	6.26	-12.2%	7.78	24.3%		
Nov	4.26	9.59	47.5%	10.42	8.7%	10.58	1.6%		
Dec	5.80	9.75	25.0%	10.01	2.7%	11.76	17.5%		
Full Year Avg.	3.43	7.10	41.2%	7.98	12.5%	8.83	10.6%		
Note: Jan/Feb 2020 figures are averaged. Not applicable for YoY comparison									
Source: Bloomberg, China Customs									

Source: Bloomberg, China Customs

Natural Gas – Russia can't deliver any significant extra gas in Oct/Nov

Cold weather in Russia

On Tuesday, we tweeted [LINK] "*Hard to see #Gazprom sending above contract #NatGas to EU in Oct/Nov. RU current gas consumption already +7.1 bcf/d YoY due to earlier start to heating season & expect a cold/snowy winter says #Gazprom Deputy CEO Markelov. Thx @olyatanas @d_khrennikova. Positive for #LNG #NatGas".* Bloomberg reported how Gazprom noted cold weather led to heating season starting two weeks early and this added 7.1 bcf/d YoY to natural gas consumption. Bloomberg also reported "*Gazprom expects this winter in Russia to be cold and snowy, according to Sergey Gustov, head of Gazprom's domestic supply" "Domestic gas market is a priority for Gazprom; all consumers in Russia will be supplied with natural gas".* Our Supplemental Documents package includes the Bloomberg report.

Natural Gas – Is Gazprom still able to deliver pipeline spec gas to Power of Siberia?

Fire at Gazprom's key Amur gas plant

Put us in the camp that is skeptical or, at a minimum holding a reserved opinion, on the reports there is no impact on Russia's natural gas pipeline exports from the Friday morning fire at the Amur gas processing plant as part of the Power of Siberia natural gas export system. (i) Our first tweet [LINK] "*Looks like a boost to #LNG prices with more China buying. Don't know extent of damage or impact, but #Gazprom's Amur gas processing plant is the critical #NatGas processing station for natural gas before it is shipped across the border to China*." Was based on The Siberian Times tweet & video [LINK] "*Gas supply to Amur Gas Processing plant - Russia's largest gas processing plant in the Far East, supplying China via the Power of Siberia pipeline - and all works have been suspended, following earlier explosion and fire. The fire has been extinguished, the plant authorities said* ". Our thesis for there must be an impact is that Amur is the major gas processing plant that processes the natural gas to make it pipeline spec before sending to China. We understand there are two trains but, unless the plant was running at <50% capacity, we don't see how it wouldn't impact natural gas volumes for pipeline spec. (ii) We then posted a second tweet [LINK] after seeing well regarded Bloomberg Javier Blas tweet [LINK] "*GAS MARKT: Gazprom is saying that the main equipment at the plant was not damage, and that gas exports toward China continue in line with requests".* We thought it best to advise our Twitter followers that Bloomberg was saying this. (iii) Here is our big question. Gazprom has confirmed the fire, the video shows a significant fire but that the main equipment at the plant was not damaged. And Gazprom says exports are in line with requests. Look at the role of Amur from the below Gazprom June 2021 graphic. The natural gas supply for Power of Siberia is Chayandinskoye, it is pipelined thru Amur so Amur can extract helium and liquids (ethane propane, butane, pentane-hexane fraction) to deliver pipeline spec gas to Power of Siberia for China. We don't know the volumes being processed but it isn't anywhere near 4.06 bcf/d capacity. So the case for no impact on China deliveries is that the fire only impacted part of the capacity to extract liquids and that there is still capacity to extract the volumes currently being run thru Amur. Earlier this morning, we tweeted [LINK] *"Good #Gazprom Amur gas plant infographic. Capacity 4.06 bcf/d, extracts helium, liquids to get the Power of Siberia source Chayandinskoye gas field #NatGas to pipeline spec for Power of Siberia. Is Gazprom saying fire doesn't impact ability to deliver pipeline spec gas? #OOTT*". The Gazprom graphic shows future fields will be tied in but for now, it's one large gas field (Chayandinskoye) having liquids stripped out from one gas plant (Amur) to deliver pipeline spec gas to the Power of Siberia pipeline to China. Our Supplemental Documents package includes the Gazprom June 2021 infographics on Amur natural gas processing.

Figure 5: Gazprom Power of Siberia pipeline

https://www.gazprom.com/projects/power-of-siberia/

Source: Gazprom

Figure 6: Amur gas processing

Source: Gazprom

Natural Gas – Russia links Nord Stream 2 and increased natural gas supplies

It was another good week for Putin in his multiple reminders to Europe that they blew it in not wanting to do long term natural gas supply deals with Russia, instead going with a strategy of

Nord Stream 2 and added Russia gas supply

being exposed to spot natural gas and LNG prices. Europe gas prices took a bit of a lull with the market believing Putin was okaying additional natural ga supplies to Europe. However, as is often the case, this was followed by comments from Novak and the Kremlin with more detail on what would drive added Russia natural gas to Europe. its Nord Stream 2. Kremlin spokeperson Dmitry Peskov drew this link. TASS reported [LINK] "*When asked whether the possibility of increasing gas exports from Russia to Europe depends on Nord Stream 2, a Kremlin spokesman answered in the negative. "There are now alternative routes to Ukrainian transit, which work perfectly, which are much more technologically advanced, more environmentally friendly," Peskov stated. He recalled that Russian President Vladimir Putin spoke about this on Wednesday at a meeting on energy development. "Therefore, there is potential, everything depends on requests, on contractual obligations and commercial agreements," the Kremlin spokesman said."* And then Novak said something similar. TASS reported [LINK] ""*In my opinion [there are] two factors that could cool the current situation somewhat. Firstly, it is the speedy completion of certification and obtaining permits for pumping gas through the completed Nord Stream 2, this would give a positive signal," he said. Novak. "And secondly, if it were possible, it would be advisable to supply additional volumes of exchange trading of gas on the electronic trading exchange in St. Petersburg. At least small volumes could bring down the speculative effect," the Deputy Prime Minister added. According to Novak, the reason for the rise in gas prices are not only fundamental factors, but also poor forecasting of European countries. "It is obvious that not only fundamental factors play here, which are associated with the refusal of European politicians from long-term contracts in favor of spot contracts, but also poor forecasting of the balance of supply and demand. ", - he added."*

Natural Gas – After Germany, Nord Stream 2 also has a 2-month EU review process

EU also has to sign off on Nord Stream 2 flows

On Sept 13, 2021, we tweeted [LINK] "*Europe better hope its not a cold start to winter. @business @bjennen1 report DE regulator BNA now has 4 mths to review on 5.3 bcfd #NordStream2 certification. Given high profile, hard to see a quick rubber stamp. if so, NS2 won't bring near term relief to #NatGas #LNG prices."* Earlier that morning, Bloomberg reported "*Nord Stream 2 has submitted all the necessary documents, triggering the start of the certification process by Germany's Federal network regulator BNA, a spokesman for the agency said by phone. * BNA now has four months to send a decision draft to the European Commission."* In theory, there is nothing stopping BNA from a quick certification but, we would assume that, given the high profile of Nord Stream 2, any certification is closer to the 4 months than 1 month. However, what we should have said is that it will likely be closer to 6 months than 4 months. On Wednesday, Bloomberg's report *"Why Nord Stream 2 May Not Be Ready in Time for Europe's Winter"* reminded that Germany "*has until early January to make a draft decision on certification, which it must send to the European Commission for review. The EU then has two months to act, a timeframe that can be extended by another two months, potentially taking the process as far as May."* Even with the record high natural gas and electricity prices in many parts of Europe, its hard to see Germany and the EU rushing to approve Nord Stream 2 as its been perhaps the highest profile controversial energy issue in Europe. Our Supplemental Documents package includes the Bloomberg report.

Figure 7: Nord Stream 2, 5.3 bcf/d capacity

Source: Nord Stream 2

Natural Gas – Centrica shut down UK largest gas storage, Rough, in 2017

Rough gas storage shut in 2017

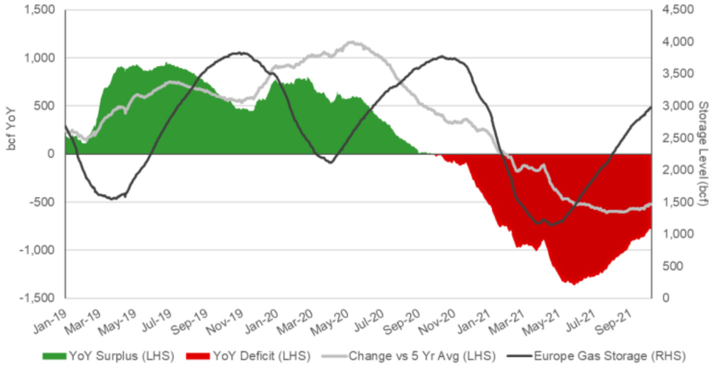
One of the big criticism on the UK natural gas system is that there is a lack of gas storage. In September, Energy UK estimated there was 141 bcf in UK natural gas storage and wrote [LINK] "*Britain has over 4bcm of storage capacity that can be called upon to deliver over one quarter of national gas demand on a cold winter's day. Gas is sent to storage facilities throughout the summer and at other times of the year to make sure we have gas supplies available when we need them*." UK natural gas storage was much higher in 2017. In 2017, Centrica ceased operations at the largest UK gas storage facility, Rough. Our July 2, 2017 Energy Tidbits noted that, at the time of its cessation, Centrica estimated there was 183 bcf of recoverable cushion gas. They had massive problems with the storage that led to pre tax charge of £176 in 2016 results. Made the decision to shut it down in early 2017. We went back and couldn't see what the "working gas" level was prior to the problems. But Rough was the largest UK storage and believed to have represented something like 70% of the storage send out capacity. Rough was a depleted reservoir being used for storage. As a rule of thumb, we would use 50/50 split between cushion gas and working gas. So its probably reasonable to roughly assume working gas was about the same at 183 bcf. The closing of Rough is why UK has relatively low natural gas storage.

Natural Gas – Europe storage 76.17% full vs 5 year average of 90.49%

Europe gas storage 76.17% full; lowest levels in a decade

There is no surprise or real change to Europe gas storage levels going into the winter and that unless it is a very warm winter, it will be a very bad wine for natural gas prices. Inventory withdrawals typically begin at the end of the month, depending on the weather. Europe inventories are at their lowest level in more than a decade. The set up for winter natural gas prices continues to look extremely bullish. The key indicator for winter Europe natural gas prices, and global LNG prices is Europe storage. Europe gas storage started the winter (Nov 1) at basically full levels at 94.66% and had dropped by 65.77% to be 28.89% at Apr 1. This 65.77% decline since Nov 1, compares to the 5 yr average that would be down 53.99% in the same period or to last winter that was only down 43.29% in the same period. We are now seeing storage start to build, but the build is slow due to the above reasons. Europe storage levels bottomed in late Apr at 29%, which was the lowest level since Apr 2018. Storage as of Oct 7 is 76.17%, which is -19.18% less than last year levels of 95.35% and are -14.32% below the 5-year average of 90.49%. Europe storage levels over the next few weeks will be the key item to watch for indications on LNG markets going into the winter. Below is our graph of Europe Gas Storage Level.

Figure 8: Europe Gas Storage Level



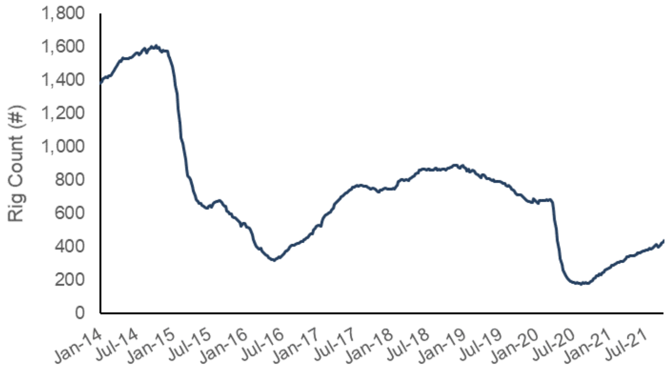
Source: Bloomberg

Oil – US oil +5 WoW at 433 oil rigs

US oil rigs +5 WoW

Baker Hughes released its weekly North American drilling activity data at 11am Friday. This week US oil rigs were up +5 rigs WoW at 433 rigs. Oil rigs are +261 off the bottom of 172 in Aug14/2020 week. No surprise, the Permian was +3 for the consecutive week as it is the oil basin expected to drive growth. We expect to see continued solid growth in rigs up to the holiday season as producers are flush with extra cash flow. One area that is surprising is in US natural gas rigs and how, despite big HH gas prices, the Haynesville shale gas rigs are down 3 rigs over the past few months. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 250 to 433 oil rigs (-36.6%). The biggest contributor to the decrease is the Permian being down 153 oil rigs from the March 13, 2020 peak (-37%), although we are seeing it continue to ramp up slightly. Also note the Bakken is down 29 oil rigs to 23 active oil rigs (-55.8% from March 13, 2020). Below is our graph of US oil rigs since 2020, which highlights the big decreases in Permian and Bakken oil rigs.

Figure 9: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – Frac spreads +1 to 263 as of Oct 8

Frac spreads +1 to 263

Mark Rossano (C6 Capital Holdings) provided his US frac spread recap for week ended Oct 8 on the Primary Vision network. The YouTube video is at [LINK]. US frac spreads were +1 to

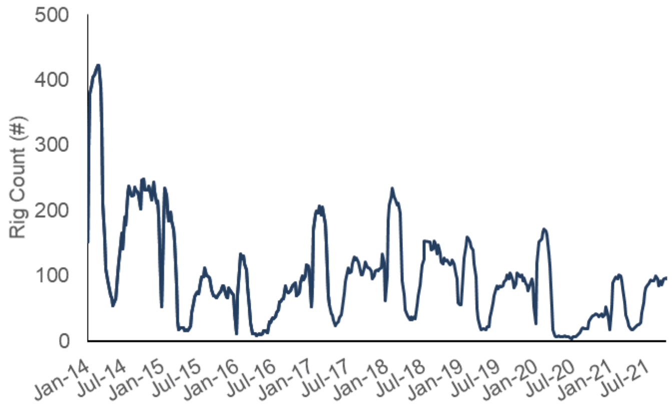
263 for the week ended Oct 8. Oil hit $80 on Friday, which supports his view that spreads should hit 275 by the end of October or early November. Even though an increase of 1, did get "*some rejiggering of the puzzle*" with Denver going down a bit, Permian going up, continue to have western Gulf ramping up. DUCs have come down, but still have some places where there are some excesses that can come down without too many rigs coming back and that is the Haynesville and some of the smaller areas/basins. These smaller basins aren't huge, rather going from 0 to 1, or 1 to 2, or 0 to 2, but they are part of what he sees the ramp up to his 275 spreads. He didn't mention in this video, but he normally reminds that he will then see some normal seasonal decline starting in November.

Oil – Total Cdn rigs +2 to 167 total rigs and +87 rigs YoY

Total Cdn rigs were +2 this week to 167 total rigs. Cdn oil rigs were -2 at 95 rigs. Cdn gas rigs were +4 to 72 gas rigs. Total rigs are now +154 since the June 26, 2020 all-time low. We have been expecting a ramp up with the normal Aug/early Sept pause comes to an end. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 39 and Cdn gas rigs were 41 for a total Cdn rigs of 80, meaning total Cdn rigs are +87 YoY and total rigs are up +19 vs 2019.

Cdn rigs +2 WoW

Figure 10: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production up +0.200 mmb/d WoW at 11.3 mmb/d

US oil production was up +0.200 mmb/d to 11.3 mmb/d for the Oct 1 week, driven by Lower 48 production WoW increase of +0.200 mmb/d to 10.900 mmb/d. Hurricane Ida decimated U.S. crude production, as output fell by -1.500 mmb/d last month, the biggest weekly drop in EIA data going back nearly four decades. Production continued to return as Gulf platforms resume operations and mend facility damage caused by Ida. Oil Inventories increased for the first time in 8 weeks by 2.35 mmb. US oil production is up YoY at +0.300 mmb/d, and is down significantly at -1.8 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The EIA DPR has the effectively flat expectations for Sept/Oct for the major shale/tight oil plays.

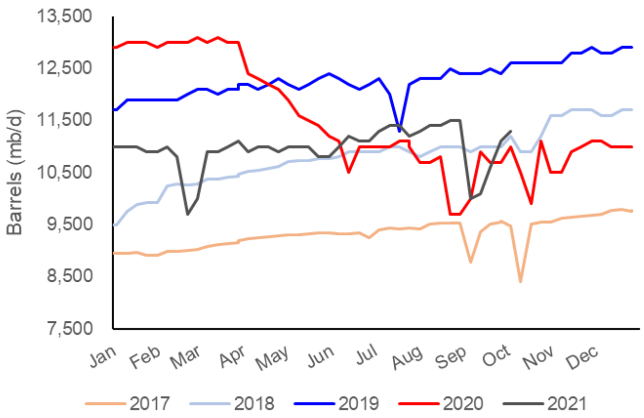
US oil production up WoW

Figure 11: EIA's Estimated Weekly US 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
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	09/13	12,400	09/20	12,500	09/27	12,400		
2019-Oct	10/04	12,600	10/11	12,600	10/18	12,600	10/25	12,600		
2019-Nov	11/01	12,600	11/08	12,800	11/15	12,800	11/22	12,900	11/29	12,900
2019-Dec	12/06	12,800	12/13	12,800	12/20	12,900	12/27	12,900		
2020-Jan	01/03	12,900	01/10	13,000	01/17	13,000	01/24	13,000	01/31	12,900
2020-Feb	02/07	13,000	02/14	13,000	02/21	13,000	02/28	13,100		
2020-Mar	03/06	13,000	03/13	13,100	03/20	13,000	03/27	13,000		
2020-Apr	04/03	12,400	04/10	12,300	04/17	12,200	04/24	12,100		
2020-May	05/01	11,900	05/08	11,600	05/15	11,500	05/22	11,400	05/29	11,200
2020-Jun	06/05	11,100	06/12	10,500	06/19	11,000	06/26	11,000		
2020-Jul	07/03	11,000	07/10	11,000	07/17	11,100	07/24	11,100	07/31	11,000
2020-Aug	08/07	10,700	08/14	10,700	08/21	10,800	08/28	9,700		
2020-Sep	09/04	10,000	09/11	10,900	09/18	10,700	09/25	10,700		
2020-Oct	10/02	11,000	10/09	10,500	10/16	9,900	10/23	11,100	10/30	10,500
2020-Nov	11/06	10,500	11/13	10,900	11/20	11,000	11/27	11,100		
2020-Dec	12/04	11,100	12/11	11,000	12/18	11,000	12/25	11,000		
2021-Jan	01/01	11,000	01/08	11,000	01/15	11,000	01/22	10,900	01/29	10,900
2021-Feb	02/05	11,000	02/12	10,800	02/19	9,700	02/26	10,000		
2021-Mar	03/05	10,900	03/12	10,900	03/19	11,000	03/26	11,100		
2021-Apr	04/02	10,900	04/09	11,000	04/16	11,000	04/23	10,900	04/30	10,900
2021-May	05/07	11,000	05/14	11,000	05/21	11,000	05/28	10,800		
2021-Jun	06/04	11,000	06/11	11,200	06/18	11,100	06/25	11,100		
2021-Jul	07/02	11,300	07/09	11,400	07/16	11,400	07/23	11,200	07/30	11,200
2021-Aug	08/06	11,300	08/13	11,400	08/20	11,400	08/27	11,500		
2021-Sep	09/03	10,000	09/10	10,100	09/17	10,600	09/24	11,100		
2021-Oct	10/01	11,300								

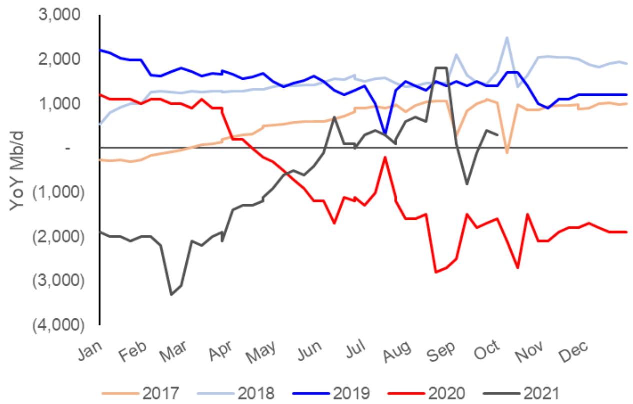
Source: EIA

Figure 12: US Weekly Oil Production



Source: EIA, SAF

Figure 13: YoY Change in US Weekly Oil Production



Source: EIA, SAF

White House forgets about US shale

Oil – White House won't acknowledge US oil production could help

Finally, we saw a specific question at the Friday's daily White House briefing asking why doesn't the Biden administration encourage US oil production instead of going to ask OPEC for more oil. It was a reinforcement of the big picture theme for Biden – he does not want to encourage growth in US oil production. And why we believe OPEC must be happy when they see continued clear policy indications on this priority. The question was "*Why keep a lid on production at home with American companies and instead ask OPEC for more production where that production is perhaps not as environmentally regulated? Is there any consideration perhaps being given to this — you know, keeping in mind, rising gas prices?"* We tweeted on White House spokesperson Psaki's reply. Our tweet [LINK] was "*Positive for OPEC. why keep a lid on US #Oil production instead of asking #OPEC's help? @jrpsaki doesn't really answer other than return from #Ida. Rather pivots to ensure "production and rise of renewables". A no answer to the question is a "NO" answer to growing US oil. #OOTT".* We have been waiting for someone to ask this as all they have talked about (and regularly done so) is say they are speaking to OPEC countries and making sure there is no illegal price manipulation in the gasoline prices. Like a good politician, she didn't give a specific answer, although she talked about how they worked to recover from Hurricane ida interruptions. But then did the normal politician move of pivoting to their message that they have to keep the focus on renewables. Its why we said that her giving no specific answer is really giving a "NO" to the question. Psaki's response was *"Well, we are in touch. We are not a member of OPEC, as you all know. We are in regular touch with OPEC, and we have also raised issues of supply in meetings that members of our national security team and others have had in recent weeks, as I have confirmed from here. We, of course, want to address the short-term supply issues. One of those issues, as we know, was related to Hurricane Ida and the impacts in the region, which we took steps to address, certainly, at the time. But our view — to go back to your original question — is also that while we need to take steps to address short-term supply issues, we need to also keep our eye on the long term and the impact of the climate — the crisis that is — we are in the middle of and ensure that we are continuing to encourage the production and rise of renewables and the clean energy industry, which is exactly what the President's proposals would do."* The full transcript of the Oct 8 briefing is at [LINK].

Oil – Liberals finally invoke 1977 treaty with US on Line 5 fight

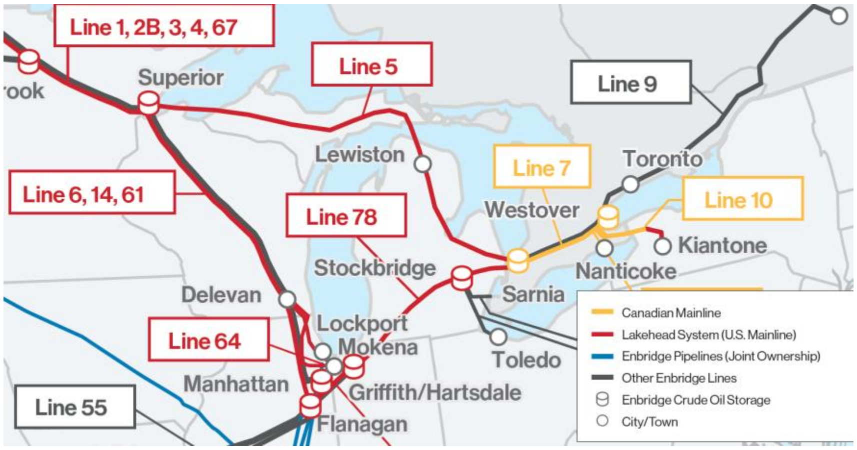
1977 pipeline treaty with US

After seeing the Globe and Mail report "*Canada formally invokes 1977 treaty with U.S. in stalemate over Line 5 pipeline"* [LINK] especially after seeing the headline say "formally" invokes. we couldn't help tweeting [LINK] *"Better late than never but why did it take 4 months or more? Finally #Liberals invoking 1977 treaty re #Line5 stalemate. 1977 treaty was set up specifically so municipal/state govts couldn't do what MI is trying to do. Thx @stevenchase. #OOTT".* We just can't believe the Liberals didn't do this in May. We also retweeted our May 2, 2021 tweet [LINK] *"#Line5. wonder if @JustinTrudeau @SeamusORegan have been pushing @POTUS to honor US/Can 1977 Transit Pipelines treaty to squash @GovWhitmer attempt to shutdown $ENB Line 5 by May 12? #OOTT".* We have to wonder where Line 5 would be if Liberals had done this five months ago. Regardless, our tweet included excerpts from the 1977 treaty "*TRANSIT PIPELINES: Agreement Between the United States of America and Canada. Signed at Washington January 28, 1977*" " "A*RTICLE III. 1. No public authority in 'the territory of either Party shall impose any fee, duty, tax or other monetary ·charge, either directly or indirectly, on or for the use of any Transit Pipeline unless such fee, duty, tax or other monetary charge would also be applicable to or for the use of similar pipelines located within the jurisdiction of that public authority. 2. No public authority in the territory of either Party shall impose upon hydrocarbons in transit any import, export or transit fee, duty, tax or other monetary charge. This paragraph shall not preclude the inclusion of hydrocarbon.throughput as a factor in the calculation of taxes referred to in paragraph* 1." Line 5 is a pipeline that was in place in 1977 and therefore covered by the treaty. Our Supplemental Documents package includes the Globe and Mail Report.

Who, Where, What gets impacted by a Line 5 shut down

For the past 15 months, we have included the reminder on who gets hit by a Line 5 shut down. We first tweeted on June 19, 2020 [LINK] on the impact "*A weekend must read, Enbridge "impact of a Line 5 shutdown" is excellent recap of who, where, what gets hit by Line 5 shut down*." It includes tidbits such as "*Line 5 supplies 65% of propane demand in Michigan's Upper Peninsula, and 55% of Michigan's statewide propane needs*." There would also be a big impact on refineries to the east "*Refineries served by Enbridge in Michigan, Ohio, Pennsylvania, Ontario and Quebec would receive approximately 45% less crude from Enbridge than their current demand."* There was a good map that shows how Line 5 fits into other Enbridge pipelines delivering oil to places like Imperial's Sarnia and Nanticoke refineries in Ontario. Our Supplemental Doc1uments package includes the "impact of a line 5 shutdown" brief. [LINK]

Figure 14: Enbridge Line 5



Source: Enbridge

Oil – Covid outbreaks in oil sands facilities unchanged at 6 as of Sept 30

Covid in oil sands

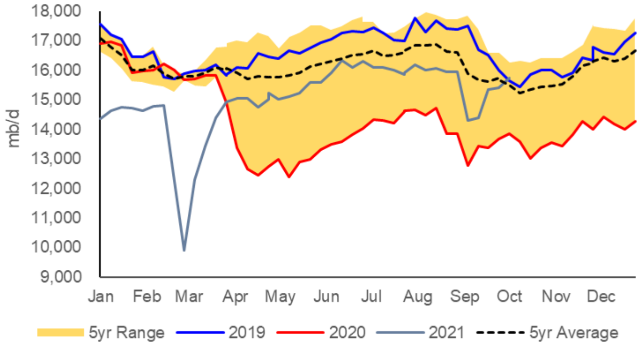
Wood Buffalo posted a Oct 5 Covid-19 update [LINK]. Versus their Sept 30 update, the number and names of oil sands facilities on the Covid outbreak list are unchanged. The 6 outbreak oil sands facilities are: CNRL Albian, CNRL Horizon, CNRL Kirby Jackfish, MEG Christina Lake, Suncor Firebag and Suncor Fort Hills.

Oil – Refinery inputs +1.891 mmb/d YoY at 15.744 mmb/d, up WoW

Refinery inputs up WoW

We continue to see a far from normal trend in crude oil inputs to refineries. On one hand, crude inputs continue to recover out of Covid and from the impact of Hurricane Ida. On the other hand, early October is normally a period of seasonal decline in crude oil inputs. But the positive trends are outweighing the normal seasonal trends There was a slight increase in refinery inputs as refineries along the US Gulf Coast continue to return to full operations post Hurricane Ida. Crude inputs to refineries were up +0.329 mmb/d this week to 15.744 mmb/d and are +0.1.891 mmb/d YoY. Refinery utilization was up +1.5% to 89.6%, which is still +12.5% YoY. Total products supplied (i.e., demand) was up +1.135 mmb/d to 21.526 mmb/d. Motor gasoline was up +0.028 at 9.427 mmb/d from 9.399 mmb/d last week. Gasoline supplied, a proxy for demand, was down last week. Not a surprise with higher retail prices. With the driving season over, demand tends to fall. The four-week average of production supplied increased to 7.597 mmb/d, up from last year. Below is our graph of crude inputs to US refineries and our graph of US motor gasoline supplied.

Figure 15: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA, SAF

Oil – US "net" oil imports up + 1.389 mmb/d WoW at 4.921 mmb/d

US "net" oil up WoW

US "NET" imports were up +1.389 mmb/d to 4.921 mmb/d for the Oct 1 week. US imports were up +0.483 mmb/d to 7.035 mmb/d. US exports were down -0.906 mmb/d to 2.114 mmb/d. The WoW increase in US oil imports was driven by US's top 10 imports by country were up +0.623 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was up this week by +1.005 mmb/d to 4.039 mmb/d, which is now ~0.346 mmb/d above the average levels in Jan/Feb of 2020. It looks like some of the increase is due to the start up of the Enbridge Line 3 replacement project. (ii) Saudi Arabia was up +0.61 mmb/d to 0.622 mmb/d this week. (iii) Colombia was down -0.255 mmb/d to 0. (iv) Ecuador decreased imports this week, down -0.176 mmb/d. (v) Iraq was up +31,000 b/d to 31,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico was down by -112,000 b/d to 0.652 mmb/d

Figure 16: US Weekly Preliminary Oil Imports by Major Countries

US Weekly Preliminary Crude Imports By Top 10 Countries (thousand b/d)												
	July 23/21	July 30/21	Aug 06/21	Aug 13/21	Aug 20/21	Aug 27/21	Sept 03/21	Sept 10/21	Sept 17/21	Sept 24/21	Oct 1/21	WoW
Canada	3,476	3,228	3,371	3,057	3,555	3,612	3,580	3,200	3,143	3,034	4,039	1,005
Saudi Arabia	363	351	302	363	286	345	296	369	399	561	622	61
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	621	634	601	629	595	674	372	538	835	764	652	-112
Colombia	144	141	293	143	370	71	145	0	212	255	0	-255
Iraq	145	82	120	150	77	174	106	50	42	0	31	31
Ecuador	168	46	150	197	261	195	0	174	102	235	59	-176
Nigeria	55	212	150	214	95	43	116	82	95	64	133	69
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	4,972	4,694	4,987	4,753	5,239	5,114	4,615	4,413	4,828	4,913	5,536	623
Others	1,535	1,738	1,409	1,597	918	1,226	1,195	1,348	1,637	1,639	1,499	-140
Total US	6,507	6,432	6,396	6,350	6,157	6,340	5,810	5,761	6,465	6,552	7,035	483

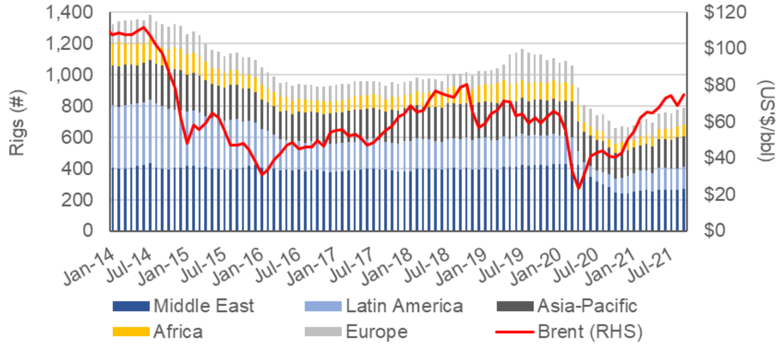
Source: EIA, SAF

Oil – Baker Hughes International rigs +10 MoM to 787 rigs in September

International rigs +10 MoM

There were no major oil or natural gas takeaways from Baker Hughes updated international rig counts for September on Oct 1 which, as expected, showed an increase from last month's count. International activity had been increasing with stronger oil and gas prices. September is up +12% YoY, but still down 31% vs September 2019. Total international rigs increase 10 MoM to 787 in September. The MoM rig count is as followed: Asia-Pacific -4, Africa +3, Europe +1, Latin America +2, and the Middle East +8. The rig count in the Middle East was driven by +3 rig increase in Saudi Arabia which we believe to be in accordance with OPEC+ production increase agreements. Indonesia continue its record 7-yr highs this month, up +1 rig. Algeria drove Africa increases at +2 rigs in September. Below is our graph of international rigs by region and avg monthly Brent price.

Figure 17: Baker Hughes International Rig Count and Brent Price



Source: Baker Hughes, Bloomberg

Oil – Colombia Aug oil production was 0.748 mmb/d is +0.8% YoY, +0.2% MoM

Colombia oil production has rebounded after the blockades were lifted in June/July. On Tuesday, Colombia Ministry of Mines and Energy released its August oil and gas production data [LINK]. The Columbian Ministry of Mines and Energy reported "*Regarding oil production, in the month of August 2021 it was 747,772 barrels average day, a recovery of 0.7% compared to the data reported in the same month of 2020 (742,091 bpd). With respect to the production of last July (731,255 bpd) there was an increase of 2.2%*.' Colombia did not highlight any one region as being the key area, rather they noted several properties with increasing production. Colombia also noted that YTD Aug 31 oil production averaged 0.732 mmb/d, down 7.8% YoY from 0.794 mmb/d in the same period 2020. Note that Colombia wants to attract more capital to its oil sector. Our Sept 26, 2021 Energy Tidbits highlighted that week's FT report [LINK], that Colombia's ANH is making changes to the production contracts for Columbia's 2021 licensing round to try to encourage more bidding. The changes are not viewed as material, but are viewed as being small positives with minor changes to prequalification and contract terms. FT reported that the new tweaks include the rules for companies to prequalify and the contract terms have been reviewed to improve the 2021 process to attract new investments in both exploration and production. Below is our table of Colombia monthly oil production. Our Supplemental Documents package includes the Google Translate version of the Colombia release.

Figure 18: Colombia Oil Production

million b/d	2015	2016	2017	2018	2019	2020	20/19	2021	21/20
Jan	1.036	0.986	0.860	0.860	0.899	0.884	-1.7%	0.745	-15.7%
Feb	1.030	0.955	0.864	0.823	0.893	0.878	-1.6%	0.746	-15.1%
Mar	1.023	0.917	0.804	0.856	0.885	0.857	-3.1%	0.745	-13.0%
Apr	1.029	0.915	0.857	0.865	0.891	0.796	-10.6%	0.745	-6.4%
May	1.027	0.904	0.851	0.866	0.895	0.732	-18.2%	0.703	-3.9%
June	1.010	0.888	0.857	0.864	0.892	0.730	-18.2%	0.694	-4.9%
July	0.947	0.843	0.856	0.860	0.869	0.735	-15.4%	0.731	-0.5%
Aug	0.968	0.827	0.858	0.866	0.883	0.742	-15.9%	0.748	0.8%
Sept	1.009	0.859	0.851	0.869	0.879	0.749	-14.8%		
Oct	1.005	0.846	0.864	0.879	0.883	0.751	-14.9%		
Nov	0.990	0.855	0.851	0.883	0.880	0.761	-13.5%		
Dec	0.999	0.837	0.870	0.889	0.882	0.759	-14.0%		

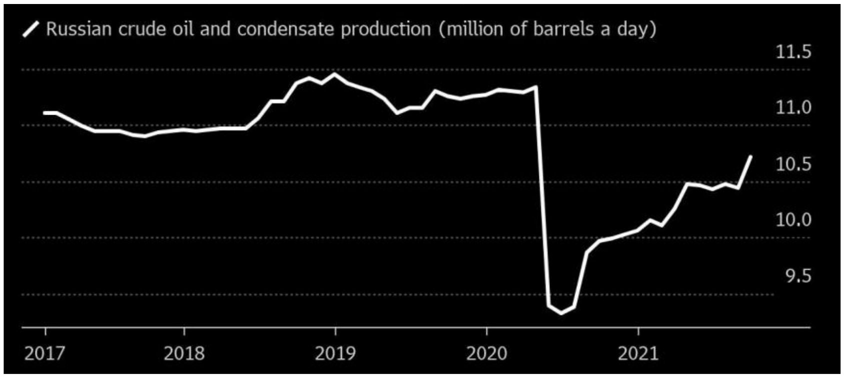
Source: Bloomberg, Colombia Ministry of Mines and Energy

Oil – Russia crude production ~130,000 b/d above their September quota

Russia production jumps most in 13 months

Russian September oil production had its biggest jump in the last 13 months with companies increasing output under the OPEC+ deal. On Monday, Bloomberg reported Russian crude and condensate production in September was about 10.716 mmb/d, up 276,000 b/d from August production. The official Russian data doesn't split out crude vs condensate, but if Russia's condensate production is in line with August, about 880,000 b/d, crude output would be 9.83 mmb/d, ~130,000 b/d above their September quota. Russia's compliance shrank from 95% in July, to 92% in August, lowering their rate among other OPEC+ producers. Russia has agreed to raise its output by 100,000 b/d each month starting in August, along with the rest of the alliance's agreement to return 400,000 b/d of supply to the market each month. Their compliance in June was 96%, up from 94% in May and 91% in April. Below Is Russia's oil and condensate output recovery.

Figure 19: Russia's Oi and Condensate Output Recovery



Source: Bloomberg

Oil – OPEC+ reconfirms July 18 production plan to add 400,000 b/d in Nov

OPEC+ sticks to July 18 plan

It may not have been a record quick meeting, but OPEC+ Monday meeting was done very quickly to confirm they were sticking to the monthly production adjustment mechanism approved at the July 19 OPEC and Non-OPEC Ministerial Meeting. OPEC stated, "*reconfirmed the production adjustment plan and the monthly production adjustment mechanism approved at the 19th OPEC and non-OPEC Ministerial Meeting and the decision to adjust upward the monthly overall production by 0.4 mb/d for the month of November 2021, as per the attached schedule"* [LINK]. OPEC and allies led by Russia agreed in July to phase out record output cuts by adding 400,000 bp/d of oil a month (see our July 18, 2021 Energy Tidbit). The next OPEC+ meeting is schedule to be held on November 4, 2021. Our Supplemental Documents package includes the OPEC+ release as well as the July 18 production plan.

Figure 20: OPEC+ Cut Schedule

OPEC (mmb/d)	Reference Level Production	March 2021	April 2021	May 2021	June 2021	July 2021	Aug 2021	Sept 2021	Oct 2021	Nov 2021	Dec 2021	May/22 per July/21 Agreement -	Change in Ref. Level Post May/22	EIA STEO 2022E Production Avg
Algeria	1,057	876	876	887	898	912	922	932	942	952	962	1,057	-	n.a.
Angola	1,528	1,267	1,267	1,283	1,298	1,319	1,334	1,348	1,363	1,377	1,392	1,528	-	n.a.
Congo	325	269	269	273	276	281	284	287	290	293	296	325	-	n.a.
Equatorial G.	127	105	105	107	108	110	111	112	114	115	116	127	-	n.a.
Gabon	187	155	155	157	159	161	163	165	166	168	170	187	-	n.a.
Iran	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Iraq	4,653	3,857	3,857	3,905	3,954	4,016	4,060	4,104	4,149	4,193	4,237	4,803	150	n.a.
Kuwait	2,809	2,329	2,329	2,358	2,387	2,425	2,452	2,478	2,505	2,532	2,558	2,959	150	n.a.
Libya	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Nigeria	1,829	1,516	1,516	1,535	1,554	1,579	1,596	1,614	1,631	1,649	1,666	1,829	-	n.a.
Saudi Arabia*	11,000	8,119	8,119	9,232	9,347	9,495	9,600	9,704	9,809	9,913	10,018	11,500	-	n.a.
UAE	3,168	2,626	2,626	2,659	2,692	2,735	2,765	2,795	2,825	2,855	2,886	3,500	332	n.a.
Venezuela	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total OPEC	26,683	21,119	21,119	22,396	22,673	23,033	23,287	23,539	23,794	24,047	24,301	27,815	1,132	24,390
OPEC vs. ref.	**0**	**-5,564**	**-5,564**	**-4,287**	**-4,010**	**-3,650**	**-3,396**	**-3,144**	**-2,889**	**-2,636**	**-2,382**	**0**	**0**	**-2,293**

*Saudi Arabia quota for Feb-Apr 2021 includes voluntary 1mmb/d cut; May-July includes wind down of voluntary cut

Non-OPEC	Reference Level Production	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	Sept 2021	Oct 2021	Nov 2021	Dec 2021	May/22 per July/21 Agreement -	Change in Ref. Level Post May/22	EIA STEO 2022E Production Avg
Russia	11,000	9,249	9,379	9,418	9,457	9,495	9,495	9,495	9,495	9,913		11,500	500	n.a.
Kazakhstan	1,709	1,437	1,457	1,463	1,469	1,475	1,475	1,475	1,475	1,540		1,709	-	n.a.
Oman	883	732	732	741	750	762	762	762	762	796		883	-	n.a.
Azerbaijan	718	595	595	603	610	620	620	620	620	647		718	-	n.a.
Malaysia	595	493	493	499	506	514	514	514	514	537		595	-	n.a.
Bahrain	205	170	170	172	174	177	177	177	177	185		205	-	n.a.
Sudan	75	62	62	63	64	65	65	65	65	68		75	-	n.a.
South Sudan	130	108	108	109	110	112	112	112	112	117		130	-	n.a.
Brunei	102	85	85	86	87	88	88	88	88	92		102	-	n.a.
Total Non-OPEC	15,417	12,931	13,081	13,154	13,227	13,308	13,308	13,308	13,308	13,895		15,917	500	n.a.
Non-OPEC vs. ref.	**0**	**-2,486**	**-2,336**	**-2,263**	**-2,190**	**-2,109**	**-2,109**	**-2,109**	**-2,109**	**-1,522**		**0**	**0**	**n.a.**
Total OPEC+	42,100	34,050	34,200	35,550	35,900	36,341	36,595	36,847	37,102	37,942		43,732	1,632	n.a.
OPEC+ vs ref.	**0**	**-8,050**	**-7,900**	**-6,550**	**-6,200**	**-5,759**	**-5,505**	**-5,253**	**-4,998**	**-4,158**		**0**	**0**	**n.a.**

Source: OPEC

Oil – THE" Game changer to oil, the Arab Oil Embargo started Oct 19, 1973

Arab Oil Embargo Oct 19, 1973

Whenever I see lineups for gasoline/petrol like in the UK, it brings back not so pleasant memories of the Arab Oil Embargo that started on Oct 19, 1973, which was "THE" game changer to oil markets and many energy related parts of the economy. Most weren't born or too young or not in the US to remember the 1973/1974 Arab oil embargo that hammered the US economy and moved quadrupled oil prices from ~$3 to ~$12. It forced the US and other western countries to have their first real look at oil security. There is no question that having an immediate cut off of oil forced change. Change always happens decisively and quickly when something is cut off rather than just becomes more expensive. It was "THE" game changer to the oil and gas industry that led to lasting trends such as the 1976 election of Jimmy Carter (who introduced the first tax credits to kickstart the US shale gas/oil revolution), the creation of Strategic Petroleum Reserves, the International Energy Agency, the push to find oil outside the Middle East in regions, the US govt push to begin to import LNG, etc. It was also a game changer for consumers and led to the move to fuel efficient cars like the Honda Civic (don't forget made in Japan wasn't a good brand in the 60's). And to the US mandating other fuel efficiency items like reducing interstate highway speeds to 55 mph. Most can remember in the Canada even with a 70 mph speed limit on the 401 and in the 70's, most did 10 mph above the max. The big reason for this was that the Arab Oil Embargo led to an immediate rationing of gasoline in many parts of the US – it was immediate. And to the famous multi block long lineups to buy gasoline. Don't forget there was no self service gas stations so you couldn't fill up in violation of the restrictions. In areas that had poor access to gasoline, it was common to line up for 30 min to an hour for gasoline. The end of the oil embargo was on March 13, 1974.

Oil – Saudi Aramco announces oil production to reach 13 mmb/d by 2027

Aramco to reach 13 mmb/d by 2027

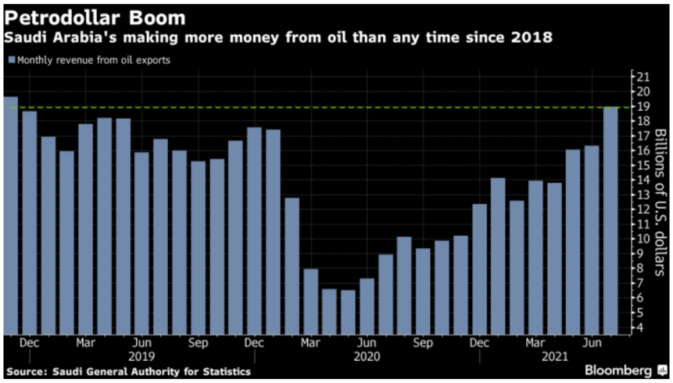
No one can doubt that Saudi Arabia is positioning itself to be the big winner if oil demand hasn't peaked. At a time when western supermajors and E&P are being driven by capital markets to spend less on oil capex, Saudi Aramco is going ahead with major oil production capacity expansion plans. On Monday, Saudi Armco announced [LINK], their intentions to increase production capacity to 12.55 mmb/d by 2025 and reach 13 mmb/d by 2027. The increase in production comes as Aramco continues to expect an increase in oil demand. Aramco CEO Amin Nassar noted the switch from gas to oil added due to high gas prices added 0.5 mmb/d to the global demand for oil. He also reminded that investment in upstream production requires time, especially when there is a lack of investment present in the market. Aramco also noted they are working to develop its gas capacity; the first phase of the Jafurah unconventional natural gas project is slated to begin production in 2025. The project is expected to have an initial production capacity of 200-300 mmcf/d with the potential to grow. Aramco did not disclose how much capital will be needed to get to 200-300 mmb/d in 2025. However, we believe this gas increase is insignificant to world natural gas supply, And the reality is that a natural gas producer like Tourmaline could 200-300 mmcf/d in one year if they wanted to do so. Our Supplemental Documents package includes the Aramco report.

Oil – Saudi oil revenues +$50b in LTM, yet net foreign assets down $11.6b YoY

Saudi oil revenues vs net foreign assets

We wished we had seen the below Bloomberg graph before writing up our item in last week's (October 3, 2021) Energy Tidbits memo highlighting the new Saudi Arabia Net Foreign Assets data as of Aug 31. Saudi's net foreign assets in August were $437.0b, down immaterially from $437.5b in July but down from $441.8b at June 30. August 2021 is down $11.6b YoY. The peak in Saudi net foreign assets was $737.0b on Aug 31, 2014, which means there has been a decline in the last seven years of $299.5b, which is a massive decline. On Tuesday, Bloomberg posted the below graph highlighting Saudi's monthly oil revenue. The last month was July and that was $19b and August will be higher with higher production levels and higher oil prices. So when we saw that graph, we got to thinking about what we had just wrote on being surprised that Saudi net foreign assets at Aug 31 were down Mom (albeit marginally) and down $11.6b YoY. Its why we tweeted [LINK] "*Saudi #Oil export revenues up ~$50b over last 12 mths using Aug 2020 as baseline. Yet Saudi Net Foreign Assets down $11.6b YoY. Reinforces why #1 financial theme for 2020s for KSA will be using OPM. Saudi energy minister Abdulaziz is The Man for how he manages oil markets. #OOTT*". Using Aug 2020 of ~$10b as a baseline, Saudi oil export revenues are up approx. $50b in the last 12 months yet there was a $11.6b YoY reduction in Saudi net foreign assets in the same period. This is why we keep saying the #1 financial theme for Saudi Arabia is using Other People's Money

Figure 21: Saudi Arabia Monthly Oil Revenue



Source: Bloomberg

Oil –DEBKA's interesting thesis on a potential US/Russia/Israel/Iran deal

Interesting DEBKA thesis

I have been writing Energy Tidbits for over 21 years and have always tried to present both sides of a view but also note items that may not be a mainstream view on potential upsides or downsides to oil and natural gas. In some cases, like today, it's a one off view that we have not heard before. I have not seen anyone put a thesis like this on Iran. The reason why I even mention it is that this thesis is likely to be provide out one way or another in the next couple months and, if it turned out, would have profound impact on the Middle East and oil markets right away. With those caveats, on Thursday, DEBKAfile reported "*EXCLUSIVE: Israel may accept Iran as nuclear-threshold power on condition of US-Russian guarantees*" [LINK]. DEBKA wrote "*Israel, Iran, the US and Russia are engaged in secret talks for Israel's acceptance of Iran as a nuclear threshold power in return for a US-Russian guarantee that Tehran will not cross the threshold to make a nuclear bomb. DEBKAfile: Kremlin sources say that reports of a forthcoming summit between Prime Minister Naftali Bennett and President Vladimir Putin in Moscow, possibly on Oct. 22, attest to those talks making progress towards a deal*." It may not be heard anywhere else, but this is good food for thought. If this was going on, then it also makes sense why we see reports like the Times of Israel Friday report [LINK] "*Iran says Saudi detente on right track, but more talks needed*". Part of the reason for discounting the DEBKA report is that there hasn't been any leaks/hints of this thesis. But if it ever happened, what a master plan especially if a Saudi/Iran détente then happens. From a simplistic oil perspective, it should lead to the near term return of all remaining Iran barrels. But then there would be the unanswered questions on what does Russia get out of it? They have to get something out of it even if it's a commitment for the US to stay hard on oil and gas, which they could continue to do so under the cover of climate change. Biden would get an amazing foreign policy coup with a deal that is supported by Israel. There would be much more out of this. But I caveat this by saying I haven't heard anyone else with this thesis that, if true would happen quickly. Its why I wanted to mention it as potential near term risk to oil. Our Supplemental Documents package includes the DEBKA report.

Oil – Recent Iran facility fire believed to be a missile production facility

Iran fire at missile facility

No one should be surprised to see the Israeli reports that the mysterious accidental fire last week at an Iran research centre is actually believed to be an Iran Revolutionary Guard missile production facility. Details around the mysterious Iran fire that occurred last week continue to surface. Our October 3, 2021 Energy Tidbit noted wrote, "*we continue to worry about the Israel wildcard with respect to a potential escalation in the Middle East. Our view is unchanged, we suspect at their White House Aug meeting, Israel PM Bennett likely gave Biden some limited time frame for some specific results on Iran. It caught our attention that Bennett said their goal is to "permanently" keep Iran from being able to break out to nuclear weapon. And then his comment that it is their responsibility to take care of their fate. The question will be if a return to the JCPOA or other separate Iran deal will satisfy Israel? And is not, what will Israel do if it wants to "permanently" stop Iran from being able to break out to nuclear?" At least from the outside, there doesn't appear to be any US progress on Iran and they can't get even get them back to the negotiating table. So no one should be surprised to see reports of mysterious fires and/or explosions at key Iran facilities. Last Sunday, Iran state TV reported of a fire at a research centre belonging to the Islamic Revolutionary Guard Corps [LINK]. Three people were injured, though the fire was reported to be contained. The IRGC controls major aspects of Iran's security facilities and operations. This follows a trend in recent years of several mysterious incidents at facilities linked to defense establishments or Iran's nuclear program"*. On Monday, Ynet News reported that the facility, originally believed to be a research centre, was in fact a missile production facility [LINK]. Ynet wrote "*Iranian instillation described as a "research center," that caught fire on Monday, is a missile storage facility for the Revolutionary Guard Corps, satellite pictures revealed on Thursday*." Our Supplemental Documents package includes the Ynet report.

Oil – IEA's reality case looks like peak oil demand isn't until around 2030

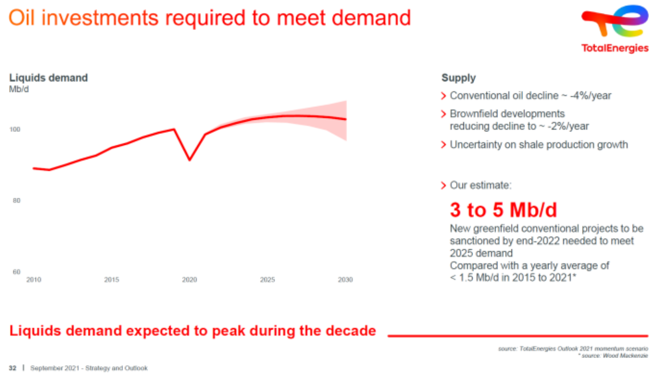
IEA on peak oil demand

The IEA Executive Director Birol's comments this week are another example of a pro Energy Transition leader starting to change his messaging on how fast the world reduces its use of fossil fuels. Our message for a long time – the Energy Transition will take longer, be a bumpy road and cost more than expected. For market watchers, its more meaningful to see pro Energy Transition leaders back away from their bullish views on how quickly fossil fuels consumption can be reduced under the Energy Transition. But luckily they are all politicians, either directly or to some degree like IEA's Birol, so they start to change their messaging and then that will eventually turn into a revised forecast/outlook. On Wednesday, Platts posted comments from a written interview with Birol. This is a written interview so there won't be any chance for misinterpretation of Birol's words. Birol see oil demand back to pre-Covid levels by the end of 2022. But then he also said "*However, our analysis shows that although the COVID-19 crisis caused a historic decline in global oil demand, it's not necessarily a lasting one,"* and *"If we don't see additional major policy changes from governments and more rapid changes in behavior, then global oil demand is set to increase for several more years to come*." Birol maybe saying that peak oil demand could be set to be around 2030, but this is after several years of demand growth. Birol didn't say how 2030 oil demand would compare to pre-Covid, but we suspect it will be higher than pre-Covid 2019 levels. Our Supplemental Documents package includes the Platts report.

IEA reminds of Total's view that oil demand in 2030 is > than pre-Covid 2019

We believe an overlooked item in the peak oil call is what is the absolute level of oil demand in 2030 or 2035 or 2040 relative to pre-Covid 2019. Birol's did not get into any specific forecast but we believe his comments point to 2030 oil demand above pre-Covid 2019 levels. This reminded us of TotalEnergies new long term oil demand forecast. Last week's (Oct 3, 2021) Energy Tidbits highlighted their view of peak oil demand. The headline reporting from TotalEnergies was focused on their forecast that peak oil demand would be in the middle of this decades ie. middle of 2020s. No question that is exactly what was said by TotalEnergies, but they also didn't provide the specific mmb/d in the forecast. And no one bothered to ask them for the mmb/d in their forecast. What struck us about their script and slide was that the numbers portrayed a much more positive outlook for oil. Its why we tweeted [LINK] "*Yes @TotalEnergies said #Oil #PeakDemand in middle of decade. But webcast didn't give mmbd numbers and graph looks like oil demand >pre covid in 2025 & also still >pre covid in 2030. mgmt did say need 3-5 mmbd greenfield to meet 2025 demand. Positive for #Oil in 2020s #OOTT."* The reality is that companies don't make up graphs that don't fit their data. And their graph looks pretty clear. Could you imagine the reporting if TotalEnergies had they oil demand to recover to pre-Covid levels in 2022 and then keep increasing to a peak in 2025/2025, but then only small decrease in oil demand and that oil demand would still be above pre-Covid levels in 2030? They didn't say that, but that is what the graph says. Its like they just didn't want to portray that positive outlook for oil demand. Below is the TotalEnergies oil demand graph.

Figure 22: TotalEnergies Forecast Liquids Demand



Source: TotalEnergies

Oil – Taiwan's Sept crude oil imports rise 13.8% YoY, its oil import bill +80.4% YoY

Taiwan crude imports up in September

There was a good example this week of how the increasing oil prices the last couple months means big increases in oil import bills. On Friday, we tweeted [LINK] *"Taiwan Sept crude #oil imports +13.8% YoY to 0.72 mmb/d but cost of oil imports +80.4% YoY to $1.581b reports. Wait till they see the massive jump in their Sept #LNG bill. #OOTT."* Taiwan's demand for oil continues to grow, as well as the costs associated with it. Bloomberg reported Friday [LINK], that Taiwans crude imports rose 13.8% YoY to 21.59 mmbbl in September. The total cost of these imports was up +80.4% YoY for September to $1.58 bn. No one is surprised by the YoY increase as average Brent price for September 2021 was $74.88/bbl compared to an average price of $44.88/bbl in September 2020. Our Supplemental Documents package includes the Bloomberg report.

Oil – Spain boosted Aug imports to highest level since Oct 2019

Spanish oil Imports up in August

Spanish oil demand appeared to recover over the summer, after a slump during the pandemic. Repsol said in late July that it would restart the idled crude production after months of lower output at its plants. Our April 4, 2021 Energy Tidbits noted "*the common story over the past year has been refineries shutting down temporarily or even some permanently in response to Covid impacting demand. But these reports have basically gone away over the past few months as the world recovers out of Covid. But this week, there was a good example of how Europe continues to lag in the recovery out of Covid. On Thursday, Argus Media reported [LINK] that Repsol has shut the CDU at its 135,000 b/d Puertollano refinery in Spain."* Bloomberg reported on Friday [LINK], that Spain's crude imports climbed 17% YoY in August to 0.357 mmb/d. Our Supplemental Documents package includes the Bloomberg article.

Oil – Vortexa est 82.99 mmb at Oct 8, -16.18 mmb WoW vs revised est Oct 1

Vortexa floating storage

Note that we are referencing the Vortexa global crude oil floating storage data posted on the Bloomberg terminal as of 9:45am MT yesterday. Note that these estimates often get revised over the weekend. Vortexa crude oil floating storage as of Oct 8 of 82.99 mmb, which is down -16.18 mmb WoW vs Oct 1 of 99.17 mmb. Its positive, however there was a big upward revision to Oct 1. The Sat morning est of Oct 1 at 99.17 mmb was revised +7.36 mmb vs originally posted last Sat at 91.81 mmb. There was a big downward revision to Sept 24 data, yesterday's posted at 81.72mmb was revised -5.73 mmb vs posted last Sat at 87.45 mmb. Oct 8 of 82.99 mmb is above the recent June 25 trough of 75.63 mmb. Note the June 25 trough was revised down -4.41 mmb from last Sat posted of 80.04 mmb. Oct 8 of 82.99 mmb is down 135.37 mmb from June 26, 2020 peak of 218.36 mmb, which was revised down from 220.69 mmb posted last Sat. Oct 8 of 82.99 mmb is up vs pre-Covid of 50.07 mmb on Oct 7, 2019. Below is the Bloomberg graph of the Vortexa data back to Oct 7, 2019 as posted on the Bloomberg terminal at 7:30am MT yesterday.

Figure 23: Vortexa Floating Storage Oct 8, Posted on Bloomberg 9:45am MT Sat

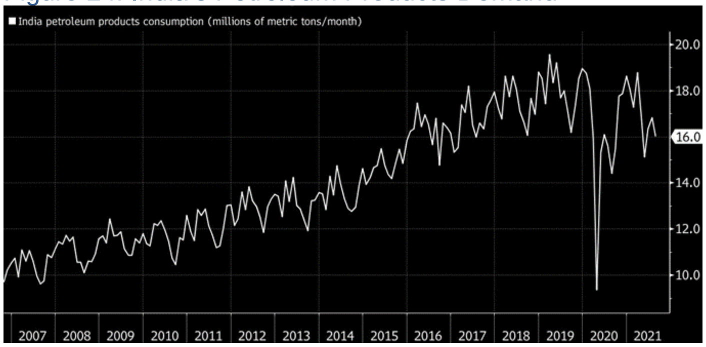
Source: Bloomberg, Vortexa

Oil – Bloomberg Oil Demand Monitor, India increases fuel demand

Bloomberg's Oil Demand Monitor

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. Demand in India's oil-based fuels continued for the third straight month with gasoline deliveries 8.8% above pre-pandemic levels. OPEC expects India demand to reach 11 mmb/d by 2045. Congestion in New York continues to be above pre-pandemic levels while Mexico City, Los Angeles and Toronto were all below 2019 levels. Four out of Europe's five biggest European cities saw higher than 2019 congestion levels with Madrid posting the biggest increase of 15%; Rome was 9% below 2019 levels after being above normal levels for the last two weeks. Toll data from Atlantia group for 6 nations across Europe and Latin America show that all except Spain had higher traffic volumes than the equivalent week in 2019. Spain remained 2.2% below the 2019 equivalent week while Mexico had the biggest increase of 5.1%. US traffic volumes continue to be close to 2019 levels, continuing the trend over the last couple of weeks. Airline seat capacity continues to be hampered by international travel restrictions. Global capacity is still 30% below the equivalent week of 2019. China saw reductions in capacity after being the most resilient throughout the pandemic with new coronavirus outbreaks. China seat capacity was 14.73 million as of Oct 4. Jet fuel demand continues to be down; the US reported a decrease in demand of 21% MoM while India was the only nation to increase demand, up 9.6% MoM. US refinery utilization continues to be down though is expected to increase in the coming weeks as GoM refineries come back online after Hurricane Ida. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Figure 24: India's Petroleum Products Demand



Source: Bloomberg

Oil – China National weekly tourist trips down 29.9% vs pre-Covid

China continues to follow its zero-tolerance Covid strategy and that means travel is not yet back to normal. But cases are relatively low and some of the smaller provinces (ie. Fujian 38 mm people, Heilongjiang 32 mm people and Xinjiang Heilongjiang 32 mm people) are reportedly near Covid free. So China looks to be staying on the path to getting closer to normal. But travel is still down. On Thursday, Xinhua reported [LINK], China saw 515 million domestic tourist trips during their seven-day National Day holiday, which celebrates the founding of the People's Republic of China. This figure is just 70.1% of total trips made for the same period pre-pandemic.

China domestic flights at 70.1% of 2019 levels

Oil – US also has a tank truck driver issue

Last week's (Oct 3, 2021 Energy Tidbits) memo highlighted the aging workforce in the old economy (ie. trucking) will be an increasing issue and our prior Energy Tidbits highlighting on how the North American truck driver shortage only got worse during Covid ie. just like the UK. This continues to be an increasing risk to the oil industry with an aging workforce in the petroleum trucking sector. The National Tank Truck Carriers released August data that gave insight to the current climate US petroleum truck drivers. The Covid-19 pandemic has exacerbated the pre-existing issues. Our October 3 Energy Tidbit noted, *"there was already a retirement issue affecting the trucking industry before Covid. But this attrition of drivers issue should get a bigger boost than normal/expected because of the high percentage of older drivers. Older drivers are not going to be different than older people and see higher risk to getting Covid. And older drivers are the biggest percentage of truck drivers. It means that the retirement issue will get worse."* 80% of all US petroleum track drivers are over the age of 45 and 23% are over 55. There has been a substantial decrease in the number of drivers since 2016, down 23.3% and an 11% reduction ion total loads hauled. The NCCT reports that for every 9 job postings, there is only 1 hire; this in comparison to blue collar positions that observe a 1:1 ratio of job postings to positions filled. DMV and driving school closures created a void of new drivers while certifications required, and the marred image of the trucking lifestyle continue to be barriers to entry. Our Supplemental Documents package includes the NCCT report.

Petroleum truck driver shortage in US

Oil – Bloomberg NEF Global Aviation, Jet fuel demand recovery slow amid Covid-19

On Wednesday we tweeted [LINK], *"Good update of airline (ex cargo) schedules, volume & #Oil #JetFuel impact from @BloombergNEF Covid-19 Indicators: Global Aviation report. Jet fuel demand continues to increase, albeit slowly #OOTT".* Globally flights around the world declined by 3.2% for the 11 weeks ahead last week. Jet fuel demand over the next four weeks is expected to average 4.31 mmb/d, though cancellations since last week are expected to remove 0.114 mmb/d. Cuts to the November schedule have removed 0.250

Bloomberg NEF Global Aviation

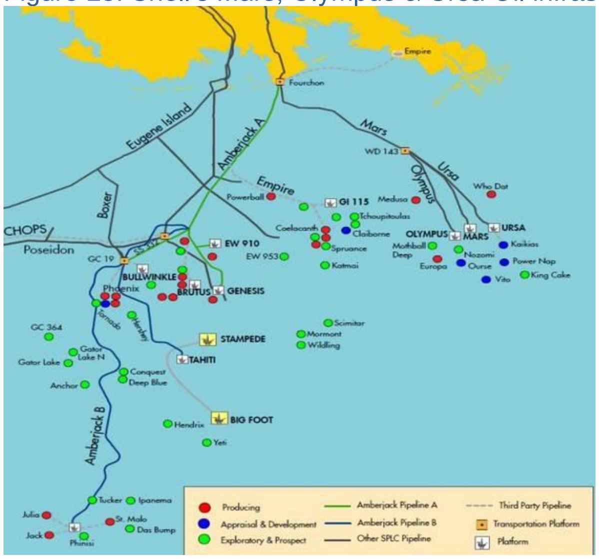
mmb/d of jet fuel demand. Jet fuel demand implied by current passenger flight schedules will reach 5.06 mmb/d for the 4 weeks from Nov 30. US passengers remained relatively flat at 1.75 million passengers per day, still down significantly from the equivalent week in 2019 of 2.3 mm passengers per day. China's departures increased WoW, rising to 420 on average with their Golden Week holiday beginning on Oct 1; levels remained below 2020 levels. Departures in the Eurocontrol area were down 1.4% WoW with Volotea, Austrian and Alitia airlines leading the declines. Globally departures per day were up 1.3% on average WoW with China and India leading growth and Russia leading declines. Our Supplemental Documents package includes the BloombergNEF report.

Oil & Natural Gas – Shell restarts GoM Olympus assets after Ida shutdown.

Shell releases Ida storm update

On Monday, Shell released its 2021 Storm Season update regarding its WD-143 offshore facility [LINK]. Shell indicates that production has safely and successfully been restored at Olympus assets in the Mars Corridor. Shell had previously noted this would be happening in Q4/21. The remaining Shell offshore GoM assets (Mars and Ursa) are expected back on stream in Q1/22. That timing is unchanged. Our Supplemental Documents package includes the Shell Storm update.

Figure 25: Shell's Mars, Olympus & Ursa Oil infrastructure in Gulf of Mexico



Source: Offshore Engineer, Shell

Oil & Natural Gas – CEPA to shutdown after 28 years

CEPA ceases operations

It's a sad day for oil industry veterans to see the end of one of the industry associations – the Canadian Energy Pipeline Association (CEPA) announced in a press release on Oct 1 [LINK], that they would be ceasing operations after 28 years. The release cited membership changes no longer made it feasible to execute their mandate going forward. In their statement, "t*he decision was not taken lightly. As an association, we have focused on offering our members a unified voice and leading advocacy provincially and federally. This includes the work done on the Impact Assessment Act and numerous other policy initiatives over the years. We are proud of the impact CEPA has had on the Canadian energy policy landscape. In addition, through our industry collaboration, we established the Integrity First program to help pipeline companies share and implement leading practices, keeping pipelines safe and communities protected."* The Calgary Herald revealed that TC Energy and Pembina Pipelines served notice that they would be departing by the end of the year, leaving a budget hole that was too difficult to fill. Alberta Energy minister Sonya Savage noted, "*It's really short-sighted for these companies to have let the industry association fold because you know we're going to need it again.*" The article notes that the decision reflects a changing period for the pipeline sector that began with the demise of Keystone XL earlier in the year. Our Supplemental Documents package includes the Calgary Herald article and CEPA press release.

Energy Transition – Blinken "can have challenging, bumpy patches" during transition

Blinken warns on energy transition

The US is now joining the train on pro Energy Transition leaders started to warn that the Energy Transition will take longer, be a bumpy road and cost more than expected. As we have been warning, we are seeing a changing of the messaging from the pro Energy Transition leaders. They aren't backing away from their commitment, but are being forced to at least acknowledge it won't be a smooth ride. The Energy Transition pushers have no choice but to say something like this. So they have to acknowledge it and, while they may not give up their ambition, they have to give a little on the pace of the energy transition. ie. a longer life for natural gas. This time, its US Secretary of State Blinken in his Bloomberg interview on Wednesday. Its clear that this was his #1 messaging point. He didn't answer a question and then do the political pivot to his desired message. Rather, he was asked a different question and replied with this message. It also suggests that his "can" is really a "will". We created the transcript of this interchange. At 0:50 min mark. [LINK], Bloomberg's Francine Lacqua asks "*How should the West and how should Europe deal with Putin given these high energy prices that we talk about every day?*" Blinken replies "*Well, I think the high energy prices we're seeing now are, reinforce a few things. They reinforce the need for a transition to new forms of energy, particularly sustainable, energy. And at the same time they reinforce the need for energy diversification, something Europe's been engaged in for some time but we need to do more and go further. But we're in the midst of a lengthy, transition to renewables of various kinds, away from fossil fuels. In, during that transition you can have challenging, bumpy patches before you actually get to the point where you have all of these renewable energies that are online and able to fill the gap. But I think it calls on the need for coordination and it calls on the need for pursuing diversification.*"

Energy Transition – Kerry/Birol changing messaging in run up to COP-26

Kerry/Birol trying to salvage COP-26

Perhaps the highest profile example of the pro Energy Transition leaders having to change their messaging was the messaging from IEA Executive Director Birol and US Special Presidential Envoy for Climate Kerry. They have been leading the charge to try to get others to commit to Net Zero. After seeing Birol's tweet [LINK] on Monday, we tweeted [LINK] *"how to strengthen global climate & energy ambitions" isn't where @fbirol @ClimateEnvoy expected to be 26 days to #COP26. EU #Power/#NatGas price jump was wake up call to check reality of energy reliability, affordabilty & accessibilty under #EnergyTransition #NetZero plan. #OOTT"*. With less than a month to go to COP-26, they both probably expected they would be in the coronation parade up to Net Zero. Instead, it sounds like they are trying to stop countries from backing off (we think of the saying the rats fleeing the sinking ship) to salvage as much as possible to stay afloat to fight another day in COP-27 in Egypt a year from now. These COP's are held every year. Birol's tweet said "*Excellent discussions with US @ClimateEnvoy John Kerry this morning on how to strengthen global climate & energy ambitions in the countdown to #COP26. @IEA is committed to helping countries turn ambitions into real reductions to keep the 1.5 degree target alive.*" Part of it is lowering expectations but the tweets would be very different in tone and content if they had a sign off from the world that they thought would have with less than a month to COP-26. Its also why we think the focus will be turning to items like reducing methane emissions form the oil and gas sector as a priority because it is likely doable at COP-26. And they will be looking for some victories.

Energy Transition – Euronav, someone has to pay for $4-5t for new shipping infra

Straight talk on energy transition

One of the few regular podcasts we listen to is the Gulf Intelligence Daily New Silk Road "Live" podcast out of Dubai. On Wednesday, we tweeted [LINK] "*Worth a read. @EuronavNV Rustin Edwards straight talk on rapid decarbonization, no clear answer on shipping fuel of the future, $4-5 trillion retrofit of shipping infra, etc. Thx @gulf_intel @DyalaSabbagh_GI for great Oct 6 podcast.#OOTT #EnergyTransition".* Edwards is Head Fuel Oil Procurement at Euronav NV and bring an excellent shipping/oil perspective. We described his comments as "straight talk" on the disorganization of the energy transition. One example is his comments on shipping fuel. We created a transcript of his comments and he said "*And part of what is the struggle right now is the multiple paths people are pursuing in order to achieve the goals for 2030 and 2050 laid down by the IMO. Its like we don't have a focus for the industry yet as how do we get from our current petroleum based fuel to some fuel in the future so we can actually focus the investments, focus the technology, focus the trails to make sure that we can get there and can get there efficiently with minimal disruptions. As of right now, you've got so many different voices touting so many different fuels that its hard to keep track of which ones actually going to work. And in my current, or my constant refrain on anything is that how are we going to pay for the four to five trillion dollar retrofit of the entire infrastructure system beneath the future fuel whenever that's decided what the future is".* This is the challenge – there isn't a clear fuel for the future for shipping. And then there is overlooked item – someone has to pay to replace the $4 to 5 trillion retrofit of the shipping infrastructure. It's a good reminder why we have been saying the energy transition will take longer, be bumpy and cost more than expected. Edwards had other good energy transition straight talk. Our Supplemental Documents package includes the transcript we made of his key comments.

Energy Transition – China's winter focus is to load up, not reduce fossil fuels

China to load up on fossil fuels this winter

On Friday, we tweeted [LINK] on a bullish official China govt release "*Li Keqiang presided over an executive meeting of the State Council to further make arrangements for the supply of electricity and coal this winter and next spring to ensure the basic lives of the people and the smooth operation of the economy, etc*." [LINK] We tweeted "*Must read, bullish for #NatGas #Coal #Oil this winter with China priority to ensure energy security for economy. Incl priority for coal generation, "actively promote the construction of coal, natural gas, crude oil reserves and storage capacity", and more. #OOTT".* China reported on Premier Li Keqiang presiding over the executive meeting of the State Council on Oct 8. China reported "*the meeting emphasized that ensuring energy security and ensuring the stability of the industrial chain supply chain is an important part of the "six guarantees*."" That is clear they aren't sacrificing the economy to cut emissions. China said they "*must support coal power companies to increase power supply*". And "*Actively promote the construction of coal, natural gas, crude oil reserves and energy storage capacity".* Certainly not what the Energy Transition leaders wanted to hear going into COP-26. The plan to actively buy coal, natural gas and oil for storage was leaked out the day before the release as a likely priority. There is much more in the China release. Our Supplemental Documents package includes the China release.

One problem, flooding causing Shanxi province coal mine shut-ins

Shanxi province is #1 coal production province and is probably close to 30% of China's raw coal supply. The large rainfall and flooding is leading to a shut-in of some coal mines. The Shanxi Provincial Department of Emergency Official Account reportedly said "*According to statistics, a total of 54947 people were transferred from various parts of the province during the flood, 60 coal mines were suspended, 372 non-coal mines, 14 hazardous chemical enterprises, 1,035 construction in progress were suspended, and 166 scenic spots were closed." [LINK]* We do not have indication how much of the 60 coal mines was thermal coal. Regardless, it's a reminder that it won't be easy for China to ramp up thermal coal output in Oct/Nov.

Energy Transition – Liberals detailed climate plan will be after COP-26

Liberals detail plan post COP-26

We aren't surprised to see the reports from Canada's detailed climate action plan isn't expected before COP-26, rather it looks like it will be in the coming months. Our best guess is sometime in late Nov or early Dec. We think this makes sense from the perspective that it allows Trudeau to be focused on his big picture theme on Canada's accelerating its push to Net Zero. Yes there was an election but we can't believe the Liberals hadn't built their COP-26 strategy before the election. And we don't believe that even if Trudeau replaced Wilkinson as environment minister, it would change the Liberals COP-26 strategy. Rather, we just believe the Liberals do not want to roll out a detailed plan for COP-26. And its why we think it will be ready to revealed soon after COP-26. As we have noted every time, we expect to see an increased negative impact on the oil and gas sector. Our Supplemental Documents package includes the National Post reporting of the Wilkinson comments. [LINK]

Energy Transition – FERC greenhouse gas emissions on proposed natural gas

FERC going harder on natural gas

There was a good reminder this week from FERC (Federal Energy Regulatory Commission) that the Biden administration is trying to make it tougher for growth in natural gas consumption. On Monday, FERC announced "*FERC Staff Issues Supplemental Notice and Agenda for the Greenhouse Gas Mitigation Technical Conference*". [LINK] No one would ever know from the title that this is actually a conference to share ideas on how to get tougher on new natural gas projects like natural gas power plants. But that is clear once anyone opens the separate agenda. This is an ideas conference that FERC will help with new greenhouse gas restrictions. The reality is that FERC and Biden administration already know what they want and this is more a process step as opposed to a significant event. Although they may get some tweaks. This is all about how to reduced greenhouse gas emissions on proposed (new) natural gas projects. Its inevitable that this will make it tougher or slower for approvals for new natural gas projects, which fits the Biden plan to eliminate carbon electricity. Even if its primarily a delaying action. It just makes it tougher for the capital allocation decision for a new gas plant if it takes a few years longer to get a new natural gas facility into service. It means that there is less time to get the return on these future natural gas projects. Our Supplemental Documents package includes the FERC agenda for the conference.

Climate Change – Bloomberg's top 10 Govt Climate Risk ranking

Government Climate Risk ranking

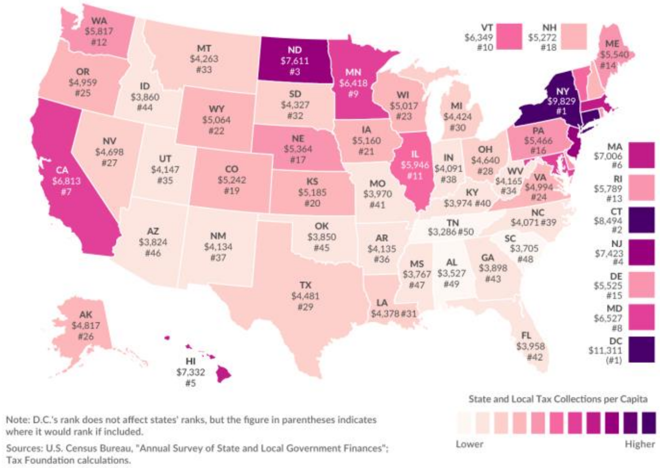
The quarterly Bloomberg update on Government Climate Risk Scores was released on Oct 8 [LINK]. There was good news for UK PM Johnson as he moves to host COP-26 in a few weeks as the UK jumped to 3 out of 135 countries, behind Denmark and Sweden, while the US ranked 39. The Government Climate Risk scoring is used to determine national progress toward reaching the Paris Climate Agreement goals. The UK climb reflects the $13.5 bn green gilt debut, that is targeting net zero emissions by 2050, and an upcoming taxonomy plan that will be unveiled in the coming months. With a score of 7 out of a possible 10, the UK exhibits its desire to cement its leadership in the climate conversation especially with the upcoming UN backed Glasgow climate talks to be held later this month; in contrast, Germany scored 5.97, the US 4.49 and China 2.83. Scoring was determined by 3 factors, Carbon transition, Power transition and Climate Policy. Canada ranked 19 in Climate Risk, with a score of 5.64. Our Supplemental Documents package includes the Bloomberg update.

Capital Markets – See why high income move from NY and California to Florida/Texas

Tax collections nearly half in FL and TX vs NY and CA

There were some higher profile office moves this week with Ark Investment moving from New York to Florida, and Tesla moving from California to Texas. It was interesting to read the Ark announcement, which made no mention of lower state taxes. But there is a clear benefit to the employees to have lower state taxes. Our April 18, 2021 Energy Tidbits noted the Tax Foundation guide comparing per capita tax collections by state [LINK]. Not surprisingly, New York ranked highest, coming in at $9,829 of tax collections per capita. If D.C. were included, it would have ranked #1, at $11,311 per person. California is also quite high-up in the rankings, with its citizens paying $6,813 each in taxes. North Dakota ranked #3, however this result is slightly misleading, the Tax Foundation wrote *"the resource-rich state generates a substantial part of its tax revenue from severance taxes on oil and natural gas, which are borne mainly by consumers outside North Dakota"*. The three big states getting a lot of moves are Texas (#29 at 4,481), Florida (#42 at 3,958) and Arizona (#46 at $3,824). No wonder these states are attracting high income earners and companies with high income earners.

Figure 26: State and Local Tax Collections per Capita (2018)



Source: The Tax Foundation, U.S Census Bureau

Capital Markets – Top 1% of US earners have more wealth than total middle class

Top 1% earners

It still isn't clear what how taxation will change whenever congress finally gets some bills passed, but no question the wealthy and high income earners will continue to be ripe targets for the Biden administration. And whether its this year or next, we believe the risk to the wealthy is that the US (and others like Canada) move to institute new taxes on wealth and not just income. On Friday, Bloomberg reported "*Top 1% Earners Hold More Wealth Than the U.S. Middle Class"* will only give progressives more reason to go after some sort of wealth tax. Bloomberg wrote "*After years of declines, America's middle class now holds a smaller share of U.S. wealth than the top 1%. The middle 60% of U.S. households by income -- a measure economists often use as a definition of the middle class – saw their combined assets drop to 26.6% of national wealth as of June, the lowest in Federal Reserve data going back three decades. For the first time, the super rich had a bigger share, at 27%. The data offer a window into the slow-motion erosion in the financial security of mid-tier earners that has fueled voters' discontent in recent years. That continued through the Covid-19 pandemic, despite trillions of dollars in government relief."* Our Supplemental Documents package includes the Bloomberg report.

Figure 27: Wealth of Top 1% vs Entire Middle Class

Source: Bloomberg

Demographics – 31% of single males 25-54 age live with parents

More 25-54 age live with parents

We were surprised to see a much older age group (25-54 yrs) be the focus of the Tuesday Pew Research blog "*Rising Share of U.S. Adults Are Living Without a Spouse or Partner*" [LINK]. It is important to note that the Pew blog is based on US census data for 2019 so it is pre-Covid that, at least in 2020, saw more singles move back to live with their parents. But normally, these types of analysis are focused on younger adults and we don't recall seeing an analysis focused on an age group up to 54. There is a sharp increase in adults 25-54 that were unpartnered, up to 38% in 2019 vs 29% in 1990 and men are now more likely than women to be unpartnered. Back to living with mom and dad, Pew found 28% of the unpartnered 25-54 were living with their parents and that was split 31% for unpartnered men vs 24% for unpartnered women. But Pew also noted the other reality is that the unpartnered living at home have lower income. So economics are a key part of the difference. Pew noted the median earnings for 25-54 aged partnered men was $21,400 higher than for unpartnered men, and for 25-54 aged partnered women was $8,000 higher than for unpartnered women.

Twitter – Look for our first comments on energy items on Twitter every day

@Energy_Tidbits 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 20 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.

LinkedIn – Look for quick energy items from me on LinkedIn

Look for energy items 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].

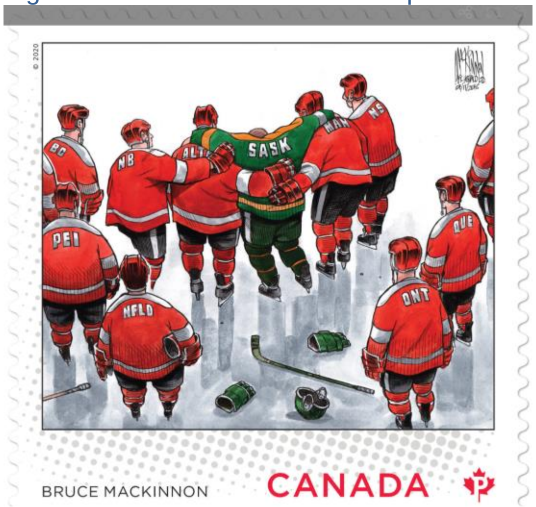
Misc Facts and Figures.

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 and often comment on sports.

New Canada Post stamp is a tribute to Humboldt Broncos

On Friday, Canada Post "*unveiled a stamp paying tribute to Bruce MacKinnon of The Chronicle Herald (Halifax) [LINK], one of the country's most thoughtful, talented and respected editorial cartoonists. MacKinnon had his first editorial cartoon published in his hometown weekly paper in Antigonish, Nova Scotia, when he was just 14. After he drew weekly cartoons for the Herald, the paper hired him full time in 1986. Since then, he has drawn roughly 8,000 cartoons – but it is their quality that has won him numerous accolades*". MacKinnon is noted for his political cartoons but, like other cartoonists, also moves to more powerful serious themes, such as on the tragic Humboldt Broncos bus crash that will be a new Canada stamp.

Figure 28: Bruce MacKinnon stamp



Source: Canada Post

Saudi Arabia's Public Investment Fund buys Premier League's Newcastle

All eyes in the football (soccer) world will be on Newcastle United in the English Premier League with the announcement this week that Saudi Arabia's Public Investment Fund is acquiring 80% of Newcastle. There were two UK 10% owners – PCP Capital Partners run by the deal maker Amanda Staveley, and RB Sports & Media. Newcastle has been a club that fights to try to get close to 10th of the 20-team league. And has never been able to spend like the big clubs or even the second tier of spending clubs. Newcastle was 12th last year. Newcastle currently sits 19th in the table, only ahead of Norwich City. The last time they finished in the top half was 2011/12 when they finished 5th, only behind Manchester City, Manchester United, Arsenal and Tottenham, but just ahead of Chelsea, Everton and then Liverpool. Now with the PIF, they are expected to ramp up spending. The deal is effective immediately and changes, such as a big name manager, are expected right away. Plus supporters are already looking forward to a spending spree in the January transfer window. The new ownership took over on Friday, and Staveley got supporters excited by the prospect of signing world class stars.

Sky News tried to get UK's Kwarteng to pull a Jimmy Carter

The UK energy picture is only marginally better this week. And the concerns remain on having sufficient natural gas for the winter. Earlier this morning, Sky New Trevor Phillips on Sunday tweeted clips of his interview with UK's secretary Kwasi Kwarteng

[LINK]. Phillips tried to get Kwarteng to give advice to Brits for the winter to turn down the temperature a couple of degrees inside their homes and get out another wholly jumper to wear to stay warm. He asked a couple of times but Kwarteng wouldn't bite and said he wasn't his job to say how many layers of clothing people should wear. It brought back memories of Jimmy Carter's first address to the national on Feb 2, 1977 on the energy crisis. The interview opens with the wide angle view of Carter in his cardigan with a burning fireplace. And a clear part of the Carter need to save energy consumption was turning down the thermostat in the winter to reduce how much oil was burnt for furnaces. Don't forget the push to natural gas was still in a relatively early stage. And air conditioning wasn't common in homes let alone many businesses.

Figure 29: Jimmy Carter Address to Nation Feb 2, 1977

Source: C-Span

WSJ guide on the best cioppino in San Francisco

We have to believe that most who have been to San Francisco have tried to squeeze in a cioppino. On Thursday, the WSJ posted its "*The Best Seafood Stew in San Francisco: A Traveler's Guide. Cioppino is a dish that's been pleasing local palates for generations. Here, five restaurants around the city that both honor the tradition and add their own splash. Bib required.*" [LINK] We only thought about including the guide as the first restaurant noted was Tadich Grill, a restaurant we have been to a handful of times. Tadich Grill is also the oldest restaurant in San Francisco going back to its 1849 opening. WSJ wrote "*Since the pandemic, however, the menu has been pared down, though cioppino never left it. ("The protest on January 6 would be nothing compared with us not having cioppino," my waiter told me.) Here, it comes with crab meat liberated from its shell and sautéed with other seafood in white wine and butter, and finished with a thinner tomato broth*." The other restaurants noted were Sotto Mare, Hog Island Oyster Bar, Scoma's and Anchor Oyster Bar. Our Supplemental Documents package includes the WSJ guide.

Potential toy shortage at Xmas reminds of 1983 Cabbage Patch Kids frenzy

On Wednesday, one of the general CNBC reports that ran a few times was a warning on how the global supply chain problems in China are putting at risk the availability of toys for Xmas. And the warning from some of the people featured in the report was parents better get their toys early. I can't remember which CNBC host said it, but they brought up the memories of frenzy of parents trying to get Cabbage Patch Kids in 1983. In 1983, there wasn't online shopping, it was just chaos of parents fighting in stores to get a doll. So we wonder how will a shortage of a toy get allocated out in today's retail world? Here is the link to one of the many reports on the 1983 Cabbage Patch Kids chaos [LINK].

Figure 30: Store manager trying to bring order to 1983 Cabbage Patch Kids frenzy

Source: PIX11 News