

Energy Tidbits

Sept 5, 2021

Produced by: Dan Tsubouchi

Only Half of Russia's Oil Reserves are Profitable at \$50 says Deputy Energy Minister Sorokin

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. Similar to what he said in Jan, Sorokin says only half of Russia's oil reserves are profitable at \$50. ([Click Here](#))
2. Iran's Foreign Minister says it will be 2 to 3 mths before Iran is ready to resume JCPOA negotiations. ([Click Here](#))
3. Saudi Aramco cuts OSP to Asian buyers for Oct, but not to Europe/US. ([Click Here](#))
4. Saudi Arabia says they intercepted Houthi long range ballistic missile over Dammam, which is the heart of Saudi Aramco's major oil infrastructure and oil export terminals. ([Click Here](#))
5. Liberals will give oil & gas sector specific emissions reductions target for 2025 that will put the sector on track to meet Net Zero 2050, ie. a big hit is coming. ([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 [\[LINK\]](#).

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

Ryan Dunfield
Principal, CEO
rdunfield@safgroup.ca

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

Ryan Haughn
Principal, Energy
rhaughn@safgroup.ca

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Natural Gas – Natural gas injection of 20 bcf, storage now -579 bcf YoY deficit

The EIA reported a 20 bcf injection (vs 25 bcf injection expectations) for the Aug 27 week, which was about less than half of the 5-yr average injection of 53 bcf, and below last year’s injection of 35 bcf. Storage is 2.871 tcf as of Aug 27, increasing the YoY deficit to 579 bcf from 563 bcf last week and storage is 222 bcf below the 5-year average vs 189 bcf below last week. Its still not clear how supply and demand will be temporarily impacted in the aftermath of Hurricane Ida but, this should not impact the big picture for natural gas – storage is down huge YoY going into the winter. Below is the EIA’s storage table from its Weekly Natural Gas Storage Report. [\[LINK\]](#)

YoY storage at -579 bcf YoY deficit

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	08/27/21	08/20/21	net change	implied flow	Year ago (08/27/20)		5-year average (2016-20)	
East	678	661	17	17	787	-13.9	738	-8.1
Midwest	812	790	22	22	921	-11.8	834	-2.6
Mountain	190	188	2	2	212	-10.4	195	-2.6
Pacific	243	241	2	2	304	-20.1	287	-15.3
South Central	948	970	-22	-22	1,225	-22.6	1,039	-8.8
Salt	214	229	-15	-15	331	-35.3	253	-15.4
Nonsalt	734	742	-8	-8	894	-17.9	786	-6.6
Total	2,871	2,851	20	20	3,450	-16.8	3,093	-7.2

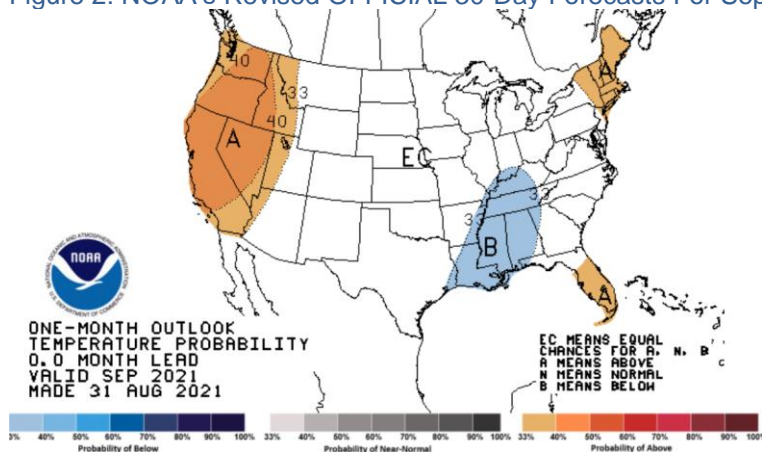
Totals may not equal sum of components because of independent rounding.

Source: EIA

Natural Gas – NOAA sees a return to more normal temps in Sept

NOAA’s Climate Prediction Center posted this August 31 update [\[LINK\]](#) for their near-term 30-day outlook for September. NOAA calls for continued warmer than normal weather in the NE, Florida, and West US; normal temps in central US; and below normal temps in parts of the deep South. Below is their updated map.

Figure 2: NOAA’s Revised OFFICIAL 30-Day Forecasts For September



Source: EIA

Natural Gas – Old Farmer’s Almanac calls for a cold winter

Our normal comment at this time of year is that its still early so long term winter forecasts don’t have much of an impact going into Labor Day. Normally, the only time early winter forecasts tend to have an impact is when there is a clear view of an El Nino winter. This

Old Farmer’s Almanac calls for a cold winter

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year, markets may pay more attention than normal to early winter forecasts, especially if they are similar in their call, because the set up for natural gas going into the winter is so strong. Its why we tweeted [\[LINK\]](#) “winter 2021-2022 forecast, @almanac says “prepare for a season for a season of shivers”. If correct, this would be very bullish for HH #NatGas prices with US gas storage -563 bcf YoY & EU storage 66% full vs 5 yr ave 82% wanting to pull US #LNG exports.” Our Aug 22, 2021 Energy Tidbits noted NOAA’s winter (DJF) forecast [\[LINK\]](#) predicts warmer than normal temperatures for most of the US other than the part of the Midwest, the Plains and Pacific NW. Whereas, on Tuesday, the Old Farmers Almanac came out with their “Old Farmers' Almanac's Winter Forecast 2022: A Season of Shivers” [\[LINK\]](#), which presented a slightly different outlook than NOAA’s forecast. Here are some of the key comments: “Prepare for a “**Season of Shivers.**” This winter will be punctuated by positively bone-chilling, below-average temperatures across most of the United States. In some places, the super cold of the coming winter will also bring lots of snow. This extreme wintry mix is expected in areas of New England as well as throughout the Ohio Valley, in northern portions of the Deep South, and in southeast New Mexico. Above-average snowfall is also in the forecast along a track from eastern Montana southward through the western halves of the Dakotas and into northeastern Colorado. While temperatures in this midcountry strip will be relatively normal, snowfall will be abundant, with several storms predicted throughout the winter. Meanwhile, most western areas will remain relatively dry, with all but the Pacific Coast itself and portions of the Southwest experiencing the frigid cold predicted for much of the rest of the country.” See the Misc section for the difference between Old Farmer’s Almanac and Farmer’s Almanac. Our Supplemental Documents package includes the Old Farmer’s Almanac forecast.

Figure 3: Old Farmer’s Almanac Winter 2021-2022 Forecast



Source: Old Farmer’s Almanac

Natural Gas – Farmer’s Almanac calls for normal to below normal temp winter

To reiterate above: when there isn’t a clear El Nino winter view, we tend to see varying early winter forecasts. Adding to the above mentioned forecasts, on Aug 4, Farmer’s Almanac also issued their long-term weather forecast for 2022 [\[LINK\]](#). The Farmer’s Almanac doesn’t provide an overall commentary for the US, but goes thru a regional recap. Looking at the regional assessments, it looks like a normal to below normal temperature forecast for the US. One specific comment is will Texas get hit with another cold spell. The Farmer’s Almanac wrote “Will Another Storm Hit Texas? The arctic outbreak in February 2021, which the Farmers' Almanac accurately predicted, brought frigid temperatures along with snow and ice to Texas and Oklahoma. The Almanac is predicting similar cold and snowy conditions in late

Farmer’s Almanac calling for normal to below normal winter temperatures

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January, but fortunately, they shouldn't be as bad as last year." Our Supplemental Documents includes the Farmers' Almanac release.

Figure 4: Farmer's Almanac Winter 2021-2022 Forecast



Source: Farmer's Almanac

Natural Gas – US June gas production up 4.757 bcf/d YoY, basically flat MoM

EIA released its Natural Gas Monthly on Tuesday, [LINK](#), which includes its estimates for “actuals” for June gas production. US gas production in June production was 93.11 bcf/d, flat MoM from May of 93.09 bcf/d and up 4.757 bcf/d YoY. Note that May’s data was revised upwards by 0.708 bcf/d. Apr (+0.6 bcf/d) also had a revision. Prior to the Feb freeze, the YoY deficit in US dry natural gas production had been declining, with Jan at -2.6 bcf/d YoY, but Feb saw a YoY decline of -8.8 bcf/d with the extreme weather. March’s YoY decline of 2.5 bcf/d restarted the declining trend in the deficit, and April continued with only a -0.4 bcf/d deficit. Now we have flipped back and are seeing a YoY surplus of +4.7 bcf/d and +4.5 bcf/d for the month of June and May, respectively. June production is down 3.9 bcf/d since the Dec/19 peak of 97.0 bcf/d and still -1.4 bcf/d below March 2020 of 94.6 bcf. Below is our running table of US dry natural gas production. Our Supplemental Documents package includes excerpts from the EIA Natural Gas Monthly.

US June gas production up 4.757 bcf/d YoY

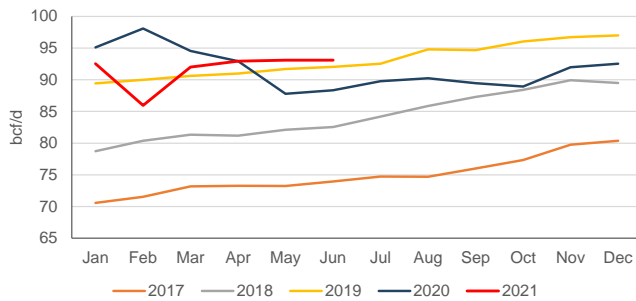
Figure 5: US Dry Natural Gas Production

bcf/d	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Jan	56.0	60.0	66.0	65.3	66.8	73.4	73.6	70.6	78.7	89.4	95.1	92.5
Feb	57.2	58.8	67.0	65.4	68.4	73.8	77.3	71.5	80.4	90.0	98.1	86.0
March	57.3	61.5	65.0	65.3	68.9	74.1	73.8	73.2	81.3	90.6	94.6	92.0
Apr	57.6	62.3	64.8	66.1	70.5	75.2	73.7	73.3	81.2	91.0	92.9	92.9
May	58.0	62.4	65.0	65.9	70.2	74.1	72.9	73.3	82.1	91.7	87.8	93.1
June	57.2	62.1	64.6	65.8	70.5	74.0	72.2	74.0	82.5	92.0	88.4	93.1
July	58.2	62.5	66.3	67.1	72.0	74.2	72.8	74.7	84.2	92.5	89.8	
Aug	58.9	63.2	66.0	66.9	72.4	74.3	72.2	74.7	85.9	94.8	90.2	
Sept	59.1	63.1	66.4	66.8	72.4	74.7	71.7	76.0	87.3	94.7	89.5	
Oct	60.1	65.1	66.5	67.0	73.1	74.2	71.4	77.3	88.4	96.0	88.9	
Nov	60.1	65.9	66.6	67.7	72.6	73.9	72.0	79.8	89.9	96.7	92.0	
Dec	61.0	65.6	66.0	66.5	73.2	73.9	71.2	80.4	89.5	97.0	92.5	
Average	58.4	62.7	65.9	66.3	70.9	74.2	72.9	74.9	84.3	93.0	91.6	

Source: EIA

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Figure 6: US Dry Natural Gas Production



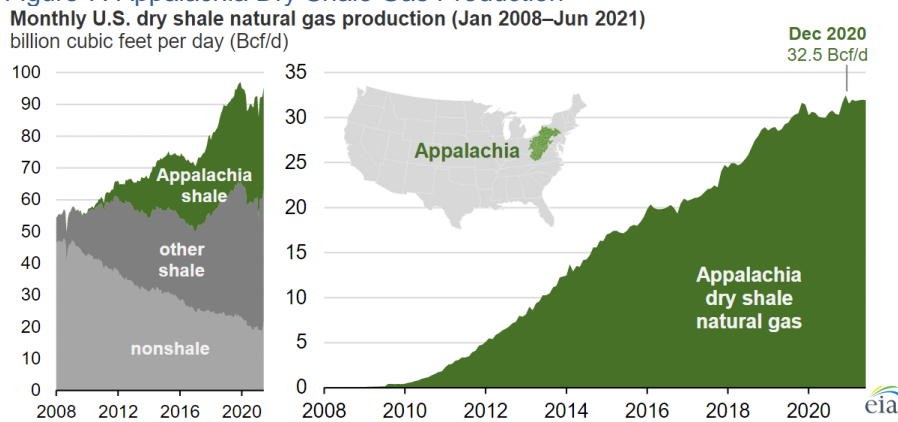
Source: EIA

Natural Gas– Appalachian Basin sets record natural gas production in first half of 2021

Our Aug 22, 2021 Energy Tidbits highlighted the RBN Energy updated warning on the risk to Appalachian gas price differentials and absolute gas price. That week (Aug 18), RBN posted their updated blog on this risk “*Appalachia’s Dwindling Natural Gas Pipeline Takeaway Capacity*” [LINK]. No surprise given the continued strong growth in Appalachian gas volumes. On Tuesday, the EIA posted its blog “*Shale natural gas production in the Appalachian Basin sets records in first half of 2021*” [LINK] that noted production reached 32.5 bcf/d in December and averaged 31.9 bcf/d during the first half of 2021, the highest six-month average period since 2008 and accounted for 34% of all U.S. dry gas production. The record gas production in the region is attributed to an pipeline takeaway capacity which has increased from 4.5 bcf/d to 24.5 bcf/d over a 12-year period; much of that increase occurred between 2014 and 2020 when pipeline capacity soared by 16.5 bcf/d, mainly directed to the Midwest. Pipeline capacity flows from Appalachia to Canada and to the Southeast have also increased. Still, EIA cautioned that pipeline capacity from the Northeast has grown every year since 2014, the rate of increase has slowed and recently has not kept pace with growth in regional production. Some support will be offered when the Mountain Valley Pipeline enters service in 2022, which will add ~2.0 bcf/d of takeaway capacity. The Appalachian shale has been a remarkable success story growing from about zero in 2008 to 32 bcf/d in H1/21. Its not just that the Appalachian Basin is a significant US basin, it’s a significant world gas production and, on its own, it would be #3 natural gas producer in the world, behind Russia and the rest of the United States. Our Supplemental Documents package includes the EIA blog.

Record Appalachian natural gas production

Figure 7: Appalachia Dry Shale Gas Production



Source: EIA

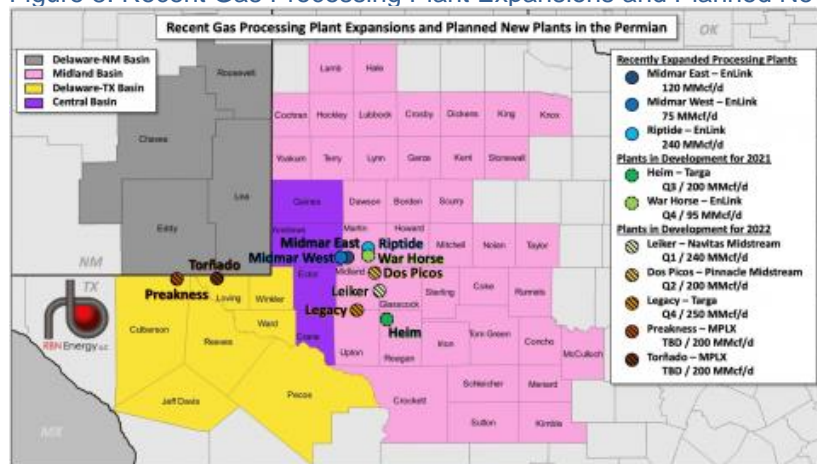
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Permian's big natural gas growth

Natural Gas – Permian natural gas growth spurs more processing capacity

The Permian's associated natural gas is often overlooked as it is viewed as the premier US light oil play, but it is a light oil play with associated natural gas and liquids. It has seen huge growth in natural gas, which has driven huge growth in natural gas processing facilities. We are big fans of RBN Energy as they provide good drill down detail on oil and natural gas issues. There was another good RBN Energy blog on Sunday "Permian Natural Gas Growth Spurs More Processing Capacity," [\[LINK\]](#). It detailed how "In the past four years, natural gas production in the Permian Basin has doubled — from 6.6 bcf/d in August 2017 to 13.4 bcf/d now." As a result of the increased production, the midstream sector has spent billions of dollars on processing plants, new gas gathering systems and takeaway pipelines. However, the article notes "despite the 50-plus processing plants that have come online in the play's Delaware and Midland basins in recent years, still more processing capacity is needed." Permian production is forecasted to increase to 14.1 bcf/d by the end of this year, 15.6 bcf/d by December 2022, and 18.1 bcf/d — 35% higher than the current level — by December 2025. The blog looks at Permian gas processing capacity that has come online YTD and the plants scheduled to start later or in 2022. It goes on the list projects over the past month, stating: "EnLink Midstream has completed three gas-plant expansions in the Midland Basin that added a combined 55 mmcf/d of capacity." Other new processing plants scheduled to come online in 2022, include: Navitas Midstream, which expects its new, 240-MMcf/d Leiker gas processing plant to come online by Q1 2022. Leiker will be the fifth new gas plant at Navitas's Midland Basin Processing Complex, and will increase the complex's capacity to just over 1 bcf/d. In Q2/3 2022, Pinnacle Midstream II plans to begin operating its new, 200-MMcf/d Dos Picos processing plant in Midland County. Earlier this month, Targa announced plans to build the 250-MMcf/d Legacy gas processing plant in the Midland Basin and bring it online in the fourth quarter of next year, which will give Targa more than 4.1 bcf/d of processing capacity in the Permian. There are a couple more. MPLX plans to start up two new 200-MMcf/d gas processing plants sometime next year. Finally, Energy Transfer will convert 55 miles of an existing 24-inch-diameter NGL pipeline between the Midland and Delaware basins to rich-gas service, which will allow 115 mmcf/d of gas to be transported from the Midland to the Delaware, which currently is less constrained from a gas processing perspective. RBN notes "all of these moves — the processing plant expansions, the relocation of plants to the Permian, the development of new plants, and Energy Transfer's Permian Bridge — indicate the ongoing scramble by midstream companies to meet what producers expect will be a growing need for associated-gas processing through the early 2020s." Below is a map illustrating all the recent and new plants in the Permian. See our Supplemental Documents package includes the RBN blog.

Figure 8: Recent Gas Processing Plant Expansions and Planned New Plants in the Permian



Source: RBN

Natural Gas – US LNG exports down MoM at 10.2 bcf/d in June

The big driver to stronger US natural gas prices has been the ramp up in US LNG exports, which are up ~7 bcf/d over the past 3 years. This is over 2.5 tcf a year of added gas demand. On Tuesday, the EIA Natural Gas Monthly reported “actuals” for US LNG exports were 9.0 bcf/d in June, which is up +5.4 bcf/d YoY and down -1.1 bcf/d from May of 10.2 bcf/d. After recording record highs in the first half of 2021, exports declined in June because of pipeline maintenance. However, the EIA said it expects exports will remain “at high levels” for the remaining months of 2021. Note our table rounds to one decimal and the actual is 9.046 bcf/d for June. Below is our table of EIA’s monthly LNG exports.

US June LNG exports -1.1 bcf/d MoM

Figure 9: US LNG Exports (bcf/d)

(bcf/d)	2016	2017	2018	2019	2020	2021
Jan	0.0	1.7	2.3	4.1	8.1	9.8
Feb	0.1	1.9	2.6	3.7	8.1	7.4
March	0.3	1.4	3.0	4.2	7.9	10.4
Apr	0.3	1.7	2.9	4.2	7.0	10.2
May	0.3	2.0	3.1	4.7	5.9	10.2
June	0.5	1.7	2.5	4.7	3.6	9.0
July	0.5	1.7	3.2	5.1	3.1	
Aug	0.9	1.5	3.0	4.5	3.6	
Sept	0.6	1.8	2.7	5.3	5.0	
Oct	0.1	2.6	2.9	5.7	7.2	
Nov	1.1	2.7	3.6	6.4	9.4	
Dec	1.3	2.7	4.0	7.1	9.8	
Full Year	0.5	1.9	3.0	5.0	6.6	
Full Year bcf	186.8	707.5	1,083.1	1,819.4	2,390.0	

Source: EIA

Natural Gas – US June LNG exports top destinations favoured Asia

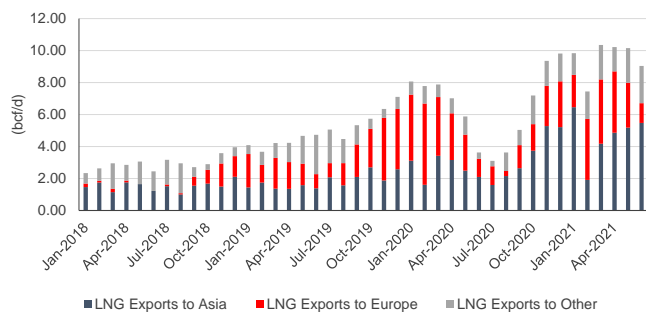
The US Dept of Energy also posts a DOE June Monthly report [\[LINK\]](#) that has more details on LNG exports by cargo. Increasing US LNG exports has been a significant driver of HH strength in 2021 with exports reaching record highs. LNG exports reached 9.0 bcf/d in June, +149.0% over 3.6 bcf/d in June 2020. Demand from Asia and Europe, where storage levels are depleted, is strong and anticipated to continue driving demand through the winter. Additionally, pipeline exports to Mexico, already strong in the spring, accelerated this summer amid intense heat and elevated cooling demand. LNG exports to Asia dominated the top 5 with South Korea receiving the most at 1.86 bcf/d, China the second most at 1.41 bcf/d, Japan the third most at

June export volumes of 9.0 bcf/d

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1.32 bcf/d; followed by Brazil and Argentina at 1.07 bcf/d and 0.643 bcf/d, respectively. These top 5 export countries represented 69.8% of total US LNG exports in June. Our Supplemental Documents package includes excerpts from the DOE LNG Monthly.

Figure 10: US LNG Exports by Destination



Source: EIA

Natural Gas – US pipeline exports to Mexico +0.4 bcf/d MoM to record 6.5 bcf/d in June

The EIA Natural Gas Monthly also provides its “actuals” for gas pipeline exports to Mexico, which were 6.5 bcf/d in June, which was +1.1 bcf/d YoY and surpassing last months record, up +1.1 bcf/d MoM from 6.1 bcf/d in May. Mexico natural gas production remains stuck below 5 bcf/d and the completion of new pipeline infrastructure such as the Wahalajara system [\[LINK\]](#) increases US penetration further into Mexico. Below is our table of the EIA’s monthly gas exports to Mexico.

US June pipeline exports to Mexico +0.4 bcf/d MoM; another record-breaking month

Figure 11: US Pipeline Gas Exports To Mexico (bcf/d)

bcf/d	2014	2015	2016	2017	2018	2019	2020	2021
Jan	1.7	2.2	3.2	3.9	4.4	4.9	5.2	5.6
Feb	1.8	2.3	3.5	4.0	4.5	4.8	5.4	4.9
March	1.9	2.4	3.3	4.2	4.3	4.8	5.4	5.9
Apr	1.9	2.6	3.5	3.7	4.4	4.7	4.6	6.0
May	2.0	2.8	3.7	4.0	4.4	5.0	4.7	6.1
June	2.2	3.0	3.9	4.5	4.6	5.2	5.4	6.5
July	2.2	3.3	4.0	4.4	4.9	5.4	5.8	
Aug	2.1	3.3	4.3	4.4	5.0	5.4	6.0	
Sept	2.2	3.3	4.1	4.2	5.0	5.4	6.1	
Oct	1.9	3.2	4.2	4.2	4.9	5.5	6.0	
Nov	1.9	3.0	4.0	4.5	4.7	5.3	5.5	
Dec	2.1	3.2	3.6	4.4	4.5	4.9	5.3	
Full Year	2.0	2.9	3.8	4.2	4.6	5.1	5.5	

Source: EIA

Natural Gas– RBN: US LNG volumes expected to increase into 2022

Our July 25, 2021 Energy Tidbits was titled “*Big Potential Upside to 2022 HH/AECO Prices, New US LNG Export Capacity Could Reduce Gas Storage By 1 Tcf in 2022*” with the potential for the new start up of Cheniere’s Sabine Pass Train 6 and Venture Global’s Calcasieu Pass LNG as being overlooked big positive to 2022 and 2023 HH gas prices. And we noted that an overlooked aspect is that feed gas for these new LNG projects starts months in advance of first LNG. On Monday, RBN posted in its blog “*Hear My train Comin’ – The Liquefaction Train Ramp-Up Process and Timelines*” [\[LINK\]](#), which indicated an impending increase in US LNG feedgas demand before year end, with Cheniere Energy’s Sabine Pass Train 6 and Venture Global’s Calcasieu Pass facility due to start service in the first half of 2022. However, they note that first commissioning cargoes even earlier, as both

RBN explains feedgas ramp up for LNG projects

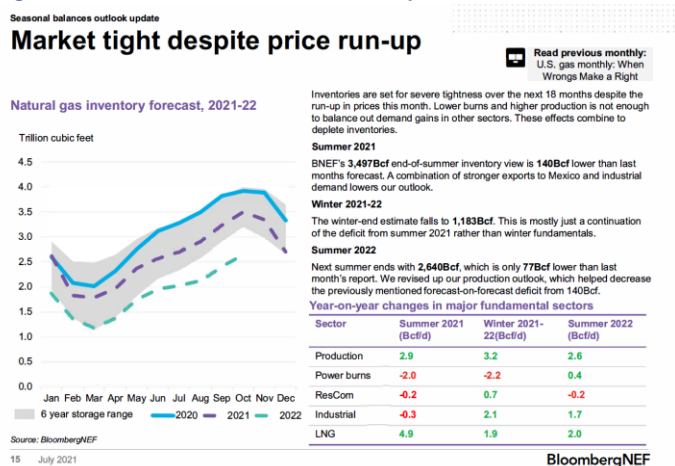
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projects pass through the commissioning phases. And feedgas starts well before that. Cheniere expects 0.7 bcf/d of incremental capacity, with the commission of the 6th liquification train 90% complete. While Venture Global's expects to complete the first of the terminal's 18 modular trains by early 2022, which would bring an additional 1.3 bcf/d of capacity online. Both projects are expected to produce first LNG by the end of 2021, adding more feedgas demand to an already-existing bullish winter gas market, yet the question remains as to when meaningful volumes of gas will flow to facilities. We note that it is common for LNG plant flows to ramp up steadily as each liquefaction train passing through testing and approvals. So, what can we expect from Sabine Pass Train 6 and Calcasieu Pass? Given that Sabine Pass is already online, feedgas volumes from train 6 will be harder to differentiate as Cheniere's sales model enables flexibility between Sabine pass and Corpus Christi plants. However, we should have a clearer picture for feedgas flows to Calcasieu Pass as its first units ramp up, although their specific modular technology, different from other terminals, will make it slightly harder to predict. Regardless, both projects have been notching regulatory and testing milestones over the past weeks and are closer to adding more demand to the horizon. Our Supplemental Documents package includes the RBN LNG blog.

July 25 Energy Tidbits Big potential upside to 2022/23 HH & AECO gas prices

Here is what we put in our July 25, 2021 Energy Tidbits on this subject. *"Oil prices have been strong, but the bigger surprise to the upside in 2021 has been global LNG, HH and AECO gas prices. There was an excellent reminder from BloombergNEF's Monday US Gas Monthly, which is why we tweeted [\[LINK\]](#) that the takeaway therefrom is that there is big potential upside to 2022 and 2023 forward strips for HH (~\$3.40 for 2022 and ~\$2.90 for 2023) and AECO (~C\$3.10 for 2022 and ~C\$2.60 for 2023). BloombergNEF's forecast for US gas storage for Oct 31/2021 was 3.497 tcf (140 bcf lower YoY) is on the conservative side considering storage is currently 532 bcf lower YoY with expectations for strong US LNG exports in the summer/fall. But then BloombergNEF had a shock forecast for Oct 31/2022 for US gas storage to be 2.640 tcf. This is a hugely bullish storage number, basically at least 1 tcf less than normal and the last time Oct 31 storage was under 3 tcf was Oct 31/2000 when HH went over \$10 the winter 2000/2001. Even if storage is 3 tcf, its hugely bullish for HH and AECO gas prices. The key reason for this hugely bullish storage forecast is simple – BloombergNEF includes the start up of Calcasieu Pass LNG (1.3 bcf/d) and Sabine Pass LNG Train 6 (0.7 bcf/d) around year end 2021. This timing is consistent with Platts recent forecast [\[LINK\]](#). The assumption is that the global LNG markets will absorb this additional LNG volumes of >700 bcf. We want to reiterate even if the global LNG markets don't absorb all the added LNG volumes and BloombergNEF's 2.64 tcf storage forecast isn't met, an Oct 31/2022 US storage forecast in the low 3 tcf's is very bullish to the forward strips of HH and AECO. Our Supplemental Documents package includes excerpts from BloombergNEF US Gas Monthly."*

Figure 12: US Natural Gas Inventory Forecast



Source: BloombergNEF

Natural Gas – More Asian LNG buyers want long term contracts

On Wednesday, we tweeted [\[LINK\]](#) on a Bloomberg report “*Emerging Asia Faces Power Curbs, More Pollution on Gas Rally (1)*”. The focus of the report is how high LNG prices are causing near term power issues. Later in the memo, we note how this fits into the Energy Transition theme on how the cost of fuel is a primary consideration for poorer countries. Our tweet was on an item that didn't get much coverage in the report that more Asian LNG buyers are looking at long term contracts and how this supports the ability for LNG supply projects to get financing. Bloomberg wrote “*And Asian buyers are already shifting back to term contracts. China's ENN Energy Group will seek more new LNG supply from long-term contracts to offset volatility risks from purchasing spot cargoes. Earlier this year, Pakistan signed a new long-term contract with Qatar, which starts in 2022 and will lower exposure to the spot market.*” Our Supplemental Documents package includes the Bloomberg report.

Asian LNG buys looking long term

Asian LNG buyers started to pivot in June/July to lock in long term supply

This shift by Asian LNG buyers really started in late June/early July. Its why we posted our July 14, 2021 8-pg blog “*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs*” [\[LINK\]](#). The reason why we write longer blogs is that we try to provide the thesis and backup so readers don't have to do dig up the back up or sign up to get the backup. We believe it is significant that Asian LNG buyers have changed their LNG contracting strategy post the Total Mozambique LNG force majeure and are now moving to lock in long term supply. We believe this is the best validation of the LNG supply gap and also a big plus for LNG supply FIDs. Here is the summary of 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*

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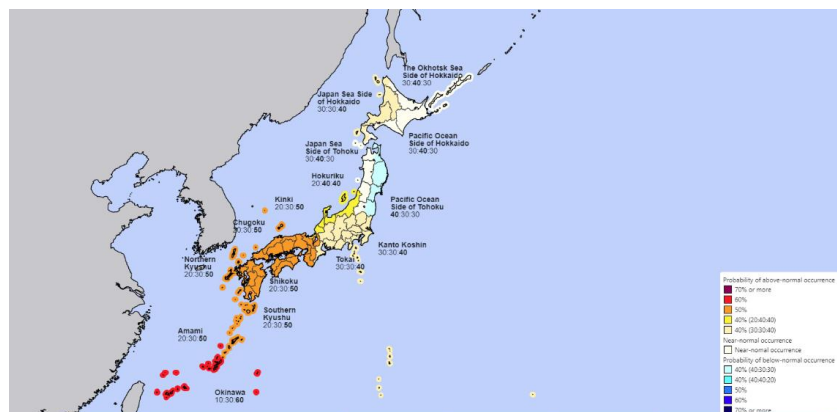
best validation for the LNG supply gap. Another validation, Shell, Total and others are aggressively competing to invest long term capital to partner in Qatar Petroleum's massive 4.3 bcf/d LNG expansion despite plans to reduce fossil fuels production in the 2020s. And even more importantly to LNG suppliers, 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 the July 14 blog and April 28 blog.

Natural Gas – Japan: Warmer than normal temperatures for Sept

It looks like Japan's hot summer is coming to an end, which will likely not offer the same support for LNG prices as the summer did. Weather always changes and there is no certainty of that the forecasts will be accurate. However, the last week has seen a warmer than normal outlook for Japan for the next 30 days. And it looks like September will be warmer than we noted in last week's Energy Tidbits. The Japan Meteorological Agency issued its updated month ahead weather forecast for Sept 4 – Oct 3 on Thursday [\[LINK\]](#), which calls for, normal/warm in the north and center, colder than normal in the SE, and warmer/hot in the south. Below is the current JMA forecast for Sept and into early Oct.

JMA forecasts warmer than normal temps for Sept

Figure 13: JMA Temperature Probability Forecast for Sept 4 - Oct 3



Source: Japan Meteorological Agency

Natural Gas – China natural gas consumption being hit by high LNG prices

On Thursday, Platts posted a good report "Analysis: High LNG prices trigger gas demand destruction in China's downstream sectors" [\[LINK\]](#). (i) It wasn't the focus of the report, but it is interesting to see how China's move to try to reduce coal isn't allowing unlimited switching to coal at times of high LNG/natural gas prices. Platts wrote "The bulk of industrial gas demand comes from ceramics and other sub-sectors including glass, cement, steel, paper,

High LNG prices hit China consumption

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textile, food and pharmaceuticals that use kilns or boilers for heating purposes. Many of these factories, which typically use coal-fired kilns or boilers, were asked to switch to using gas-fired kilns or boilers last year under the government's coal-to-gas initiative, and the surge in gas prices heavily squeezes their profits. Some regions have also clamped down on gas usage or diverted fuels to residential use and industries deemed essential like power generation when shortages emerged. More than 200 ceramics production lines in 19 Chinese provinces including Jiangxi, Shandong, Sichuan, Fujian and Henan have suspended operations since June due to a combination of surging fuel costs, power rationing and environmental protection initiatives, Ceramics Information or CI, a Foshan government-backed information provider, reported Aug. 4. "They [ceramics factories] had to suspend or lower operating rates to cope with the surging fuel prices," an official with Foshan Ceramic Industry Association said on state media CCTV July 30." (ii) There is a good recap of China natural gas consumption by end user. Platts wrote "China's natural gas demand comes mainly from four sectors -- industrial, city gas, power generation and chemicals. The industrial and city gas sectors each accounted for 37%-38% of total gas demand in 2020, power generation 16% and chemicals 9%, National Energy Administration data showed". (ii) The focus of the report is how high LNG prices are impacting near term natural gas demand in all sectors, not just the ceramics noted above. Platts wrote "Skyrocketing LNG prices have also forced LNG-fueled heavy-duty trucks to suspend operations and discouraged sales of new LNG heavy-duty trucks in recent months, market sources and analysts said." And "Some second-tier gas importers cancel LNG terminal import slots". Our Supplemental Documents package includes the Platts report.

Natural Gas – Russia reminds priority is to their gas storage first before winter

The bullish set up for Europe natural gas prices continues. As we note later in today's memo, Europe gas storage is only 67.61% full vs 5 year average of 83.46% and Russia isn't in a position to send extra natural gas to Europe ahead of winter. On Thursday, we tweeted [\[LINK\]](#) "Positive for #LNG, Europe #NatGas prices and more EU pull for US LNG exports. Shulginov reminds priority is to fill Russia's gas storage before winter, not provide additional volumes to EU. #Gazprom warned on Aug 17 below. Great report @d_khrennikova @olyatanas @MaznevaElena". Russia is warning that they need to fill their own depleted natural gas storage levels ahead of winter before they can allocate extra natural gas to Europe. This is not a new disclosure by Russia but, on Thursday, Bloomberg reported on comments from Russia Energy Minister Shulginov to reporters at the Eastern Economic Forum in Vladivostok. Bloomberg wrote "Energy Minister Says Russia to Fill Gas Storages in 2 Months (1)" "Russia will refill its depleted gas storage sites within two months, a move that could leave Europe scrambling to get the extra supplies it needs before the winter. Data from Gazprom PJSC indicates that storage facilities will be full by November as planned, said Energy Minister Nikolay Shulginov. That would mean almost doubling stockpiles from levels at the end of June, according to Bloomberg calculations based on data from the Russia gas giant. Russia is facing a gas crunch of its own, with Gazprom saying it's overwhelmed with record demand at home and abroad. That could make it harder for Europe's top supplier to provide the additional fuel the continent needs to boost its own reserves -- already at the lowest in more than a decade for this time of year -- before the start of the heating season. "Based on data from Gazprom, we see the reinjections as planned by November," Shulginov told reporters at the Eastern Economic Forum in Vladivostok." Our Supplemental Documents package includes the Bloomberg report.

Russia needs
Gazprom's supply

On Aug 16, Gazprom warned of this low Russia gas storage problem

Shulginov's warning on low Russia gas storage isn't the first warning. Our Aug 22, 2021 Energy Tidbits highlighted the further signals of tight natural gas supply to come

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with Gazprom having more domestic needs for natural gas to fill prior to exporting additional volumes to Europe – in particular to refill Russian storage before the winter. We highlighted the Aug 16 Gazprom Facebook posting [\[LINK\]](#) “August has become another ‘winter’ month in the gas market”. Gazprom reported that according to preliminary data, it produced ~50 bcf/d over the first 7.5 months of 2021, which represents an 18.1% increase vs the same period of 2020. The company increased its gas exports to countries beyond the Former Soviet Union to 4.343 tcf, which is an all-time high and +21.5% vs 2020. The European market is in need of more exports, with reserves in gas storage in the EU and Ukraine the lowest seen in many years. Specifically, in the EU gas storage facilities, only about 1.1 tcf out of the 2.3 tcf that had been withdrawn over last winter has been replenished. Gazprom then went on to say that although Gazprom has been increasing production and EU demand is high, they must first satisfy their domestic needs. First, they explained that there is peak demand in Russia “As we analyze the volumes of supplies within Russia and to the countries beyond the FSU observed in August, we see that the consumption of gas in this month has lately reached a new peak level. For instance, the average daily figure for Russia recorded in 2021 is 53 (!) million cubic meters (or by 9%) higher than the average gas supply volume observed over the previous eight years. Our gas exports increased by 9.4%, which makes the average daily supply volumes of August comparable with those of the winter months.” They added that now the priority for Russia is injecting gas into its underground storage facilities for winter. Our Supplemental Documents package includes the Gazprom Facebook posting.

Natural Gas – Gazprom loses Germany suit, still not clear when 1st gas will flow

On Monday, we tweeted [\[LINK\]](#) on the added uncertainty when Nord Stream 2 would be able to start deliveries. A German court ruling last week adds uncertainty so, no surprise, Gazprom removed an offer or potential added natural gas supplies and this is being done so in the face of extremely high natural gas prices. In theory there is no linkage of these events, but if you believe that On Aug 27, Bloomberg reported “Dusseldorf Higher Regional Court ruled that the pipeline can’t sidestep European Union regulations requiring gas producers to be legally separate from entities that transport the fuel, a decision that threatens to delay operations. Some traders speculate the withdrawal of offers could be a way to put pressure on Europe to remove hurdles for the pipeline, while others say it could signal the link won’t be operational as early as previously thought. But there may also be other reasons for the move. Gazprom said last week it was overwhelmed with record demand both abroad and in Russia, where it needs to refill storage sites depleted way beyond normal during the past winter.” The Bloomberg report also highlighted “A unit of Gazprom PJSC withdrew some of its natural gas sales offers, according to people familiar with the situation, adding to market worries that new supplies from Russia may come too late for this winter. Gazprom Export LLC stopped offering gas for delivery in the first quarter and for the whole of 2022 in its Electronic Sales Platform on Wednesday, said the people, who asked not to be identified because the information is private. The change came about an hour after a court ruled against the owner of the controversial Nord Stream 2 pipeline linking Russia to Germany.” Our Supplemental Documents package includes the Bloomberg report.

**Nord Stream 2
uncertain time for
1st gas**

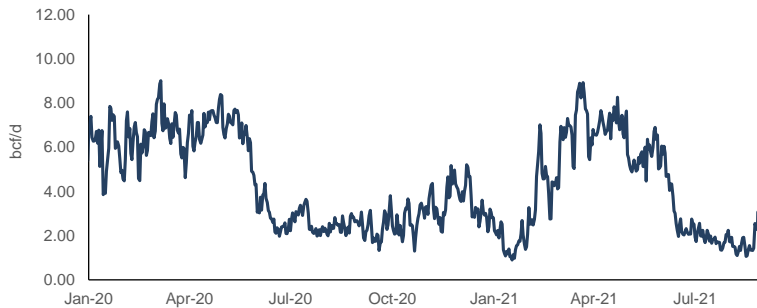
Natural Gas – LNG flows to NW Europe at 1.88 bcf/d in Jul, down to 1.70 bcf in Aug

High Asian spot LNG prices this summer were the key to attracting LNG cargoes to Asia and this has been seen in low LNG flows into NW Europe and US LNG exports moving to Asia instead of NW Europe. In June, it was much more profitable to ship US LNG to North Asia due to strong Asia JKM prices (>\$14/mmBtu JKM vs ~\$12.50/mmBtu TTF). However, the price arbitrage between Europe and Asia for October deliveries has closed, which

**LNG flows to NW
Europe -0.18 bcf
MoM in August**

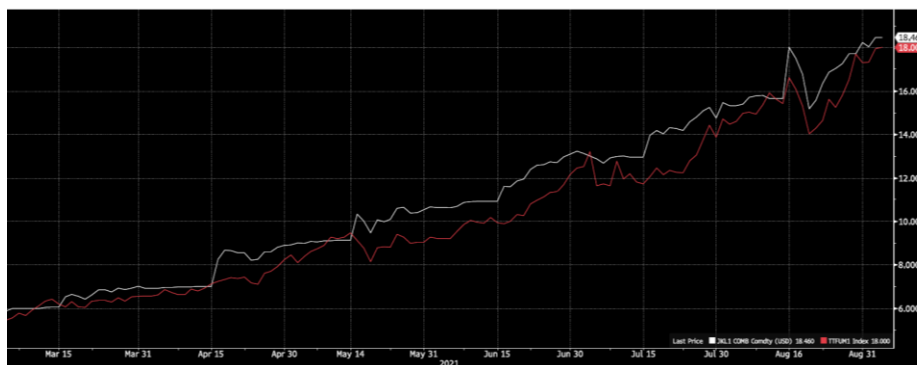
suggests that more cargoes will opt to head to terminals in the Atlantic. Yet, deliveries to NW Europe decreased, as deliveries of LNG to North Asia and South America jumped last month, demand curbing supply to Europe. Furthermore, Russia has shown an unwillingness to ramp-up flows to NW Europe despite recent high prices as they await completion of Nord Stream 2. Historically, LNG flows into Northwest Europe reached recent peaks at ~5 bcf/d in late November to early December before declining rather quickly through December to mid January where imports reached a low of 0.90 bcf/d on January 17. Since, LNG flows to Europe have been increased to peak to 8.92 bcf/d on March 22. Daily imports in April averaged 7.05 bcf/d, roughly flat to the March average of 7.08 bcf/d. However, June and July imports were down 1.4 bcf/d and 1.47bcf/d, respectively. In August, this downward trend continued, as imports decreased another 0.18 bcf/d to only 1.70 bcf/d and are now down 3.86 bcf/d from May. European gas storage is at extremely low levels compared to seasonal averages, so LNG flows to Europe remains a key item to watch as we approach the heating season. Below is our graph of Net LNG Flows to NW Europe and Asia LNG’s Premium to Europe Gas.

Figure 14: Net LNG Flows to NW Europe



Source: Bloomberg

Figure 15: Asia LNG’s Premium to Europe Gas



Source: Bloomberg

Natural Gas – Europe storage 67.61% full vs 5 year average of 83.46%

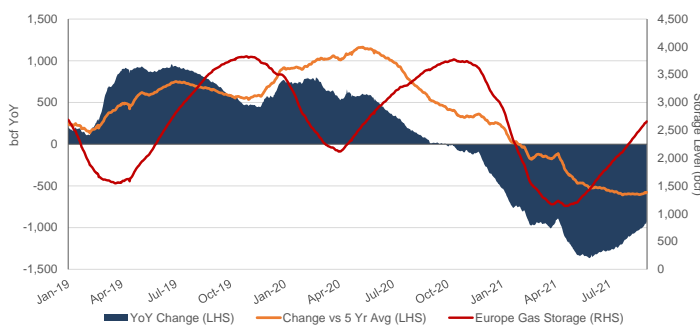
As we enter September, the outlook has shifted to how natural gas is set up for the winter. Its been a great summer for European gas prices - high Europe demand and strong Asian prices drew LNG cargoes to Asia. Furthermore, Russia announced its priority is to refill its depleted storage facilities, a move that could leave European traders scrambling as Europe is running out of time to refill its depleted gas storage sites before the heating season starts

Europe gas storage 67.61% full; lowest Sept levels in a decade

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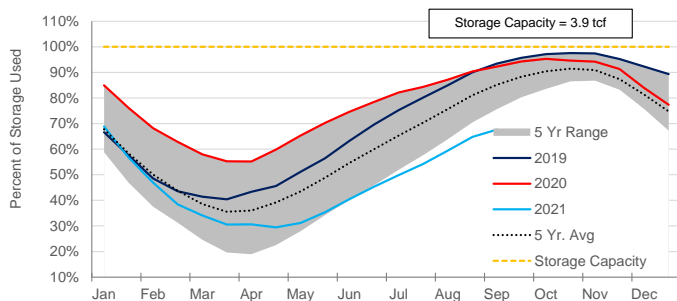
in October. Inventories are at their lowest level in more than a decade, after a cold and bitter winter, while supplies from Russia have also been limited. The set up for winter natural gas prices in Europe looks strong. The key indicator for winter Europe natural gas prices and also global LNG prices 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 Sept 1 is 67.61%, which is -23.47% less than last year levels of 91.08% , and are -18.85% below the 5-year average of 83.46%. 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 YoY change in net LNG flows to NW Europe and Europe Gas Storage Utilization.

Figure 16: Europe Gas Storage Level



Source: Bloomberg

Figure 17: Europe Gas Storage Utilization



Source: Bloomberg

Oil – US oil -16 WoW at 394 oil rigs as Hurricane Ida cuts 14 oil rigs in Gulf of Mexico

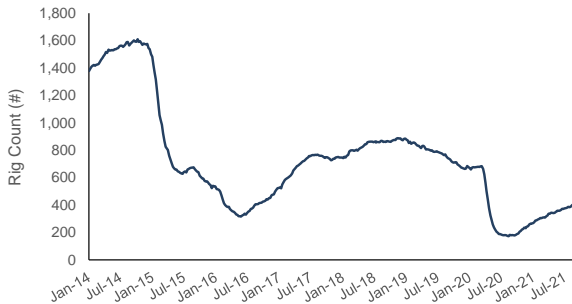
Baker Hughes reported its weekly rig data on Friday. This week US oil rigs were down 16 rigs WoW at 394 rigs. This was the first cut to operating oil rigs in five weeks, with the oil rig count alone falling the most since June 2020, after Hurricane Ida hit the United States. The reduction in US oil rigs was almost all due to Gulf of Mexico oil rigs being down 14 oil rigs WoW. Even with the Hurricane Ida impact, oil rigs are still +222 off the bottom of 172 in Aug14/2020 week. Note, the contrast in recovery between Permian rigs and Bakken rigs is consistent with comments that Bakken output is expected to lag significantly behind Permian output as capital allocation to the Bakken continues to fall behind. US oil rigs hit their 2020

US oil rigs -16 WoW

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peak at 683 on March 13 and have since fallen by 289 to 394 oil rigs (-42.3%). The biggest contributor to the decrease is the Permian being down 169 oil rigs from the March 13, 2020 peak (-40.4%), although we are seeing it start to ramp up a bit. 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 Baker Hughes US oil rigs.

Figure 18: Baker Hughes Total US Oil Rigs



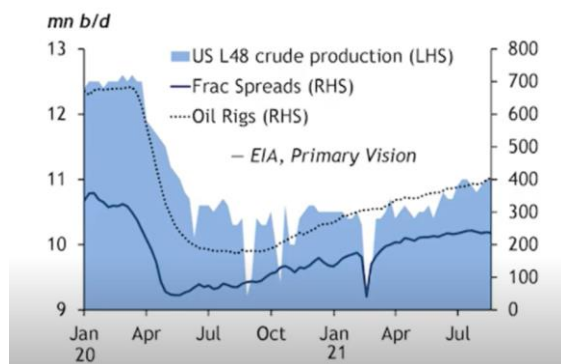
Source: Baker Hughes

Oil – Frac spreads unchanged at 240 as of Sept 3

Every week, Mark Rossano (C6 Capital Holdings) posts a YouTube recap of frac spreads for the week on the Primary Vision Network. [LINK](#). US frac spreads were unchanged at 240 as of Sept 3. There was no change in total, but there were shifts within basins. There were reductions in the smaller basins, but increases in the Permian and in some of the natural gas basins like the Haynesville. Rossano expects to see continued pickup in natural gas areas. Note he stopped providing his weekly frac spread graphs for free in July. At the start, he spent some time at the start on the below graph on how important frac spreads are relative to production, frac spreads have a tighter correlation to US oil production than rigs, said very tight correlation on a 30 and 60 day basis. He no longer provides specific commentary on frac spreads by basins, but we can at least get the insight on the total frac spreads

Frac spreads unchanged at 240

Figure 19: US frac spreads vs oil rigs vs oil production



Source: Primary Vision, C6 Capital Holdings

Oil – Total Cdn rigs +5 to 152 total rigs and +98 rigs YoY

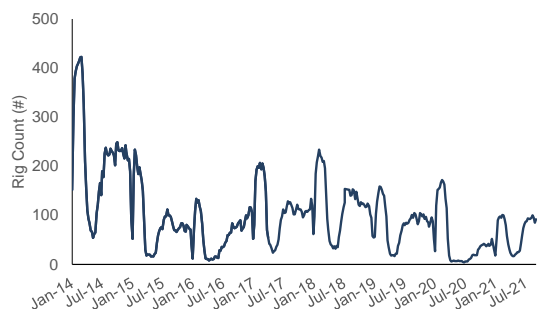
Total Cdn rigs were +5 this week to 152 total rigs. Cdn oil rigs were +7 at 92 rigs. Cdn gas rigs were -2 to 60 gas rigs. Total rigs are now +139 since the June 26, 2020 all-time low.

Cdn rigs +5 WoW

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Cdn oil rigs are up following the expected small pullback normally seen in late Aug. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 19 and Cdn gas rigs were 35 for a total Cdn rigs of 54, meaning total Cdn rigs are +98 YoY and total rigs are down +5 vs 2019.

Figure 20: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production up +0.100 mmb/d WoW at 11.5 mmb/d

US oil production was up +0.100 mmb/d to 11.5 mmb/d for the Aug 27 week, driven by Lower 48 production WoW increase of +0.100 mmb/d to 11.1 mmb/d. US oil production is up YoY at +1.80 mmb/d or 18% but is still down 1.6 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The August STEO forecast slightly raised its US crude expectations thru 2021 however it is still not returning anywhere near the Q4/19 peak of 12.88 mmb/d, with Q4/21 US crude of 11.30 mmb/d (down 1.58 mmb/d from peak). In US oil production commentary, the EIA wrote *“We expect production to be relatively flat through October before it starts rising in November and December and throughout 2022. Forecast U.S. crude oil production for 2022 averages 11.8 million b/d, up from 11.1 million b/d in 2021.”* The EIA DPR has the expectation of slight MoM increases in August/September. The EIA Form 914 June actuals were 207,000 mb/d above the weekly estimates average of 11.10 mmb/d for June, following a similar trend from May’s +392,000 mmb/d underestimate.

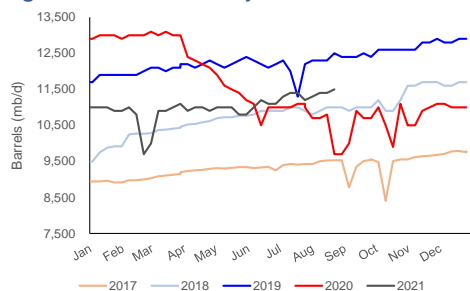
Figure 21: EIA’s Estimated Weekly US Oil Production

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		

Source: EIA

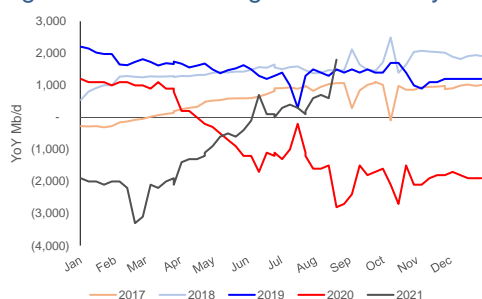
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Figure 22: US Weekly Oil Production



Source: EIA, SAF

Figure 23: YoY Change in US Weekly Oil Production



Source: EIA, SAF

Oil – EIA Form 914 June actuals 207,000 b/d higher than weekly production estimates

The EIA released its Form 914 data [LINK] on Tuesday, which is the EIA’s “actuals” for June US oil and natural gas production. Form 914 shows June production of 11.307 mmb/d, effectively flat from May of 11.312 mmb/d, and up +0.887 mmb/d YoY from June 2020 of 10.420 mmb/d. Three key items to highlight. (i) The actuals for June have come in 207,000 b/d higher than the weekly estimates that are noted in our Energy Tidbits memos. The actuals are also 0.400 mmb/d higher than the EIA STEO July had for June. (ii) This is the second consecutive month with YoY increases, and we expect to see this continue through the summer. (iii) On the back of the strengthening oil prices, we believe that June’s flat production was a function of the on-going depletion of DUC inventory wells, rather than new drilling, which requires ramp-up time to translate increasing rigs into actual oil production. Other specific state info: New Mexico had the largest MoM increase and was +43,000, and its production has been growing steadily for the past 4 months. It has eclipsed North Dakota’s production actuals for the past 4 months running, making it the new #2 producer. Texas production was down -22,000 to 4.791 mmb/d, the second consecutive decrease, but is still well above its levels post the Feb freeze-out. North Dakota was up MoM, +3,000 b/d to 1.059 mmb/d. ND is still 35,000 b/d below Jan levels, meaning it has still not fully recovered from the February freeze-out. ND under-performance reflects a lack of labour, according to Lynn Helms, ND’s director of Mineral Resources [LINK], who said “operators are trying with all their resources to hire, but they are not finding employees who want to come back to the industry and come back to North Dakota. Pre-Covid-19 pandemic we had 25 frack crews, and during the deepest part of the pandemic we went down to one crew.” Helms stated that he expects to see improvement in the summer months. The June actuals were 207,000 mb/d above the weekly estimates average of 11.10 mmb/d for June, following a similar trend from May

EIA Form 914
June

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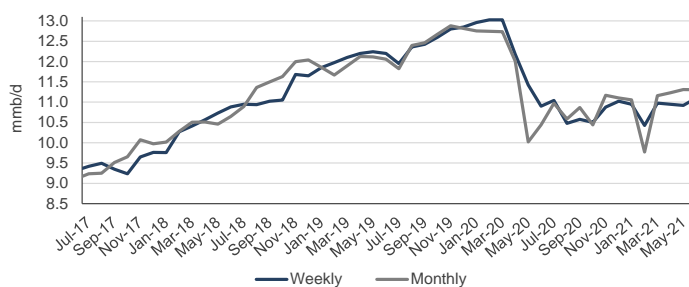
+392,000 mmb/d underestimate. Below is the EIA Form 914 data for oil, and our graph of EIA actuals oil production data vs the weekly estimates.

Figure 24: EIA Form 914 US Oil Production

thousand barrels per day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	11,056	9,773	11,160	11,230	11,312	11,307						
2020	12,785	12,826	12,816	11,911	9,711	10,420	10,956	10,558	10,868	10,413	11,121	11,084
2019	11,848	11,653	11,899	12,125	12,141	12,179	11,896	12,475	12,572	12,771	12,966	12,910
2018	9,996	10,276	10,461	10,493	10,424	10,628	10,888	11,373	11,422	11,488	11,868	11,924
2017	8,873	9,109	9,168	9,103	9,184	9,110	9,246	9,245	9,516	9,659	10,077	9,979
2016	9,201	9,063	9,088	8,871	8,832	8,672	8,660	8,688	8,542	8,802	8,901	8,814
2015	9,382	9,504	9,582	9,658	9,474	9,358	9,446	9,409	9,480	9,400	9,332	9,275

Source: EIA

Figure 25: EIA Form 914 US Oil Production vs Weekly Estimates



Source: EIA

Oil – US SPR releases this week are because of hurricane supply disruptions

As of our 7am MT news cut off, there US Dept of Energy has announced two exchanges of oil from the Strategic Petroleum Reserve following the supply interruptions from Hurricane Ida – the 1.5 mmb to Exxon and the 0.3 mmb to Placid Refining. These exchanges require the companies to pay back in kind within 2 to 3 months plus some extra barrels. These release remind of one of the key uses of SPR oil top fill a supply gap when there are interruptions to supply or imported barrels. SPR releases after hurricanes, like this week, are because oil supply is disrupted/damaged, or imports were restricted and if refineries need oil supply to keep operating. The SPR exists as an emergency response instrument the US President can use should the US encounter economically threatening disruption in oil supplies and require emergency drawdowns. Oil can also be released from the SPR under exchange arrangement, authorized by the SOE, with private companies. While the full DOE’s history of SPR releases can be found here [\[LINK\]](#), we highlighted some of the most recent releases resulting from hurricane impacts below:

SPR releases after hurricanes = supply disruptions

2017 Hurricane Harvey Exchange

On August 25, Hurricane Harvey, a Category 4 storm, hit Texas which impacted the Gulf region’s oil refining capability as many were forced to shut down, resulting in fuel shortages. Following the hurricane, the SOE authorized the SPR to establish exchange agreements with affected refiners who requested emergency. A total of 5.2 mmb of oil from the SPR were delivered to Gulf Coast refineries, in order to continue processing operations and prevent further supply disruptions. All the oil was repaid, including premium barrels, by February 2018.

2012 Hurricane Issac Exchange

In August 2012, Tropical Storm Isaac entered the Gulf of Mexico and travelled for the coast of Louisiana. Issac shut down 95% of oil production in the Gulf and caused

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minor damage and delays to some facilities. Marathon Petroleum Company requested an emergency loan of 1 mmb to supplement Marathon's supplies to ensure their refining operations had sufficient supplies to continue operations. All oil was repaid to the SPR in 3 months, including premium barrels.

2008 Hurricanes Gustav and Ike Exchanges

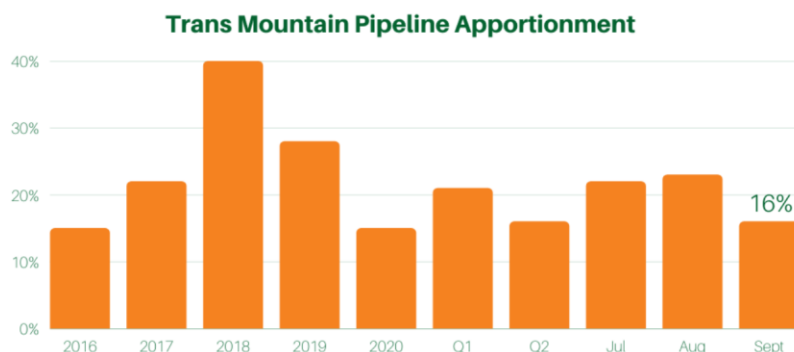
In early September 2008, Hurricane Gustav and Hurricane Ike, both Category 2 hurricanes, disrupted the production of oil in the Gulf and damaged petroleum infrastructure. The SOE delivered 5.39 mmb of SPR crude to Marathon, Placid, ConocoPhillips, Citgo, and Alon USA to continue operations. Repayment to DOE of the quantity of crude oil loaned, in addition to premium barrels, would occur January through May 2009.

Oil – Trans Mountain apportioned by 16% for Sept

On Thursday [\[LINK\]](#), Trans Mountain released an update on its capacity for the month of September. Total system nominations are apportioned by 16% for August, meaning 16% of demand for the pipeline exceeds its capacity. Trans Mountain reminds that it has been running at full capacity and has seen regular monthly apportionment for over a decade ie, the clear sign for a need for expansion. Because without expansion (ie. with a pipeline that is always apportioned), *“When a pipeline experiences significant and prolonged apportionment like in the case of the existing Trans Mountain Pipeline, it’s one signal that more capacity is needed. Apportionment can bring with it a discounting of prices as producers compete to sell what they can through the pipeline before having to use another pipeline or other modes of transport to another, less profitable market. It can also mean the buyers at the end of the pipeline are forced to source their shortfall of supply from alternate, less desirable sources.”* Below is a chart which shows the average apportionment since 2016. Our Supplemental Documents package includes the Trans Mountain release.

Trans Mountain running at full capacity

Figure 26: Trans Mountain Pipeline Apportionment



Source: Trans Mountain Pipeline

Oil – Enbridge offers 620,000 b/d capacity on Line 3 for Oct

Enbridge is preparing to ship crude from the Alberta oil sands in the first new cross-border oil-sands pipeline “built” between Canada and the U.S. in years. Enbridge is offering 620,000 b/d of capacity (350,000 b/d of light oil and 270,000 b/d of heavy oil) in its Line 3 pipeline in Oct, according to a notice it sent to shippers. The Line 3 project will replace the aging pipeline which can only ship about 370,000 b/d. The replacement will allow Enbridge to restore capacity to the original levels at 760,000 b/d. The long-delayed project has been strongly opposed by environmental and indigenous groups and Enbridge has spent years in

Enbridge Line 3 replacement to start

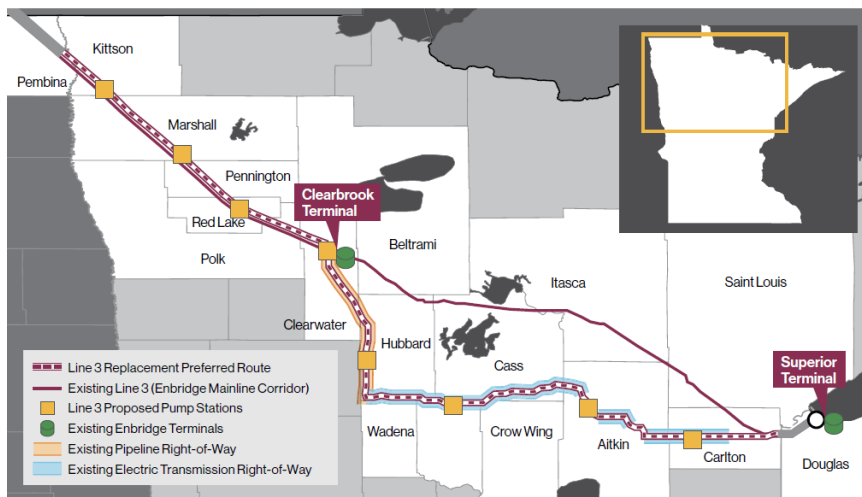
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court and regulatory battles to get the line built. The Line 3 replacement will carry Canadian crude from Alberta to Enbridge's terminal in Superior, Wisconsin.

Line 3 Project Overview

Enbridge says the replacement of Line 3, which was built in the 1960's, is "to maintain [their] high safety high safety standards, reduce future maintenance activities and create fewer disruptions to landowners and the environment, and restore the historical operating capabilities of Line 3," [\[LINK\]](#). In 2008, Enbridge implemented voluntary pressure restrictions to the pipeline reducing capacity of deliveries from 760,000 b/d to 370,000 b/d. The Line 3 replacement program includes a new 36-inch diameter pipeline, replacing the existing 34-inch diameter pipeline. The new 1,031-mile pipeline follows the existing Line 3 route from Joliette, North Dakota to Clearbrook, Minnesota, and then follows existing pipeline and transmission routes from Clearbrook to Superior, Wisconsin. The Program was a ~\$7.5bn private investment, making it one of the largest infrastructure programs in North America. Below is the map of the Line 3 Replacement project. Our Supplemental Documents Package includes excerpts from the Enbridge Line 3 Project Overview.

Figure 27: Enbridge Line 3 Replacement Project



Source: Enbridge

Oil – Increasing Covid outbreaks in oil sands facilities

We probably shouldn't be surprised to see increasing Covid outbreak areas in the oil sands given the increasing Covid case counts in Alberta. Wood Buffalo posted two Covid updates this week after not posting since Aug 13. At Aug 13, there were only 2 Covid outbreak facilities in the oil sands – CNRL Albion and Suncor Fort Hills. (i) Sept 1 update [\[LINK\]](#), there were 5 Covid outbreak facilities in the oil sands – CNRL Albion and Suncor Fort Hills still and added were CNRL Horizon, CNRL Kirby Jackfish, and Private Gathering Anzac. (ii) Sept 3 update [\[LINK\]](#), there were the same 5 Covid outbreak facilities in the oil sands as on Sept 1 - CNRL Albion and Suncor Fort Hills still and added were CNRL Horizon, CNRL Kirby Jackfish, and Private Gathering Anzac.

Increasing Covid in oil sands

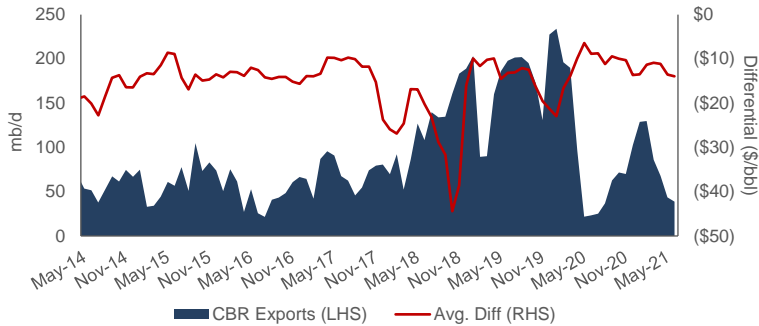
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Oil – Cdn crude by rail imports to Gulf Coast up 15,000 b/d YoY in June to 39,000 b/d

The EIA posted its monthly “U.S. Movements of Crude Oil by Rail” [LINK](#) on Tuesday, which also had good insights on Cdn crude by rail. Canadian CBR volumes to PADD 3 (Gulf Coast) were 39,000 b/d in June, which is down 5,000 b/d MoM from May, and up 15,000 b/d YoY vs June 2020. May volumes were revised upward by 1,000 b/d from 67,000 b/d reported last month. Tighter YoY WCS to WTI differentials were the key factor in the low crude by rail volumes since December. Below is our graph of Cdn CBR exports to the Gulf Coast.

Cdn crude by rail imports to Gulf Coast up 15,000 b/d YoY

Figure 28: Canada CBR Exports to US Gulf Coast vs WCS Differential



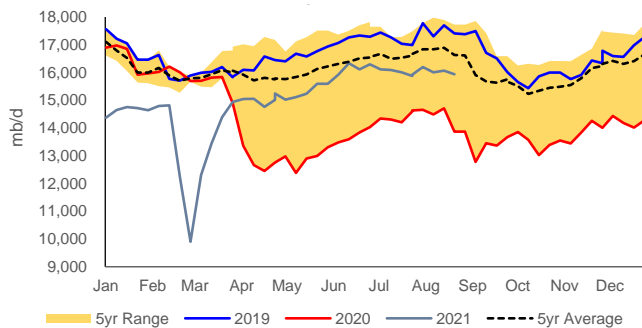
Source: EIA, Bloomberg

Oil – Refinery inputs +1.360 mmb/d YoY to 16.072 mmb/d, down 1.630 mmb/d vs 2019

The crude oil inputs to refineries will be down significantly in the next report due to Hurricane Ida which made landfall in Louisiana on Aug 29. But for the week ending August 27, crude inputs to refineries were down -0.133 mmb/d this week to 15.938 mmb/d, and are +2.070 mmb/d YoY, and are -1.470 mmb/d vs 2019. Inputs are also -0.698 mmb/d below the 5-year average of 16.636 mmb/d. Refinery utilization was down by 1.1% this week at 91.3%, which is +19.0% YoY. Total products supplied (ie. demand) was up this week, with a +1.003 mmb/d increase to 22.820 mmb/d, the highest since March 2020. Motor gasoline was effectively flat at 9.578 mmb/d from 9.572 mmb/d last week. So far, the spread of the delta variant hasn’t meant a huge reduction in gasoline consumption ahead of Labor Day, which marks the end of the peak of the summer driving season. Below is our graph of crude inputs to US refineries and our graph of US motor gasoline supplied.

Refinery inputs still below the 5-yr average

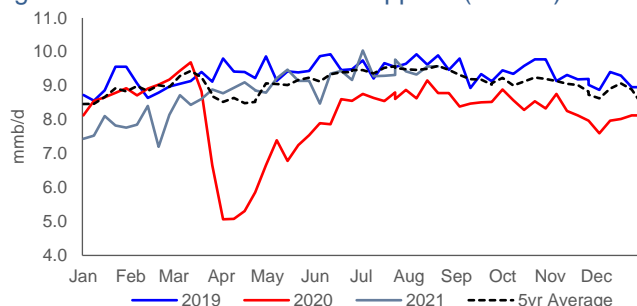
Figure 29: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA, SAF

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Figure 30: US Motor Gasoline Supplied (mmb/d)



Source: EIA

Source: EIA, SAF

Oil – US “net” oil imports effectively flat at 3.300 mmb/d

US net oil import data will be significantly impacted for next week’s reporting due to Hurricane Ida making land fall on Aug 29. But for the Aug 27 week, US “NET” imports were down - 0.045 mmb/d to 3.300 mmb/d. US imports were up +0.183 mmb/d to 6.340 mmb/d. US exports were up by +0.228 mmb/d to 3.040 mmb/d. The WoW increase in US oil imports was driven by a +0.308 mmb/d supply from other countries, while the US’s top 10 imports by country were down -0.125 mmb/d. Some items to note on the by country data. (i) Canada was up this week by 0.057 mmb/d to 3.612 mmb/d, which is now only ~0.1 mmb/d below the average levels in Jan/Feb of 2020. (ii) Saudi Arabia was up +59,000 b/d to 0.345 mmb/d this week. (iii) Colombia was down significantly this week, erasing last weeks gain, by -0.299 mmb/d to 0.071 mmb/d this week. (iv) Ecuador was down by 66,000 b/d at 195,000 b/d. (v) Iraq was up +97,000 b/d to 174,000 b/d. (vi) Venezuela remained at 0 due to US sanctions. (vi) Mexico was down by 79,000 b/d to 0.674 mmb/d.

**US “net” oil flat
WoW**

Figure 31: US Weekly Preliminary Oil Imports By Major Countries

	June 18/21	June 25/21	July 02/21	July 09/21	July 16/21	July 23/21	July 30/21	Aug 06/21	Aug 13/21	Aug 20/21	Aug 27/21	WoW
Canada	3,435	3,282	3,744	3,480	3,611	3,476	3,228	3,371	3,057	3,555	3,612	57
Saudi Arabia	555	565	316	347	359	363	351	302	363	286	345	59
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	878	747	408	648	797	621	634	601	629	595	674	79
Colombia	340	139	154	140	144	144	141	293	143	370	71	-299
Iraq	151	142	229	182	480	145	82	120	150	77	174	97
Ecuador	29	260	0	95	171	168	46	150	197	261	195	-66
Nigeria	183	33	142	187	195	55	212	150	214	95	43	-52
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	5,571	5,168	4,993	5,079	5,757	4,972	4,694	4,987	4,753	5,239	5,114	-125
Others	1,372	1,238	882	1,142	1,340	1,535	1,738	1,409	1,597	918	1,226	308
Total US	6,943	6,406	5,875	6,221	7,097	6,507	6,432	6,396	6,350	6,157	6,340	183

Source: EIA, SAF

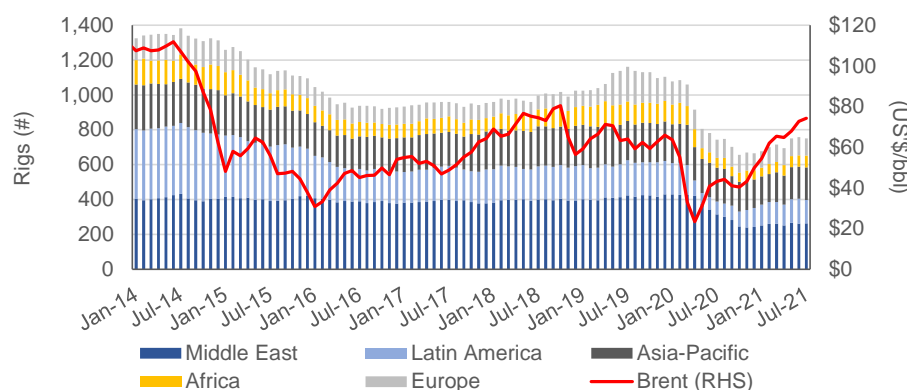
Oil – Baker Hughes International rigs +26 MoM to 777 rigs in August

We didn’t see any major oil or natural gas takeaways from Baker Hughes updated international rig counts for August on Friday which, as expected, showed an increase from last month’s count. International activity had been increasing with stronger oil and gas prices. August is up +4% YoY, but still down 31% vs August 2019. Total international rigs increase 26 MoM to 777 in August. The MoM rig count is as followed: Asia-Pacific +11, Africa +7, Europe +6, Latin America +4, and the Middle East -2. The rig count in Asia-Pacific was driven by a +7 rig increase in Australia, which we have to believe that a view of strong oil and gas prices is driving the increase. Indonesia continue its record 7-yr highs this month, up +1 rig. Africa increases were driven by Nigeria +4 and Algeria +3. Below is our graph of international rigs by region and avg monthly Brent price.

**International
rigs +26 MoM;
Australia
biggest increase
at +7 rig MoM**

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Figure 32: Baker Hughes International Rig Count and Brent Price



Source: Baker Hughes, Bloomberg

Oil – Pemex says it restored all wells & 421,000 b/d production on Monday

We were surprised to see Pemex's Monday release [\[LINK\]](#) "with respect to the incident on the E-Ku-A2 platform of the Ku-A process center of the Ku – Maloob – Zaap Production Asset, which occurred on August 22, the production of 421 thousand barrels of oil per day (Mbd) and the 125 wells that were closed have been rehabilitated. Due to this event, there was a deferred production of 1.6 million barrels (MMbd)." It looked like a clean release, all the shut in wells and their related 421,000 b/d of production was restored. We were surprised by their ability to get all the wells and production back on as quickly as the Pemex mgmt estimated right after the fire. Our Supplemental Documents package includes the Pemex release.

Pemex restored the 421,000 b/d

Did Pemex's use of nitrogen to restore 421,000 b/d impact LT recovery?

There was an interesting Bloomberg report that raised the question if Pemex's rush to make sure the 421,000 b/d was quickly restored will have a longer term negative impact ie. a lower oil recovery which would lead to earlier declines. One item that Pemex didn't note was if they used nitrogen to help quickly restore the 421,000 b/d. There was an interesting Bloomberg Aug 27 report "Pemex Uses Nitrogen in Haste to Restore Oil Output After Blast". Bloomberg wrote that Pemex was "resorting to nitrogen injections into offshore oil wells to quickly restore output following a major platform fire, a measure that could create complications down the line. Under pressure to meet an ambitious goal of restoring full production by Monday, the company is using nitrogen to push oil out of wells because natural gas output was knocked offline after the blast, according to people with knowledge of the situation, who asked not to be named because they're not allowed to speak for the company. The problem with the short-term fix is that nitrogen also disperses oil inside the reservoirs into several pockets, making exploration not only more difficult but also more expensive in the long term, one person said. Natural gas is usually used instead to create enough pressure to allow oil to flow out of wells." Our Supplemental Documents package includes the Bloomberg report.

Oil – China's CNPC laying the groundwork for Venezuela oil growth

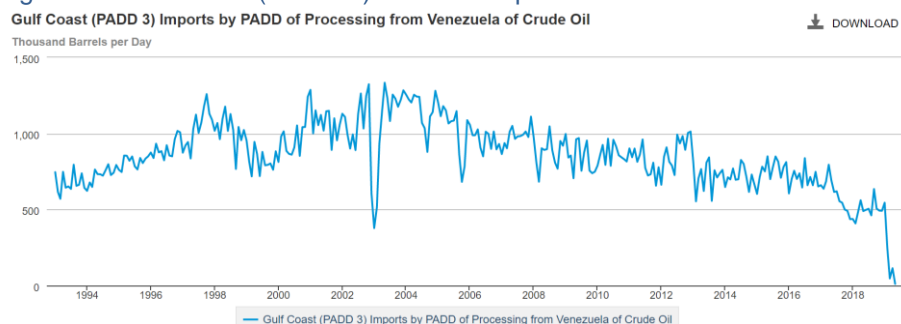
One of the big positives to oil markets from Trump was the sanctions on both Iran and Venezuela. And the big beneficiary of Venezuela sanctions has been Cdn heavy/medium crude oil as less Venezuela oil to the Gulf Coast (PADD 3) refiners has been opportunity for

CNPC in Venezuela

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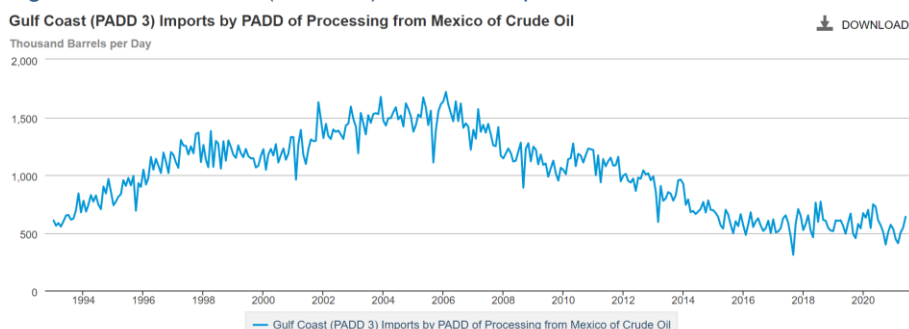
Cdn heavy/medium oil. The Venezuelan oil business has been cash starved but it also means that if cash/capital comes back, then there will be a relatively quick return of Venezuela crude to world oil markets and, if US sanctions are removed, also to Gulf Coast refineries. Even if Venezuela crude doesn't come back to the Gulf Coast, it will impact Cdn heavy/medium crude if the crude finds its way to China or India refineries. Its not hard to see a scenario that Venezuela could add 0.5 mmb/d to exports in a few years. If so, that would be a negative to the Trans Mountain Expansion by adding more competition to China and India markets. Its why we are highlighting Bloomberg's Wed report "*China's Top Oil Producer Prepares to Revive Venezuela Operations*" "*China's top oil producer is laying the groundwork to revive output in Venezuela as President Nicolas Maduro finalizes legislation to attract more international investment. Once a major investor in the OPEC nation, China National Petroleum Corp. is sending engineers and commercial staff there and vetting local companies for maintenance work at an oil-blending facility it operates with Petroleos de Venezuela SA, according to people with direct knowledge of the firm's actions*". Below are the EIA's current Gulf Coast (PADD 3) crude oil imports from Canada, Mexico and Venezuela. Please note there are different scales in the graphs. Our Supplementary Documents package includes the Bloomberg report.

Figure 33: Gulf Coast (PADD 3) crude oil imports from Venezuela



Source: EIA

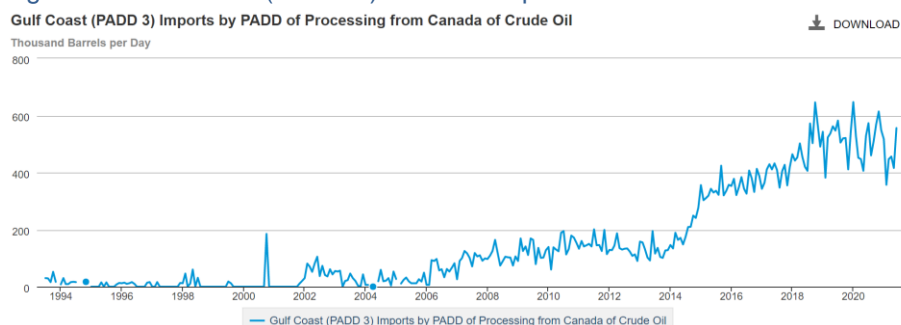
Figure 34: Gulf Coast (PADD 3) crude oil imports from Mexico



Source: EIA

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Figure 35: Gulf Coast (PADD 3) crude oil imports from Canada



Source: EIA

Oil – Russia crude production falls after fire at processing plant

Russian crude and condensate production in August was ~10.43 mmb/d, which is 0.5% below July's figure. Russian oil output has now been flat-to-down for the last 5 months. The drop comes after a fire damaged the Gazprom PJSC processing plant in West Siberia forcing the company to cap production. The official Russian data doesn't split out crude vs condensate, therefore making it difficult to identify which variety is responsible for the August decrease. The unexpected drop came after Russia 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 (see our August 8, 2021 Energy Tidbit). Russian Deputy Prime Minister Alexander Novak did not seem worried, stating that "*its producers have enough capacity to hike output even faster and higher than the quotas allows.*" Our Supplemental Documents package includes the Bloomberg report.

**Russia August
oil production
falls after fire**

Oil – Russia says 50% of its oil reserves are not profitable at \$50 oil

We will ask the same rhetorical question as we did in our Jan 31, 2021 Energy Tidbits – imaging what markets would say if Exxon were to come out in their year end reporting and say only 50% of its existing oil reserves are profitable at \$50? On Thursday, we tweeted [\[LINK\]](#) "*Only half of Russia's #Oil reserves are profitable at \$50 says Deputy Energy Minister Sorokin. Fits Jan 27 linked tweet. Bullish for mid/long term oil prices. Detailed comment in SAF Group Jan 27, 2021 Energy Tidbits memo*". There was a typo in the tweet as we should have said the Jan 31, 2021 Energy Tidbits memo that was titled "*Russia Says Increasing Water Cut, Deteriorating Development, Etc Mean Only 36% of Its Oil Reserves are Profitable.*" This week, Russia's Deputy Energy Minister Sorokin came out with almost identical comment as he did on Jan 27, 2021 saying "*even in our current structure of reserves, a significant part of it is unprofitable at a price of \$50 – about half there. There is a very large layer of opportunities for working with the current resource base: with small fields, with depleted, with tailing assets, with deeper and more difficult layers. What you need to concentrate on*". Sorokin's Jan 27 comments were basically overlooked as they were only in the TASS Russian news version. But we thought then and still think know that this is a significant admission from Russia as to the mid/long oil supply and we believe a bullish comment for oil in the 2020s. One difference is that Sorokin gave much more insight into the uneconomic oil reserves in his Jan 27 comment in Russia. Below is what we wrote in our Jan 31, 2021 Energy Tidbits on his comments. Our Supplemental Documents package includes the TASS Sept 2 report on Sorokin's comments.

**Half of Russia
oil reserves not
profitable**

Jan 31, 2021 Energy Tidbits, Sorokin said 64% of oil reserves not profitable

This plus the next two items is what we wrote in our Jan 31, 2021 Energy Tidbits on

Sorokin's Jan 27 comments. Imagine what markets would say if Exxon were to come out in their year end reporting and say that 64% of its existing oil reserves are not profitable at >\$50 oil. The stock would be creamed as markets would think Exxon wouldn't have oil growth potential and its oil production had likely peaked. This is what Russia said this week for their oil reserves. We were surprised by a TASS Russian news story on Wed morning and would have thought it was a fake if it wasn't on TASS as we would never have thought Russia's #2 oil official (after Novak) would be saying what he did. We tweeted [\[LINK\]](#) "1/2. must read, bullish for oil @tass_agency story "only 36% of oil reserves in Russia are profitable". multiple indicators of maturing oil supply ie. deeper, smaller pools, etc. Effectively says RUS has more or less reached peak oil supply unless #Oil prices are higher #OOTT .." and [\[LINK\]](#) "2/2. surprising RUS lays this out, but fits to Novak's Dec comments and why they would want higher oil prices for 2020s sooner. see SAF Group blog Russia Says its a Price Taker at \$45 in 2021, May Be the New Strategy Needed for OPEC+ to Fix Post Covid Oil Prices For 2020s. #OOTT". TASS wrote "Only 36% of 30 billion tons of oil reserves in Russia are profitable, which is associated with the deterioration of development conditions and a drop in the quality of reserves, writes the Deputy Minister of Energy of the Russian Federation Pavel Sorokin in an article for the Energy Policy magazine. "According to the data of the inventory of the economics of field development, carried out on behalf of the Russian government, out of 30 billion tons of recoverable oil reserves in Russia, only 36% is profitable in the current macroeconomic conditions. This is due to the deterioration of development opportunities: an increase in water cut, the need to permeability and compartmentalization of reservoirs, withdrawal into marginal zones and strata with small thicknesses, and so on, "Sorokin explained." This is significant, Sorokin is basically saying Russia has more or less reached peak oil supply, or at least peak oil supply unless prices are going higher. Maybe there is some growth but Russia has to first arrest declines. This is very different than what we see in the Middle East. Russia is saying its maturing oil production/reserves base needs higher oil prices as its oil base is maturing and they are going after smaller pools (higher cost per barrel), deeper zones (higher costs per barrel) and need new technology (we wonder if this means shale, although Putin has been negative). And also very different than Saudi Arabia. Their costs are going up to, but they aren't saying their oil production/reserves needs higher oil prices to be economic. Rather they and others like we saw with Kuwait this week need higher oil prices to balance their govt budget. They don't say they need higher oil prices to develop its oil reserves. One reminder, producing oil reserves isn't like drinking a glass of water, where you turn the cup down and the water flows out at the same rate until the glass is empty. As oil reserves produce more from a reservoir that is economic today, the oil recovery rate declines over time and the future barrels become more expensive to produce. This is more than food for thought. If peak oil demand isn't here until 2030, then its bullish for oil post Covid. Even if oil demand only recovers to pre Covid, its bullish or at least supportive of higher prices. Our Supplemental Documents package includes the Google Translate version of the TASS Russian story.

Also reminds that TASS Russian stories give more color than its English ones

Here is another part to our Jan 31, 2021 Energy Tidbits on Sorokin's Jan 27 comments. We remind that the TASS Russian version of any story always have better info than the English versions. Its why we look at its Russian news site thanks to Google Translate. For the TASS Sorokin story, we attached both the Russian and English versions to illustrate. Also in the Dec 29 blog (noted below), we noted that

one of the key Novak stories was only in TASS Russian news and not in TASS English news. And, in the case of the Dec 29 blog, it was the key story and we believe that is why most never noted the Novak quotes.

It fits to why Russia needs to focus on monetization of its oil reserves

Here is another part to our Jan 31, 2021 Energy Tidbits on Sorokin's Jan 27 comments. We are still surprised that markets have more or less overlooked Sorokin's comments. We recommend going back over Novak's series of late Dec comments that make sense of Sorokin's comments this week. We detailed Novak's comments in our Dec 29 blog "*Russia Says Its a Price Taker at \$45 in 2021, May Be the New Strategy Needed For OPEC+ To Fix Post-Covid Oil Prices For the 2020s*" [\[LINK\]](#). One of Novak's key comments that week was that Russia needs to focus on monetization of its oil and gas reserves. This was perhaps the most significant new comment by Russia and points to Russia being serious that peak oil demand is coming sooner. And because they believe peak oil demand is coming sooner, it means they have to focus on monetizing their oil and gas assets. Its also a great example of trying to go to original Russian reporting and not reporting on original Russian reporting. And luckily we have Google Translate as its easy to search for stories in Russia on *новак* (Novak in English) and find stories. Also important to remember TASS original stories are on their Russian news site, and either shortened or not included on their English news site. On Dec 21, TASS had a Russia news story [\[LINK\]](#) that did not appear on the English news site. "*In the coming decades, Russia needs to pay special attention to the monetization of energy resources: oil, gas and coal, as demand in developed countries may decrease. This opinion was expressed by Deputy Prime Minister Alexander Novak at the session of the "Russia and the World" project. "My opinion is that in the coming decades [Russia] needs to pay more attention to the monetization".* And when we see Sorokin's comments this week on Russia's reserves, it makes sense why Russia needs higher prices and wants to focus on monetizing its oil reserves. Our Supplemental Documents package includes our Dec 29 blog.

Oil – OPEC reportedly increases 2022 demand growth forecast by 0.92 mmb/d

One of the stories that came out before the OPEC+ meeting was the Reuters report "*OPEC+ raises 2022 oil demand growth forecast*" [\[LINK\]](#) "*OPEC+ revised up its 2022 oil demand forecast ahead of a meeting of the oil producing group on Wednesday, amid U.S. pressure to raise output more quickly to support the global economy*". This was part of the set up to the OPEC+ meeting and no change to the planned +400,000 b/d increase for October. Reuters reported that two OPEC+ sources said OPEC's internal forecasts for 2022 oil demand growth were increased by 0.92 mmb/d from YoY growth of +3.28 mmb/d up to +4.2 mmb/d. Most importantly, Reuters reported "*As a result, commercial oil inventories in the OECD, a group of mostly developed countries, would remain below their 2015-2019 average until May 2022 rather than the initial forecast for January 2022, the JTC presentation showed, according to the sources.*" Our Supplemental Documents package includes the Reuters report.

**OPEC increases
2022 demand
growth**

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

On Wednesday, OPEC and its allies agreed to stick to their existing policy of gradual oil output increases, despite revising its 2022 demand outlook upwards and ongoing U.S. pressure from President Biden to raise production more quickly. OPEC stated: "*Reconfirm the production adjustment plan and the monthly production adjustment mechanism approved at the 19th ONOMM and the decision to adjust upward the monthly overall production by 0.4 mb/d for the month of October 2021,*" [\[LINK\]](#). OPEC and allies led by Russia agreed in July

**OPEC+ sticks to
July 18 plan**

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to phase out record output cuts by adding 400,000 bp/d of oil a month (see our July 18, 2021 Energy Tidbit). Wednesday's decision means that OPEC+ will release 400,000 bpd to the market in October again, after already doing so in September. The next OPEC+ meeting is scheduled for October 4, 2021. Our Supplemental Documents package includes the OPEC+ release this week and also after the July 18 production plan.

Figure 36: 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
Algeria	1,057	876	876	887	898	912	922	932	942	952	962	1,057	-
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	-
Congo	325	269	269	273	276	281	284	287	290	293	296	325	-
Equatorial G.	127	105	105	107	108	110	111	112	114	115	116	127	-
Gabon	187	155	155	157	159	161	163	165	166	168	170	187	-
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.
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
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
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.
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	-
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	-
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
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.
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
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
<small>*Saudi Arabia quota for Feb-Apr 2021 includes voluntary 1mmb/d cut; May-July includes wind down of voluntary cut</small>													
Non-OPEC	Reference Level Production	March 2021	April 2021	May 2021	June 2021	July 2021	July 2021	Sept 2021	Oct 2021	Nov 2021	Dec 2021	May/22 per July/21 Agreement -	Change in Ref. Level Post May/22
Russia	11,000	9,249	9,379	9,418	9,457	9,495	9,495					11,500	500
Kazakhstan	1,709	1,437	1,457	1,463	1,469	1,475	1,475					1,709	-
Oman	883	732	732	741	750	762	762					883	-
Azerbaijan	718	595	595	603	610	620	620					718	-
Malaysia	595	493	493	499	506	514	514					595	-
Bahrain	205	170	170	172	174	177	177					205	-
Sudan	75	62	62	63	64	65	65					75	-
South Sudan	130	108	108	109	110	112	112					130	-
Brunei	102	85	85	86	87	88	88					102	-
Total Non-OPEC	15,417	12,931	13,081	13,154	13,227	13,308	13,308	0	0	0		15,917	500
Non-OPEC vs. ref.	0	-2,486	-2,336	-2,263	-2,190	-2,109	-2,109	-15,417	-15,417	-15,417		0	0
Total OPEC+	42,100	34,050	34,200	35,550	35,900	36,341	36,595	23,539	23,794	24,047		43,732	1,632
OPEC+ vs ref.	0	-8,050	-7,900	-6,550	-6,200	-5,759	-5,505	-18,561	-18,306	-18,053		0	0

Source: OPEC

Was OPEC+ deliberately less specific on future production increases?

We recognize that this question wasn't raised by others, but we always get curious when we see different language used to refer to the same action. We look at the OPEC concluding statements much like FED statements to see if there is any different nuance or vagueness in the statements. We don't believe OPEC makes changes unless they mean to, which is why we tweeted [LINK](#) that there were differences in this week's press release vs the July 18 press release in describing the production increases. Although, in theory, it seems to be saying the same end result, it feels a little vague almost like they are leaving some wiggle room to pause on the monthly increases if needed. This week, OPEC wrote "Reconfirm the production adjustment plan and the monthly production adjustment mechanism approved at the 19th ONOMM and the decision to adjust upward the monthly overall production by 0.4 mb/d for the month of October 2021." They are reconfirming the monthly production adjustment plan approved at the July 18 meeting but then only note the +0.4 mmb/d for Oct. There is no mention of the plan to increase by 0.4 mmb/d every month. They look to be deliberately avoiding saying increase every month. Rather it seems like an Oct only increase and then silence on what happens next. Whereas the July 18 release says "Adjust upward their overall production by 0.4 mb/d on a monthly basis starting August 2021 until phasing out the 5.8 mb/d production adjustment, and in December 2021 assess market developments and Participating Countries' performance." They clearly said they were starting to ramp up by 0.4 mmb/d on a monthly basis until the 5.8 mmb/d total adjustment has been eliminated,

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and that they will review the market in Dec 2021. We believe that any language changes are deliberate so we have to wonder why?

Oil – Saudi Aramco cuts OSP for Asia but not Europe & US

Aramco cuts OSP for Asia

Earlier this morning, Bloomberg reported on Saudi Aramco’s OSP for Oct. These are the pricing that will be in effect with the above noted OPEC+ 400,000 b/d increase in Oct. We tweeted [\[LINK\]](#) “#SaudiAramco cuts #Oil OSP prices by more than expected for Asia buyers post #OPEC+ continuing with +400,000 b/d increase in Oct. But no price cuts for Europe & US. Thx @TheTerminal for updated OSP table & @sarahchen @iamsharoncho @A_DiPaola17 for the report. #OOTT”. It was noticeable that Aramco made cuts to OSP to Asia, but didn’t really change Europe and US prices. Below is Bloomberg’s updated Saudi OSP for the new pricing month.

Figure 37: Saudi Aramco OSP

GRADE	CHANGE	OCT 2021	SEPT 2021	AUG 2021	JULY 2021	JUNE 2021	MAY 2021	APRIL 2021	MARCH 2021	FEB 2021	JAN 2021	DEC 2020	NOV 2020	OCT 2020
SAUDI ARABIA														
<i>Asia (vs Oman/Dubai)</i>														
Arab Super Light	-1.30	3.15	4.45	3.85	2.85	2.35	2.55	2.35	1.85	1.85	1.25	0.65	0.85	0.55
Arab Extra Light	-1.20	2.00	3.20	2.70	1.90	1.50	1.60	1.20	0.60	0.60	0.10	-0.70	-0.60	-0.80
Arab Light	-1.30	1.70	3.00	2.70	1.90	1.70	1.80	1.40	1.00	1.00	0.30	-0.50	-0.40	-0.50
Arab Medium	-1.00	1.45	2.45	2.15	1.35	1.25	1.45	0.95	0.75	0.75	0.35	-0.20	-0.30	-0.30
Arab Heavy	-1.00	0.40	1.40	1.20	0.40	0.50	0.80	0.30	0.30	0.30	0.10	-0.30	-0.30	-0.30
vs Arab Extra Light	-0.85	-1.60	-1.80	-1.50	-1.50	-1.00	-0.80	-0.90	-0.30	-0.30	0.00	0.40	0.30	0.50
vs Arab Light	-0.35	-1.30	-1.60	-1.50	-1.50	-1.20	-1.00	-1.10	-0.70	-0.70	-0.20	0.20	0.10	0.20
<i>U.S. (vs ASCI)</i>														
Arab Extra Light	0.00	2.40	2.40	2.20	1.80	1.80	1.60	1.50	1.20	1.10	0.90	1.20	1.40	1.50
Arab Light	0.00	1.35	1.35	1.25	1.05	1.05	0.85	0.95	0.85	0.75	0.55	0.85	1.05	1.05
Arab Medium	0.00	0.65	0.65	0.55	0.35	0.35	0.15	0.25	0.15	0.05	-0.15	0.15	0.35	0.35
Arab Heavy	0.00	0.20	0.20	0.10	-0.10	-0.10	-0.30	-0.20	-0.20	-0.30	-0.50	-0.20	0.00	0.00
<i>Northwestern Europe (vs ICE Brent Marker)</i>														
Arab Extra Light	0.00	-0.80	-0.80	-0.30	-1.10	-2.50	-1.90	-1.90	-0.40	-1.80	-1.30	-1.30	-1.90	-1.90
Arab Light	0.00	-1.70	-1.70	-1.10	-1.90	-2.90	-2.40	-2.20	-0.50	-1.90	-1.40	-1.40	-2.00	-2.00
Arab Medium	0.00	-2.30	-2.30	-1.70	-2.50	-3.30	-2.60	-2.60	-0.90	-2.30	-1.80	-1.30	-2.00	-1.90
Arab Heavy	0.00	-3.20	-3.20	-2.60	-3.30	-3.90	-3.10	-3.10	-1.30	-2.70	-2.20	-1.30	-2.30	-2.00
<i>Mediterranean (vs ICE Brent Marker, FOB Ras Tanura)</i>														
Arab Extra Light	-0.10	-0.80	-0.70	0.10	-0.70	-1.80	-1.40	-1.10	-0.10	-1.40	-0.90	-1.10	-1.50	-1.20
Arab Light	-0.10	-1.80	-1.70	-0.80	-1.40	-2.30	-2.10	-1.90	-0.20	-1.50	-1.00	-1.20	-1.90	-1.60
Arab Medium	-0.10	-2.60	-2.40	-1.60	-2.20	-2.80	-2.50	-2.50	-0.80	-2.10	-1.60	-1.30	-2.10	-1.60
Arab Heavy	-0.10	-3.20	-3.10	-2.60	-3.20	-3.60	-3.20	-3.20	-1.30	-2.60	-2.10	-1.20	-2.10	-1.80
<i>FOB Sub Kaiti (vs ICE Brent Marker)</i>														
Arab Extra Light	-0.85	-0.10	0.75	-0.10	-1.30	-0.85	-0.50	0.50	-0.90	-0.20	-0.45	-0.90	-0.60	-0.60
Arab Light	-0.95	-1.10	-0.15	-0.80	-1.80	-1.55	-1.30	0.40	-1.00	-0.30	-0.55	-1.30	-1.00	-1.00
Arab Medium	-0.65	-1.80	-0.95	-1.60	-2.30	-1.95	-1.90	-0.20	-1.60	-0.90	-0.65	-1.50	-1.00	-1.00
Arab Heavy	-0.65	-2.50	-1.85	-2.60	-3.10	-2.65	-2.60	-0.70	-2.10	-1.40	-0.55	-1.50	-1.20	-1.20

Source: Bloomberg

Oil – Saudi says intercepted Houthi ballistic missile over Dammam, Eastern Province

Saudi say intercepted missile over Riyadh

Last night, we tweeted [\[LINK\]](#) “Confirmation of a ballistic missile launched towards heart of Saudi Arabia oil infrastructure. Says “intercepted”, but will want to see if any impact on oil infra. Dhahran is in the blue circle on the @EIAgov oil and gas infra map. hope everyone is safe. #Oil #OOTT”. We said confirmed because the reports appeared in Saudi media Al Arabiya news. The Houthis haven’t stopped launching missiles but they are generally at targets in SW Saudi Arabia close to the Yemen border. But Dammam is on the Persian Gulf in the heart of Saudi Aramco’s major oil facilities and loading terminal. And a ballistic missile hit could drive oil markets. Earlier this morning, the Saudi Press Agency (the official news agency for Saudi Arabia) reported [\[LINK\]](#) “Statement by the Official Spokesperson of the Ministry of Defense Brigadier General Turki Al-Malki “Saudi Air Defense has intercepted and destroyed (3) ballistic missiles and (3) bomb-laden drones launched by the Iran-backed Houthi militia Towards the Eastern Province, Jazan and Najran. Saudi defenses have intercepted and destroyed at (2132) Saturday evening (04 September 2021) a ballistic missile launched by the terrorist, Iran-backed Houthi militia from Sana’a using civilian objects as a launch site towards the Eastern Province of the Kingdom. The interception caused debris to scatter across the (Dahyat Al-Dammam) neighborhood, which resulted in the injury of (2) Saudi female and male children, and minimal damages to (14) houses.” As of our 7am MT news cut off (4pm Riyadh time), we haven’t seen any reports of any damage or missile hit on Saudi Aramco operations. It is significant to note that Saudi Arabia is saying these missiles were launched from Yemen by the Houthis, which is a key reminder that the Houthis

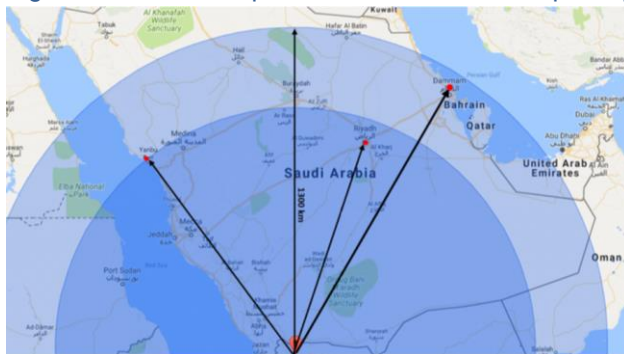
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have long range missile capability that can hit any target in Saudi Arabia including Saudi's most important oil fields or oil infrastructure/export terminals. So, at least for now, it looks like no impact on oil prices. We don't like to include unconfirmed Twitter clips but there are some clips that purportedly are the missile over Dammam and what could be an explosion on the ground. This would be contrary to the inference that Saudi Arabia intercepted the missile in the air.

If Houthis reach Dammam, they can reach all Saudi oil infrastructure

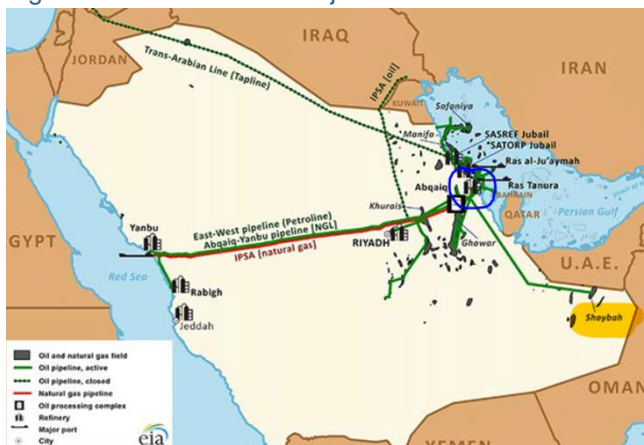
Our tweet included maps that we have previously used to reinforce that Dammam is on the Persian Gulf and right by all the major Saudi Aramco oil infrastructure and its major Ras Tanura loading terminal. Saudi Arabia is once again confirming that Houthis have long range missile capability. Below is our 2019 map showing Houthi reported missile range capability should be close. Also below is the EIA Saudi oil and natural gas infrastructure map. Note Dammam is right at the red dot on the first map and within the blue circle on the EIA map.

Figure 38: Houthi Reported Missile Launch Capability Range



Source: GoogleMaps, SAF

Figure 39: Saudi Arabia Major Oil and Natural Gas Infrastructure



Source: EIA

Oil – Saudi nest egg, its net foreign assets -\$4.31b MoM in July

Saudi Arabia's net foreign assets, or what we call their nest egg to help them thru the Energy Transition, declined in July, after it reported a slight increase in June as oil prices gave the

Saudi's nest egg - \$4.31b MoM

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kingdom a boost. Saudi is far from going broke, but what was a huge nest egg was being depleted at a rapid pace over the last 7 years down to a very big nest egg. This depletion is why we have been highlighting that the primary financial theme for Saudi Arabia in the 2020s is getting Other People's Money to fund as much of their Vision 2030 as possible. Saudi Arabia saw a significant decline in their net foreign assets in 2020, but also since the peak in 2014. The decline in 2020 was fueled by low oil prices a long with higher spending. This is a driving factor for the Saudi's want/need for higher oil prices and, perhaps just as significantly, the increasing of OPM in funding the future of Saudi Arabia. April and May saw Brent average \$64 and \$68 respectively, but this failed to stabilize Saudi Net Foreign Assets. In fact, Saudi net foreign assets declined in May despite the better oil prices. With high oil prices in June (Brent's median price was over \$73/bbl), net foreign assets rose to \$441.8b. In July, oil prices continued to rise, however, Saudi net foreign assets fell slightly -\$4.31b MoM to \$437.5b, still up from the previous 11-year low, but down \$5.8b YoY. The peak was \$737.0b on Aug 31/14, which means the decline is still \$299.46b, a massive decline. Our thesis is unchanged, there is a bottom level. They likely don't want to go below \$400b, which is why there has been this huge and increasing push to use OPM across the Saudi industry and government. This fits what we call the #1 financial theme for Saudi Arabia in the 2020s – the increasing use of Other People's Money. And not just in Saudi Aramco, although we do expect to see more equity and bond sales from Aramco. Below is our graph of Saudi Arabia net foreign assets.

Figure 40: Saudi Arabia Net Foreign Assets



Source: Bloomberg

Oil – Iran FM says will take 2-3 mths for Iran to ready for JCPOA talks

On Tuesday morning, we tweeted [\[LINK\]](#) "Wildcard for #Oil. #JCPOA, Iran FM says 2-3 mths for new #Raisi admin to plan for any decision/talks. Positive for #Oil as full return of Iran is likely Q1/22 at earliest. Wildcard, Israel's view to a few more mths for Iran to get closer to break out to nuclear? #OOTT". It looks like, at least from Iran's side, its unlikely to see any quick return to JCPOA talks and the longer it takes for talks to get going, the longer it will be before Iran's oil can fully come back onto market. Its why our tweet said that it looks like the full return of Iran oil isn't likely until Q1/22 at the earliest. We say fully as there is no question Iran has been sneaking more oil out on the market since Biden was elected. Iran's new Foreign Minister said clearly everyone should realize it will take 2-3 months for the new Raisi administration to be ready for talks. On Tuesday, Iran's Mehr News reported on comments from Iran's new Foreign Minister, Hossein Amir-Abdollahian. Mehr reported "He also pointed to the Vienna talks on reviving the JCPOA, saying, "We have clearly stated to the other side that the Islamic Republic of Iran welcomes a logical negotiation, and we certainly do not seek to escape from the negotiating table, but it is a very important point that the 13th administration believes in negotiations that have tangible achievements in the interests of the

Iran needs 2-3 mths before JCPOA talks

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Iranian people." "Negotiation is one of the tools of diplomacy, and we hope that good things will happen in this regard and that the other parties will be present at the negotiating table on the basis of wisdom, not non-constructive messages," he added. Regarding the next round of talks, Amir-Abdollahian said, "The other side understands that it will take two to three months for the new government to take office and plan for any decision." Our Supplemental Documents package includes the Mehr report.

Israel goal is “permanently” keep Iran from being able to break out to nuclear

Our tweet above noted the wildcard is Israel and how they feel about Iran suggesting a 2 to 3 month delay before any JCPOA negotiations because all that does is let Iran keep getting closer to being able to break out to nuclear capability. Last week’s (Aug 29, 2021) Energy Tidbits highlighted the Biden/Bennett press conference, before the detailed meeting, and thought Israel PM Bennett’s comments were a clear warning that Israel is a wildcard on what happens to Iran. We tweeted [\[LINK\]](#) “Risk premium to #Oil? is #JCPOA enough to stop Israel independent action? #Bennett “permanently keep Iran away from ever being able to break out to nuclear weapon” “never outsource our security, its our responsibility to take care of our fate”. what will permanently involve? #OOTT”. 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? Our Supplemental Documents package includes the SAF Group transcript of the Bennett comments

Oil – Libya down to 1.26 from 1.30 mmb/d, Agoco 280,000 b/d is still producing

Looks like Agoco’s threat to stop operations has not yet happened. Last week’s (Aug 29, 2021) Energy Tidbits noted Libya’s Arabian Gulf Oil Company’s (Agoco) Facebook Aug 27 posting [\[LINK\]](#) that concluded “the company will not be able to continue to operate without the availability of budgets and funds to run its business, and it will be forced to suspend all activities and works unless it is provided with the funds necessary to operate production.” We have not seen any change in budget allocation. When we saw the Facebook posting, we tweeted [\[LINK\]](#) “No oilfield/plant workers = shut in production. Libya oil shut in will happen soon if no pay/budget deal. Agoco Facebook posting says don't have money to continue to have "presence of workers in the company's fields and sites". Well, it looks like, at least for now, this is another Agoco threat to try to get the money as it doesn’t appear that there has been any shutdown of Agoco’s 280,000 b/d capacity. The reason is the comments from Libya NOC Chairman Sanalla’s comments on Thursday. Sanalla reportedly said that Libya’s oil production fell from 1.3 mmb/d to 1.26 mmb/d due to leaks in the oil transmission line at the Al-Waha Company sites. If Agoco was not producing, he would have said that production was below 1 mmb/d. Interestingly, Sanalla reportedly attributed the Al-Waha loss due to the lack of funding issue ie. like Agoco. Our Supplemental Documents package includes the Alwasat reporting of Sanalla’s Friday comments. [\[LINK\]](#)

Libya Agoco still producing

Oil – Libya NOC chair vs Libya oil minister power struggle

As of our 7am MT (3pm in Tripoli) news cut off, we have not seen any reports from the planned meeting between the Libya Prime Minister and Libya National Oil Corporation Chairman Sanalla. Libya watchers are expecting/hoping this meeting will show some direction in the power struggle between NOC chair Sanalla and Libya oil Minister Mohamed Oun. Our concern for Libya is that power struggles between the government and NOC will impact budget allocations, which could lead to oil production growth delays or even

Libya oil power struggle

production operations ie. like threatened by Agoco above. After our news cutoff last week, Reuters reported [LINK](#) “Libya’s oil minister said on Sunday that he was suspending the head of the state oil company, escalating a dispute between the two - but with a move that he may struggle to enforce. Oil Minister Mohamed Oun said in a letter, confirmed by ministry sources, that National Oil Corp head Mustafa Sanallah was under investigation and had been suspended”. No surprise, Sanalla and the NOC did not roll over, rather on Thursday posted a video on Facebook [LINK](#) “the statement of the Chairman of the Board of Directors about the malicious rumors to destabilize the oil sector”. Alwasat reported on the video writing “Sanalla accused Oun of launching an unjustified media campaign against the oil sector, adding that he had become an “agent of destruction for the only institution that was able to operate in extremely difficult conditions.. Are you attacking the oil sector knowing that the board of directors of the NOC is legitimate and strong?” He added; “You want to shake the financial and legal position of the oil corporation, instead of thanking it as you were a worker in it... But we will preserve it.. As for the oil ministry, how long has it existed—a year or six months? Are there pressures on you from hostile parties, or do you have personal hostility because of your forced retirement in 2011?”” Our Supplemental Documents package includes the Reuters and Alwasat reports.

Oil – Vortexa floating storage est at 95.92 at Sept 3, +17.17 mmb since June 25

On Saturday, Bloomberg posted the Vortexa crude oil in floating storage as of Sept 3. Bloomberg writes it weekly Vortexa floating oil storage story on Mondays. Vortexa estimated crude oil in floating storage as of Sept 3 is 95.92 mmb, which is down 1.05 mmb from 95.97 mmb as of Aug 27. Note that there was big upward revision to Aug 27. It was revised to 95.97 mmb, but was originally reported at 91.37 mmb. Sept 3 of 95.92 mmb is up 17.17 mmb from the recent trough of 78.75 mmb as of June 25. Sept 3 of 95.92 mmb is down 57% (down 124.72 mmb) from the June 26, 2020 peak of 220.64 mmb. And Sept 3 of 95.92 mmb is still +90% (+45.33 mmb) vs pre Covid of 50.59 mmb at Sept 2, 2019.

Vortexa floating storage

Figure 41: Vortexa Global Floating Storage Sept 2, 2019 to Sept 3, 2021



Source: Bloomberg, Vortexa

Oil – Caixin General Manufacturing PMI 1st contraction since April 2020

The China growth story was a key catalyst for oil markets to start 2021 with accelerated recovery in manufacturing in 2021 reflected by the Caixin General Manufacturing PMI showing the strongest increase in new work for five months in May. However, the recent uptick in COVID-19 cases, coupled with supply chain difficulties caused the Caixin China General Manufacturing PMI data to edge down at 49.2 in August, down from 50.3 the previous month and falling into contractionary territory for the first time since April 2020. We

Caixin PMI 1st contraction since April 2020

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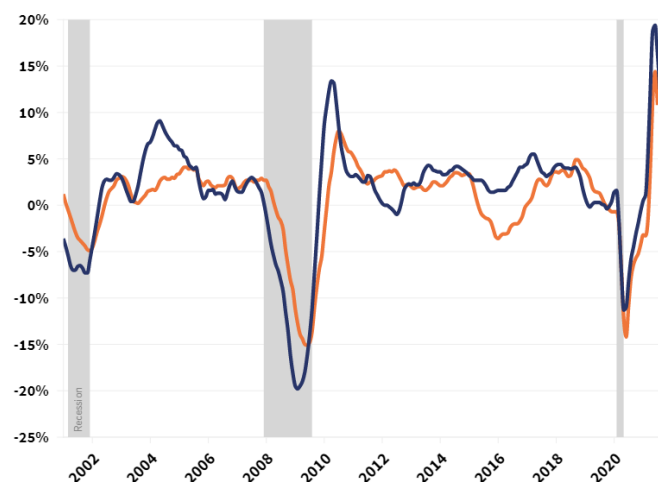
recommend reading the short release as opposed to just seeing the headlines as there is more color on China. The press release said “*Chinese manufacturers signalled a slight deterioration in business conditions in August, driven by a renewed drop in output and a further fall in new work. Panellists often stated that the resurgence of the COVID-19 virus at home and abroad had weighed on the sector’s performance. Restrictions to contain the virus also impacted supplier performance, which deteriorated solidly, while shortages led to steeper rises in cost burdens and prices charged. At the same time, subdued market demand led firms to trim their purchasing activity and payroll numbers slightly.*” One of the China natural gas stories is how high LNG prices is forcing some shutdowns in ceramics and other factories. We looked thru the Caixin PMI specifically to see if this was reflected and the PMI specifically notes the impact of transportation costs and raw material prices. It did not specifically note higher electricity costs but did talk about input costs increasing. Our Supplemental Documents package includes the Caixin release.

Oil – ACC Chemical Activity Barometer -0.5% MoM in Aug following flat June/July

Note that Kevin Swift, chief economist at ACC said, “*the latest CAB reading is consistent with expansion of commerce, trade and industry, but clearly growth has peaked, with slower growth ahead.*” We always look at an excellent forward indicator on this from the monthly American Chemistry Council’s April “Chemical Activity Barometer” (CAB) [LINK](#) for the indicators on industrial and manufacturing in the US. The CAB has had a pretty good track record as a leading indicator of a recession in the US economy with an average lead time of 8 months as a prior indicator, but lead time ranging from 2 to 14 months. The key message is like Swift said above slower growth is ahead. The August CAB “*fell 0.5% in August on a three-month moving average (3MMA) basis following steadily easing gains in May, June and July. On a year-over-year (Y/Y) basis, the barometer rose 12.5% in August (3MMA). The unadjusted data show a 1.6% decline in August after flat readings in July and June. The diffusion index eased to 82% in August. The diffusion index marks the number of positive contributors relative to the total number of indicators monitored. The CAB reading for July was revised downward by 0.53 points and the reading for June was revised downward by 0.33 points.*”

ACC Chemical
Activity
Barometer

Figure 42: August Chemical Activity Barometer vs Industrial Production



% Change Year-over-Year (3MMA)

Source: American Chemistry Council

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Oil & Natural Gas – Number of BC wildfires down by 19% since Aug 18

Good news is that it is another week of reducing the number of wildfires in BC. The latest BC update was as of Friday night for the BC wildfire status as of Sept 2, 7pm PT that had wildfires down to 215. This is down 26% from Aug 18 of 291 wildfires.

BC wildfires update

Figure 43: BC Wildfires Status

Sept 2, 7pm PT	Aug 27, 7pm PT	Aug 20, 7pm PT	Aug 13, 7pm PT
<p>Fires:</p> <ul style="list-style-type: none"> Wildfires burning in B.C.: 215 Since April 1, 2021: <ul style="list-style-type: none"> 1,564 wildfires 865,307 hectares of area burned Active fires by fire centre: <ul style="list-style-type: none"> Cariboo: 24 Coastal: 17 Kamloops: 62 Northwest: 6 Prince George: 49 Southeast: 57 	<p>Fires:</p> <ul style="list-style-type: none"> Wildfires burning in B.C.: 236 Since April 1, 2021: <ul style="list-style-type: none"> 1,554 wildfires 864,574 hectares of area burned Active fires by fire centre: <ul style="list-style-type: none"> Cariboo: 26 Coastal: 20 Kamloops: 77 Northwest: 5 Prince George: 52 Southeast: 56 	<p>Fires:</p> <ul style="list-style-type: none"> Wildfires currently burning in B.C.: 250 Since April 1, 2021: <ul style="list-style-type: none"> 1,533 wildfires 859,196 hectares of area burned Active fires by fire centre: <ul style="list-style-type: none"> Cariboo: 28 Coastal: 18 Kamloops: 81 Northwest: 5 Prince George: 53 Southeast: 65 	<p>Fires:</p> <ul style="list-style-type: none"> Wildfires currently burning in B.C.: 273 Since April 1, 2021: <ul style="list-style-type: none"> 1,499 wildfires 670,923 hectares of area burned Active fires by fire centre: <ul style="list-style-type: none"> Cariboo: 35 Coastal: 21 Kamloops: 85 Northwest: 5 Prince George: 65 Southeast: 56

Source: BC Government News

Oil & Natural Gas – Still 1.68 mmb/d, 1.9 bcf/d and 1.0 mmb/d refinery capacity still off

A week ago, Hurricane Ida was just about to make landfall as of our 7am MT news cut off. One week later, the impact is still being felt with significant oil and gas operations still off line. The BSEE report notes that there is still 1.68 mmb/d of oil and 1.9 bcf/d of natural gas still shut in. Note our below table shows the corrected BSEE data for Sept 1 shut in stats. Platts recap posted 1:36pm MT on Friday [LINK](#) notes there is still 1.0 mmb/d of Louisiana refinery capacity that is still awaiting power and therefore not yet in restart mode. Our Supplemental Documents package includes excerpts from the Platts report.

Still big impact from Ida

Figure 44: BSEE Platforms/Rigs Evacuated, Shut-in Oil & Gas Production

Date	Platforms Evacuated		Rigs Evacuated		Oil - Shut-In (b/d)		Gas - Shut-In (mmcf/d)	
	Total	% of GOM	Total	% of GOM	Total	% of GOM	Total	% of GOM
2021-08-27	89	15.89%	1	9.09%	1,064,849	58.51%	1,088.0	48.79%
2021-08-28	279	49.82%	11	100.00%	1,653,335	90.84%	1,892.7	84.87%
2021-08-29	288	51.43%	11	100.00%	1,740,850	95.65%	2,090.7	93.75%
2021-08-30	288	51.43%	11	100.00%	1,721,809	94.60%	2,087.0	93.57%
2021-08-31	278	49.64%	9	81.82%	1,705,095	93.69%	2,107.0	94.47%
2021-09-01	278	49.64%	9	81.80%	1,705,095	93.69%	2,107.0	94.47%
2021-09-02	177	31.61%	6	54.55%	1,702,566	93.55%	2,035.0	91.29%
2021-09-03	133	23.75%	6	54.55%	1,698,557	93.33%	1,990.2	89.25%
2021-09-04	119	21.25%	6	54.55%	1,683,604	92.51%	1,915.4	85.89%

Note: 09-01 was corrected, originally reported 249 platforms, 1,455,279 b/d, 1.8772 bcf/d shut in

Source: BSEE

Oil & Natural Gas – Ida impact on Shell reminds its not just offshore platforms

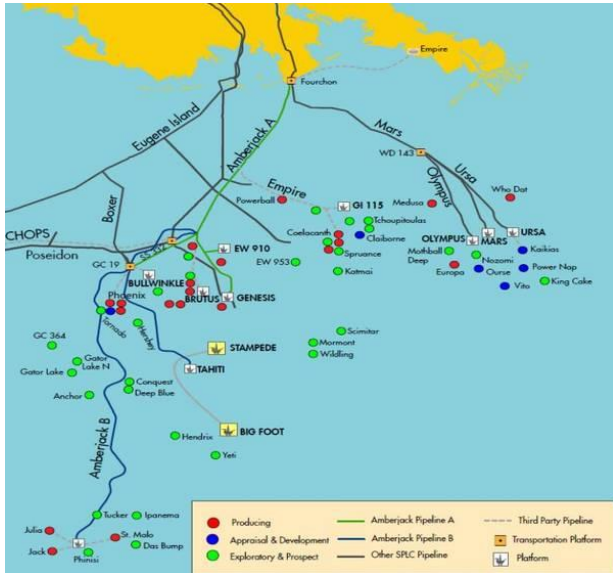
There was a good reminder that hurricane impacts in the offshore GoM are not just to production platforms but also to critical offshore transfer stations. On Thursday, Shell issued a press release [LINK](#) noted that they observed damage to their West Delta-143 offshore facilities when they did their initial flyover. Importantly, Shell stated “*The WD-143 facilities serve as the transfer station for all production from our assets in the Mars corridor in the Mississippi Canyon area of the Gulf of Mexico to onshore crude terminals.*” This was big news as this transfer station being out meant that Shell couldn’t produce its oil and natural gas that fed into WD-143. Its why we then tweeted [LINK](#) “*#Shell says no est on time & production impact yet from #Ida damage to WD-143 facilities, critical transfer station to onshore crude terminals for deepwater GoM production from all assets in Mars corridor ie.*”

Shell’s GoM transfer station damaged

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#Oil #NatGas can't flow to terminals. Note @OEdigital map. #OOTT". Below is a good map from Offshore Engineer [LINK](#) that shows WD-143 and Shell's Mars, Olympus and Ursa platforms. Our second tweet [LINK](#) included Bloomberg's data on these platforms "Shut down to #Shell WD-143 critical transfer station looks like 310,000 boed impact incl Mars 60,000 boed, Olympus 100,000 boed & Ursa 150,000 boed. Thanks to @josyanajoshua @DavidWethe for data in their recap today. #Oil #NatGas #OOTT". And as long as WD-143 is out of operations, Shell won't be able to produce from these 3 platforms. Our Supplemental Documents includes Shell's hurricane updates as of Sept 3.

Figure 45: Oil infrastructure in path of Hurricane Ida



Source: Offshore Engineer, Shell

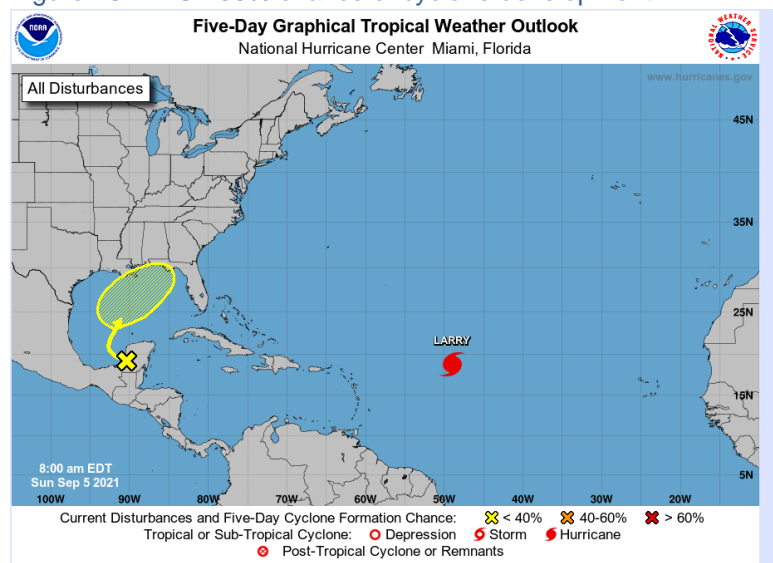
Oil & Natural Gas – Disturbance to watch for potential storm development

As of our 7am MT news cut off, the National Hurricane Center [LINK](#) still calls for a 30% probability or this disturbance to get to cyclone strength as it emerges from the Yucatan Peninsula to enter the Gulf of Mexico. The reason why we highlight it is that, unfortunately, the path (and its still early) would take it thru the major offshore oil and gas production in the and then pointing at Louisiana/Mississippi. Hopefully it doesn't emerge to tropical storm or hurricane strength. But even if it doesn't reaches storm wind strength, the issue for onshore will be how much precipitation ie. risk of flooding.

Disturbance to watch in GoM

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Figure 46: NHC <30% chance of cyclone development



Source: National Hurricane Center

Energy Transition – Fuel cost, not emissions, drives energy choices for many

There was a great reminder of the COP-26 climate challenge from the Bloomberg report noted earlier in the memo “*Emerging Asia Faces Power Curbs, More Pollution on Gas Rally (1)*”. Outside the wealthy countries, in particular the G7, the cost of energy drives the decision on fuel choices certainly at least in the near term and not the desire to reduce pollution. This is the challenge for those wealthy countries in what we call Bucket 1 of the accelerated push to Net Zero. These are the Net Zero superstars, the purist leaders like the EU, US now with Biden, Canada, etc. They are prepared to carry the load in their actions, to do more than their fair share and will be leading with their wallets. How do those in Bucket 1 get those in what we call Bucket 4 to sign on to something at COP-26. Bucket 4 are the developing countries, who can’t afford to do anything close to Net Zero. They will be pushed by Bucket 1 to commit to aggressive targets even if not Net Zero, and they will agree to aggressive targets with the caveat that Bucket 1 pay for it. Bloomberg’s report reminded of how its fuel cost that drives near term fuel choices for Pakistan and Bangladesh. Bloomberg wrote “*Pakistan and Bangladesh are among developing nations in Asia that can no longer afford to pay surging liquefied natural gas prices, raising the risk of power rationing or the burning of dirtier alternatives this winter. Bangladesh’s state-run Petrobangla plans to stop buying spot LNG cargoes for the rest of the year after a quadrupling of prices over the past year to a seasonal high. Pakistan has repeatedly canceled and reissued LNG purchase tenders in an effort to get better offer prices, without avail. The evolution marks a stark turnaround after developing Asia helped drive a surge in trading of the super-chilled fuel and built LNG import strategies on the premise that spot shipments would be abundant and cheap. Unlike richer counterparts in the region that can pass on this year’s historic price rally to end-users, some governments may need to rethink LNG procurement strategies and reduce exposure to the volatile spot market, switch to dirtier fuels such as coal or oil or even curb electricity production.*” Our tweet was on an item that didn’t get much coverage in the report.” Our tweet [\[LINK\]](#) on the Bloomberg report was “*Reminds of 2 energy themes. More Asian #LNG #NatGas buyers want long term contracts supports financing to liquefaction FID. #COP26 challenge - outside wealthy countries, cost of energy drives near term fuel choice, not #ClimateChange aspiration. Thx @MessageAnnKoh @SStapczynski*”.

Developing countries care about fuel costs

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Energy Transition – China tells US it will take its own course on climate change

The John Kerry/China meetings this week highlight the challenge of getting a deal at COP-26 Glasgow and remind that the Bucket 1 climate superstars countries aren't what the world can expect most countries to commit to for climate change action. We aren't certain what John Kerry was expecting to accomplish in his various meetings with China on climate change, but it looks like he didn't accomplish anything except remind China that it is needed if the world is going to reach its goal of limiting warming to 1.5C. After reading the US State Dept readouts of the meeting, the biggest accomplishment seems to be that Kerry "encouraged the PRC to take additional steps to reduce emissions." China is what we call Bucket 3, the big countries that just say no, they won't commit to the same targets as the superstars. Countries like China, India, and others. These countries will goals to reduce emissions but aren't going to be forced to commit to something like Net Zero. And the CNBC July 8 interview with Energy Secretary Granholm basically confirms the US knows this and will accept this. They may push these countries for more aggressive reduction targets but realize they aren't going to get any more than what these countries will commit. The readout of Kerry's meetings confirm this. China's had a clearer message to the US – it will take its own course on climate change. The South China Morning Post reported "During talks with Chinese leaders in Tianjin, United States climate envoy John Kerry presented a list of proposals for Beijing to accelerate its climate efforts. They included a public commitment to the 1.5 degrees Celsius limit of global warming targeted in the 2015 Paris Agreement, a definite time frame for carbon emissions to peak before 2030, and a moratorium on financing overseas coal-fired projects. But the two sides failed to reach agreement, according to the source, who requested anonymity. "China already has its own plans and road map for achieving its climate goals," said the person, adding Beijing would not accept Washington telling it what to do and when." Our Supplemental Documents package includes the US State Dept readouts and the Bloomberg posting of the South China Morning Post report.

China says no thanks to Kerry

Energy Transition – Liberals big hit to Cdn oil & gas still to be revealed

Last Sunday, the Trudeau and the Liberals issued a press release and a separate backgrounder on their climate plan. (i) Please note you have to read the backgrounder document as the press release forgets to include some key items. (ii) Note the concept, fits the theme that they want to "accelerate climate action". (iii) We tweeted [LINK](#) on our warning that the big to Cdn oil, natural gas and oil sands is still to be disclosed. Trudeau said will have target overall emissions cut for the oil and gas sector to be reached by 2025 to keep on track to Net Zero by 2050. The target for 3.5 years away is yet to be revealed. This has been our big worry. It means action has to be taken now. The other big factor is the Liberals making it clear that the 2025 target is in "making sure" industry is on track for Net Zero by 2050. (iv) No change, "Reaching a net-zero electricity grid by 2035". (v) Thermal coal hit. "Ending thermal coal exports from and through Canada no later than 2030. This builds on our work to phase out coal-fired electricity by 2030." (vi) Note the sneaky word play in the press release vs the backgrounder. The backgrounder is very specific on getting oil and gas sector to net zero. The press release says "ensure we drive down emissions from oil and gas to meet our shared goal of net-zero emissions by 2050". The backgrounder says "We will reach our shared goal of getting our oil and gas sector to net-zero emissions by 2050". (vii) Note two key concepts in their oil and gas: Be very careful as they are interchanging terms talking about emissions and also methane emissions. They are scorekeeping vs 2012 methane emissions and not 2020. This means the scorekeeping is from a lower absolute base ie. so % reduction vs 2020 is much higher. We will be curious if they put that scorekeeping reference date the same for other industries. Also, it means that actions taken over the past year or two won't really count in the actions. (viii) Also for oil and gas, they are going to set emission reductions in 5 yr target to ensure the oil and gas reductions stay on track for net

Liberals new climate plan

zero in 2050, the first target date is 2025. These are overall emissions targets that have to be hit for 2025. Not methane emissions. They haven't said what this 5 year target is so this is a huge wildcard and risk. This means that reductions have to be immediately and companies better start figuring it out now for immediate actions. This is the big item we have been warning on, these interim targets mean actions have to be taken now. (ix) Note the new target is to reduce methane emissions by at least 75% by 2030. We don't recall right now how methane emissions targets have or if they have changed since last fall. But the last fall target, Natural Resources Canada current posted GHG page [\[LINK\]](#) (last updated as of Oct 6, 2020) says *"The Government of Canada has committed to reducing methane emissions from the oil and gas sector by 40% to 45% from 2012 levels by 2025."* (x) Note this oil and gas detail wasn't in the press release. But in the background, the Liberals say *"We will reach our shared goal of getting our oil and gas sector to net-zero emissions by 2050, while also supporting Canadian workers and businesses along the way, by: ' Making sure the oil and gas sector reduces emissions from current levels at a pace and scale needed to achieve net-zero by 2050, with 5-year targets starting in 2025.' Requiring oil and gas companies to reduce methane emissions by at least 75% below 2012 levels by 2030."* (xi) We don't have cdn oil and gas sector "methane" emissions, but there is Natural Resources Canada graph of oil and gas sector GHG emissions. It has been increasing with the increase in oil sands production being the key driver. This reinforces how using the 2012 reference point for their 75% reduction means the % reduction from 2020 will be >75% reduction. Below is their graph. (xii) *"Requiring that at least half of all passenger vehicles sold in Canada are zero emission by 2030, and all are zero emission by 2035."* (xiii) *"Advancing emissions reductions across heavy industries through the Net-Zero Accelerator Fund;"* Unfortunately, this doesn't look like oil and gas is included. The Liberals healthy environment report [\[LINK\]](#) *"For heavy industries – such as steel, aluminum, and cement – the growth opportunity lies in ensuring Canadian companies are the most competitive in a world where investors are increasingly considering carbon pollution a financial risk. To protect and grow jobs in the industrial sector, there is a need to help companies decarbonize their operations, with clean sources of electricity, using low-carbon fuels like hydrogen or new zero-emission technologies like small modular reactors, and capturing carbon at the source."* Our Supplemental Documents package includes the press release and background.

Desperation time for the Liberals means will throw a lot and see what sticks

Its now desperation time for the Liberals who are no longer marching towards their expected majority government, but are now trying to preserve enough Ontario, Quebec and Atlantic provinces seats to have the most seats in the election. So desperation time, means they have to resort to more extreme/aggressive proposals/attacks and see what sticks. Its hard to believe the Canada election is only 15 days away on Sept 20. The short 36-day campaign, at least to date, has backfired against the Liberals who trail the Conservatives in the national polling. However, its still not clear which party will get the most seats. And his desperations times means the Liberals have to focus on regaining support from groups like millennials. And unfortunately, the oil and gas sector stands out as the obvious target for more attacks. Its why we keep warning, there is more bad news to come from the Liberals policy announcements.

Trudeau effectively warned in June there were more hits to come against oil

No one should be surprised that there are more hits coming from the Liberals against the oil and gas sector. Trudeau gave a clear warning on this at his post G7 press conference on June 13.. Our June 20, 2021 Energy Tidbits wrote *"We are surprised that Alberta or the Cdn oil patch didn't at least criticize Trudeau, let alone raise up*

their arms, after hearing Trudeau's post G7 press conference. Our immediate reaction after hearing Trudeau was that this is not good and it is foretelling bad news to come from the Liberals. Last Sunday, we tweeted [\[LINK\]](#) "#OilSands. Note #Trudeau wouldn't even acknowledge the oil sands pathways to net zero, or say positive move but need to do more or move faster. not a good sign. have to worry it links to prior tweet #G7 May 21 warning re stranded assets risk. #OOTT" Trudeau is asked point blank on the new oil sands Net Zero by 2050 pathway and its good enough as a lot it is based on technology not yet available in scale and on sequestration. He gives a lengthy answer that doesn't even acknowledge the oil sands pathway, let alone whether it is good enough or realistic. No question he is ducking even any acknowledgement that it exists, which would seem to signal that he is not interesting in trying to work with that plan in any way. This seems to signal something tougher is coming. Politicians of all stripes never miss an opportunity to take credit for driving change. In reality, this was a lay up question for Trudeau to do so. He could have easily said I am glad the oil sands listened to what I am trying to build for Canada, they have jumped on board committing to a pathway to Net Zero by 2050, it's a good start but they need to move even faster and my government will be working with them to get them to be even more ambitious. But he didn't, rather he refused to even acknowledge any pathway to Net Zero existed. Clearly not a good sign. Our Supplemental Documents package includes the transcript we made of Trudeau's Q&A on this point and the Cdn oil sands pathway to Net Zero release."

Energy Transition – UK can't go back to coal, high gas prices may cut company output

There is another reminder this week of the sign of the times for the 2020s whenever there is a tight supply/demand situation. Energy costs will spike or there will be shortages that hurt the economy. But it's a little different in the UK countries vs the Asian countries where some can still switch to coal when natural gas prices get high. In the UK, there is no or very limited fall back to coal. UK's push to reduce emissions with a key component, like all G7 countries, by reducing coal power generation means there isn't the coal capacity to call upon when power supply/demand is tight. And the problem for renewables (wind and solar) is that they can't increase their load factor so they can't be called on to produce more power to fill any supply/demand crunch. So without being able to switch back to coal or call on wind/solar, UK demand for natural gas could be forced down by industry shutdowns. On Thursday, the FT report "Gas crunch threatens industry in UK and Europe. Cold winter could push prices higher and force some companies to cut back production" [\[LINK\]](#) noted comments from their interview with Centrica mgmt. FT wrote "Cassim Mangerah, who runs energy trading at Centrica, told the Financial Times that a prolonged or particularly cold winter was likely to spur prices higher, leaving some energy-intensive companies little option but to curb production. "We haven't seen a price situation like this before. If you can't attract supply the only alternative is to cut demand to balance the market," Mangerah said. "If we do see a supply crunch this winter the other way to balance the market is through economic activity. If prices are really high then some gas-dependent businesses in the UK and Europe may simply decide not to produce." "In the past we used to see more fuel switching — if gas prices are too high then utilities will switch to coal," said Mangerah at Centrica. "But that is not really an option these days given the high carbon price and the phaseout of coal generation in the UK." Our Supplemental Documents package includes the FT report.

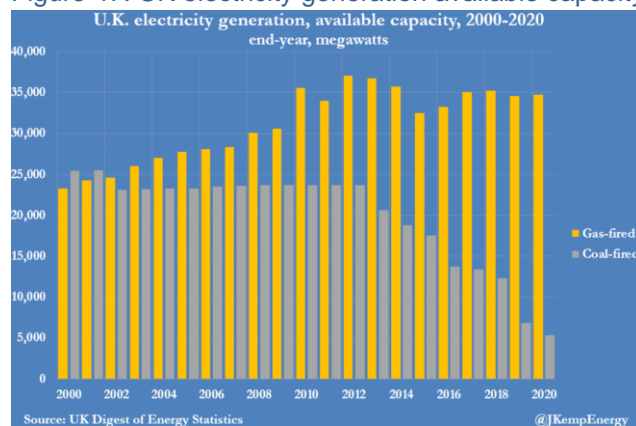
UK can't fall back on coal

UK coal electricity generating capacity is down 73% in last decade

Countries just can't replace 24/7 baseload coal and nuclear power with intermittent renewable (wind, solar) and not expect to have big price spikes and risks of power outages whenever supply/demand gets tight. On Friday, there was a great tweet and

graph from Reuters (John Kemp) [\[LINK\]](#) on the massive loss of coal power capacity over the past decade. Kemp tweeted “UNITED KINGDOM had just 5.4 GW of coal-fired generating capacity connected to the transmission grid at the end of 2020, down from 17.6 GW at the end of 2015 and 23.7 GW at the end of 2010, as part of the country’s energy transition plan:” Kemp’s tweet included the below graph.

Figure 47: UK electricity generation available capacity for coal & natural gas



Source: Reuters

Follows Siemens warning “the energy transformation will cost a lot of money”

We recognize that Germany media don’t seem to get the same play as English media in the UK or US, but our Aug 22, 2021 Energy Tidbits highlighted some very blunt talk on the Energy Transition from Siemens CEO Christian Bruch. On Aug 22, we wrote “The Energy Transition is Not Ready for Prime Time is what we call the theme we expect to emerge in 2021 and 2022 as the pro Net Zero countries push to commit to Net Zero and we see an increasing number of watchers point out that the reality isn’t there to meet these aspirations. It all fits our big picture thesis that the Energy Transition is happening, but it will take longer, cost more and be a bumpy road. Last Sunday, there was a blunt reminder of this from Siemens CEO Christian Bruch in the Frankfurter Allgemeine Zeitung report “Will green electricity get even more expensive, Mr. Bruch?” [\[LINK\]](#). Bruch’s comments were the most direct reality check comments we have seen from a CEO. We wish others were as direct ie. Chevron CEO Wirth. He made a number of blunt comments and we tweeted [\[LINK\]](#) on one these comments “I find the narrative that sustainability shouldn’t cost anything is extremely difficult. The energy transformation will cost a lot of money”, need #NatGas & many other #EnergyTransition reality checks from @Siemens_Energy CEO Bruch. Great interview @MeckGeorg @MarcusTheurer.” There are many other energy transition reality check comments. Another example is “What are renewables worth to us? Just setting goals will not be enough. To believe that we can quickly expand renewable energies and that electricity is becoming cheaper and cheaper, that doesn’t go together. The energy transition will cost money.” He also warns that natural gas is needed in Germany for more than a transition fuel. Bruch says “The demand for electricity in Germany will grow considerably, by 30, 40 or even 100 percent, as some say. The federal government recently increased its demand forecast, but I also think the new forecast is too low. If we are really serious about the change in mobility, industry and heating, then we will need a lot more electricity. Renewable energies form the backbone. But we will also need gas-fired power plants

as a bridging technology for a transition phase. Not only for weather conditions with little wind and sun, but because otherwise we simply cannot meet the demand. The only alternative to this is to continue operating coal-fired power plants. And that is clearly worse. If you replace an old coal-fired power plant with a new gas-fired power plant, you reduce CO2 emissions by around two thirds. In Germany, with the phase out of nuclear and coal, almost 40 percent of electricity generation capacity will be lost. We need a replacement quickly for this.” There are many other energy transition reality check comments in the interview. Our Supplemental Documents package includes the Zeitung interview.

Energy Transition – Petronas CEO says energy transition is “daunting”

**Petronas CEO
on energy
transition**

Many will just discount the Petronas CEO comments on the energy transition as expected given he is an oil and gas company. However, behind the headlines, we think he reminds of a number of broader energy transition concerns. (i) The headline from the Upstream report [\[LINK\]](#) was what got attention “*Energy transition is “daunting”: Petronas chief executive*” (ii) He reminds of our big concern, the impact and changes are needed immediately. Petronas CEO said “*“The energy transition that the entire oil and gas industry has accepted and embraced is no longer imminent. It’s here before us,” “We can’t escape the fabric of ESG (environmental, social and governance) concerns... partners, authorities and customers, all these [share]holders are really pressing the industry to respond.”* (iii) He reminds of a key concern that we have on the energy transition in the focus has been on cutting out supply of fossil fuels and not enough focus on cutting demand. Probably because Covid hammered demand and a key assumption in 2020 by many was demand had peaked. Petronas CEO said “*“But the response cannot just be by industry. It needs a whole of society. This one, this [energy transition] conversation is now not only taking centre stage. It is almost a primary concern to the extent that our investments have... analysis on their carbon impact”.* (iv) He also reminds of a point we note elsewhere in today’s memo – different countries move at different speeds in any climate actions. Upstream wrote “*However, he cautioned that the world does not move at one speed and, because of the different economies, there will not be the same constant velocity on the energy transition path. “We know that post-2015 in the Paris Agreement, many countries have made commitments. But as we approach November 20 21 where everyone converges in Glasgow and sets new ambitions, we are going to have to find a pathway that everybody can embrace and everybody can execute.”* Our Supplemental Documents package includes the Upstream report.

Energy Transition– BMW new climate ambitions are more than selling more EVs

**BMW accelerates
CO2 reduction**

There were a number of Energy Transition themes that came to mind when we saw BMW released its climate ambitions on Thursday. (i) Expect more announcement in Sept. There is less than 2 months before COP-26 Glasgow starts on Nov 1 so, as expected, global companies and countries are going to be releasing their climate plans. There will be some that wait until closer, but most will want their plans issued in advance so they can some positive shout outs at COP-26 as climate leaders. A good example is BMW who released their climate ambitions on Thursday “*BMW Group accelerates CO2 reduction and focuses consistently on a circular economy with the Neue Klasse*”. (ii) The headlines will be on how they will have 10 million EVs on the road in the next decade. BMW sells ~2.5 mm cars per year. (iii) But in reading this, what jumps out to us is that there will be many rapidly emerging capital allocation themes that come out of the BMW plan that is assuming BMW’s plan is what becomes an industry direction. This release is much more than just making more EVs and getting more EVs on the road for capital allocation opportunities. (iv) One that makes a lot of sense for a major capital allocation theme in the coming decades is increasing use of recycled materials. We haven’t studied the recycled minerals business in depth, the math of

doing it, or who is doing but it has to be a growth capital allocation area. Its less CO2 intensive but more significantly, there is a shortage coming of key critical minerals. BMW says *“With the number of battery-powered vehicles growing, there is increasing demand for many commodities such as cobalt, nickel and aluminium, which are required for the vehicles’ high-voltage batteries. However there is great potential for the reuse of materials in the sense of a circular economy and together with specialist partners, the BMW Group has already demonstrated that it’s technological feasible to achieve a recycling efficiency of over 90 percent. The amount of secondary nickel used for the high-voltage battery in the BMW iX is already as high as 50 percent, with the battery housing containing up to 30 percent secondary aluminium. The BMW Group aims to improve these figures even further for future product generations.”* (v) They also highlight using more recycled plastic and the increasing use of monomaterials in the interior of the car. (vi) We have to believe the other reason why this will help reduce emissions from cars – car prices have to be going way up for this and cars will be less affordable. Or at least the BMW car line. Our Supplemental Documents package includes the BMW release.

Energy Transition– Mass Audubon sell 600,000 carbon credits for \$6mm

We still believe the selling of carbon credits is going to be one of the huge growth areas for the energy transition and move to Net Zero. So we like to keep track when see valuations. This week, we saw the MIT Technology report on the Mass. Audubon non profit selling 600,000 carbon credits for a reported \$6mm. Mass Audubon, a nonprofit, has enrolled 10,000 acres of their forests in a CARB Improved Forest Management project, the first of its kind in Massachusetts. The Air Resources Board accepted Mass Audubon’s into its program, requiring the nonprofit to preserve its forests over the next century instead of heavily logging them. Given that the carbon stored in these acres exceeded the regional average value, Mass Audubon were awarded more than 600,000 offset credits, which were then sold on the CARB carbon offset market. These credits were sold through intermediaries to oil and gas companies, and profits from the sales were about \$6mm. What appears to be a win-win deal on paper and ultimately a win for the environment, is actually more like a loss for the environment. Let us explain. For California’s system to actually work, carbon market experts say the program must create carbon savings. Therefore, Mass Audubon would have needed to start acting more like a timber company, for there to be a net reduction in carbon. If Mass Audubon had already planned to preserve the forest, then the carbon credits program is paying to save trees that were never at risk. New research shows that California’s climate policy created up to 39 million carbon credits that aren’t achieving real carbon savings, and Mass Audubon is just one example, according to an MIT report [\[LINK\]](#).

**Mass Audubon
sells carbon
credits**

Energy Transition– GM ‘not confident’ LG Chem will build defect-free Bolt Batteries

We continue to be surprised that quality control on batteries for EVs doesn’t get any real attention. Its been at least 10 months since GM and LG Chem would have put a priority to figure out their Chevy Bolt battery problem and they appear to be nowhere near a solution. One of our big concerns continues to be as we outlined in our July 18, 2021 Energy Tidbits that we can’t help wonder about future quality control on batteries as the world is forced to switch from ICE vehicles to EVs and the need for hundreds of millions batteries to power new EVs and for replacement in existing EVs in the 2020s. There was an interesting Detroit Free Press report this week *“GM ‘not confident’ LG Chem will build defect-free Bolt batteries”*. This is interesting. On one hand it seems like a short period to figure out when people focus on the recent two recalls. But the reality is that GM and LG must have had a priority on figuring this out at least going back to November 2020 when they had their first Bolt recall for the batteries. And likely well before that, when they started getting the reports of Bolts just going on fire. So call it at least 10 months since this became a priority and they still don’t know the

**GM recalls all
Chevrolet Bolts
EVs and EUVs**

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answer or, as the Detroit Free Press reports, GM isn't confident that LG Chem can build defect-free Bolt batteries. They reported "General Motors will keep its Orion Assembly plant idled and not start repairs on the nearly 141,000 recalled Chevrolet Bolts EVs and EUVs until it is confident its supplier can make a defect-free EV battery that does not pose a potential fire risk. And right now, GM does not believe its battery-maker, LG Chem, can do that. GM and LG Chem have "hundreds of people" working around the clock, seven days a week, to find the cause of the defective battery modules connected to some Bolts catching fire without impact, said GM spokesman Dan Flores. "If we took the battery stock that's in the field right now or at a warehouse, we're not confident that it is defect-free," Flores said. "Because we are not confident that LG has the capability to build defect-free products, we've put the repairs on hold and we are not building new Bolts. We're not going to start recall repairs or start building new Bolts until we're confident LG will build defect-free products." LG did not respond immediately to a request for comment." Our Supplemental Documents package includes the Detroit Free Press report. [\[LINK\]](#)

Capital Markets – TSX Composite quarterly rebalancing effective prior to Sept 20 open

On Friday after the close, S&P announced the results of its quarterly rebalancing and changes to the S&P/TSX Composite Index effective prior to trading on Mon Sept 20. [\[LINK\]](#) The only oil and gas change was the addition of Birchcliff Energy. The only metals/mining change was the addition of K92 Mining.

TSX Composite quarterly index changes

Figure 48: S&P/TSX Composite Index changes effective prior to trading on Sept 20

S&P/TSX COMPOSITE INDEX – September 20, 2021			
	COMPANY	GICS SECTOR	GICS SUB-INDUSTRY
ADDED	Birchcliff Energy (TSX: BIR)	Energy	Oil & Gas Exploration & Production
ADDED	Bombardier Inc. Class B SV (TSX: BBD.B)	Industrials	Aerospace & Defense
ADDED	Converge Technology Solutions Corp. (TSX: CTS)	Information Technology	IT Consulting & Other Services
ADDED	Docebo Inc. (TSX: DCBO)	Information Technology	Application Software
ADDED	K92 Mining Inc. (TSX: KNT)	Materials	Gold
ADDED	MTY Food Group Inc (TSX: MTY)	Consumer Discretionary	Restaurants
ADDED	TELUS International (Cda) Inc. (TSX: TIXT)	Information Technology	Data Processing & Outsourced Services
ADDED	WELL Health Technologies Corp. (TSX: WELL)	Health Care	Health Care Services
DELETED	Trillium Therapeutics Inc. (TSX: TRIL)	Health Care	Biotechnology

Source: S&P Dow Jones

Capital Markets - Toronto's average house prices continue to accelerate

If the Liberals return to government, it will be interesting to see if their new real estate policies have any impact on housing prices, in particular the hot Toronto and Vancouver markets. Toronto home sales slowed from the frenzied pace seen earlier in the year, but market conditions have tightened in August, as supply plummeted by 43% and prices rose yet again. While the market has taken its regular summer breather, demand for home ownership remains strong. Sustained competition between buyers has resulted in double-digit annual increases in selling prices, as buyers continue to engage in bidding wars. The average price for a detached home in Toronto is \$1.423mm, which is +21.4% YoY. According to the Toronto Regional Real Estate board (TRREB) [\[LINK\]](#), "the fact that new listings were at the lowest level for the past decade is alarming. It is clear that the supply of homes is not keeping pace with demand, and this situation will become worse once immigration into Canada resumes." As we move toward 2020, TRREB expects "market conditions to become tighter as population growth in the GTA starts to trend back to pre-COVID levels." We note that federal parties fighting for office in the Sept federal election have all made housing supply and affordability a focal point. Below is TRREB table for average home price and # of sales in Toronto.

Toronto's avg. home price continues YoY increases

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Figure 49: August Toronto Sales and Average price by Major Home Type

	Sales			Average Price		
	416	905	Total	416	905	Total
Detached	694	3,010	3,704	1,674,641	1,365,973	1,423,807
Semi-Detached	228	522	750	1,214,624	951,629	1,031,580
Townhouse	328	1,181	1,509	905,520	865,196	873,961
Condo Apt	1,738	806	2,544	720,832	618,997	688,568

Year-Over-Year Per Cent Change

Detached	-36.6%	-30.2%	-31.5%	11.2%	25.6%	21.4%
Semi-Detached	-32.3%	-27.9%	-29.3%	4.1%	21.2%	13.9%
Townhouse	-11.8%	-20.8%	-19.0%	8.3%	20.2%	17.7%
Condo Apt	13.2%	7.5%	11.3%	7.1%	14.5%	9.4%

Source: TRREB

Demographics– 55% of Americans expect to search for a new job over next 12 months

No question that the impact of Covid on people has accelerated changes in worker’s attitudes and priorities. And, very different than the old days, companies are making changes to accommodate the changing worker views. Bankrate’s released their August 2021 Job Seeker Survey [\[LINK\]](#) last Monday revealing 55% of workers currently employed or seeking work were likely to seek new employment within the next year; the bulk being made up of Gen Z and millennial workers. This comes as the number of Americans quitting their jobs voluntarily is at an all time high, suggesting increased confidence in post pandemic career prospects. Job seekers are currently looking for work flexibility with 56% indicating this preference and 41% indicating expectations to work remotely in some capacity over the next 12 months. 53% of surveyed Americans indicated higher pay as motivation for seeking new employment; 47% indicated job security. With remote work expected to be further incorporated in the workforce the likelihood of higher pay amid this adjustment is uncertain; the survey highlights *“strong growth in the US and the likelihood of further declines in the unemployment rate should translate to better wages and job security in the months ahead...workers are demanding more flexibility in their employment, to which a dollar sign cannot be assigned”*.

Survey shows 55% of Americans to search for new job over next 12 months

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

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.

@Energy_Tidbits on Twitter

LinkedIn – Look for quick energy items from me on LinkedIn

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

Look for energy items on LinkedIn

Misc Facts and Figures.

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

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The phenomenal story of Gander Newfoundland on 9/11

Its hard to hard to believe its been 20 years since 9/11 and the horrific terrorist attacks against the US that dramatically changed the world. Many of us know of people in financial community who lost their lives on the terrorist attacks. And our hearts still go out to their families and friends. Among the tragedy of the day, there were many stories of heroism on people rescuing people. And there is one of what I think is one of the most amazing stories of 9/11 – the story of Gander, Newfoundland. When the US and Canada closed down North America air space, it meant that overseas planes were forced to land in Newfoundland with an immediate stranding of ~17,000 international travellers. Gander was the major airport landing with 39 jumbo jets. It was then a town of ~7,000 and they took in ~6,600 travellers overnight. The town basically doubled. That is unbelievable. And the story of how the locals took in, fed, gave them friendship, love is an amazing story and a tribute to Newfoundlanders. On the bucket list is to hopefully get to Gander, Newfoundland in the decade for their 9/11 memorial service just to be able to see some of the amazing Gander citizens who stepped up during 9/11. If you haven't seen it, I highly recommend the documentary movie "*You Are Here Trailer - A Come From Away Story*" about Gander on 9/11 and for the week after. Its available on Crave in Canada, and the trailer is at [\[LINK\]](#).

Canada wins 3-2 overtime thriller vs US for women's world championship

It was an up and down or down or up game depending on your team for the women's world championship game on Tuesday in Calgary between Canada and US. Best two teams in the world year in and year out deserve to be there and there is no question this game could have gone either way. US took a 2-0 lead, but Canada came back with 3 unanswered goals including the winner by captain Marie-Philip Poulin.

Figure 50: Poulin's overtime winner for world championship



Source: Hockey Canada

Farmer's Almanac vs Old Farmer's Almanac

This week we highlighted both the long-range forecast from the Old Farmer's Almanac and the Farmer's Almanac, so we felt it is necessary to include the difference between the two. The difference is that the Farmer's Almanac started 200 years ago in 1818, whereas the Old Farmer's Almanac started in 1792. The Old Farmer's Almanac started life as the Farmer's Almanac but added the old in 1832. We have to believe there weren't strict naming rights in 200 years ago, when the Farmer's Almanac started up in 1818 using the same name as the original Farmer's Almanac.

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40% of Americans think they could have competed in the Olympics

We didn't see this onepoll until this week, but it was a poll conducted just after the recent Tokyo Olympics. [LINK](#) It reminds you of when you go to a major league hockey game or baseball game or football game and the pro makes an error, and the guy beside you calls the pro a bum. And then you him tell his buddy how great an athlete he was and could have made if if not for [fill in the blank]. Onepoll wrote "*In our nationally representative survey of 1,000 U.S. residents, two in five respondents said they believed they have what it takes to be an Olympic athlete. That includes three times as many men as women (60% vs. 22%), half of all respondents from the Northeast (52%) and almost 70% of those under the age of 35. Basketball, football/soccer and swimming proved particularly popular choices — alongside one amusing respondent who answered "any one [sport] that is not stressful."*

Munich 1972 Olympics massacre started Sept 5, 1972

The recent Tokyo Olympics saw the first time ever at the Olympics that there was a ceremony and moment of silence to commemorate the Munich Massacre at the 1972 Munich Olympics that saw 11 of the Israeli delegation killed by terrorists. The Palestinian terrorists, part of the Black Septembers took the Israeli hostages on Sept 5, killed two immediately and the remaining 9 hostages were killed during the gun battle at the airfield between West German police and the terrorists. Five of the eight Black September terrorists were killed in the gun fight. 1972 was a terrible year for terrorist attacks such as the May 30, 1972 Lod airport massacre that had 3 member of the terrorist Japanese Red Army kill 26 people and injure 80. Airport security had been focused on potential Palestinian terror attacks so were caught off guard by the Japanese, who had been recruited by the Popular Front for the Liberation of Palestine. The 70s were terrible for terrorism events in Europe and Middle East and a period that no one wants to see return.

Squeaky Fromme tried to assassinate President Ford on Sept 5, 1975

Anyone who lived in the US also remember Sept 5, 1975 as the day when Lynette "Squeaky" Fromme tried to assassinate President Ford. She was a member of the Manson Family living at the infamous Charles Manson Spahn ranch. Wikipedia writes "*On the morning of September 5, 1975, Fromme went to Sacramento's Capitol Park, ostensibly to plead with President Gerald Ford about the plight of the California redwoods, dressed in a red robe and armed with a Colt M1911 .45-caliber semi-automatic pistol. The pistol's magazine was loaded with four rounds, but there was no round in the chamber. When Fromme pointed the gun at Ford she was immediately restrained by Secret Service agent Larry Buendorf. She managed to say a few sentences to the on-scene cameras while being handcuffed, emphasizing that the gun "didn't go off".*[19] *In 1980, Fromme told The Sacramento Bee that she had deliberately ejected the round from her weapon's chamber before leaving home that morning, and investigators later found a round on her bathroom floor.*[20] *Fromme refused to cooperate with her own defense during her trial. She was eventually convicted of the attempted assassination of the president and received a life sentence under a 1965 law that made attempted presidential assassinations a federal crime.*" Fromme was pardoned on Aug 14, 2009.

China's Wang Yi oasis saying to John Kerry

Earlier, we noted the US/China meeting on climate change this week and how that didn't lead to any agreements. Rather China made its point that it would follow its own path on climate change, but also linked climate change to a broader relationship

issue. We had to spend a few minutes Googling Confucius sayings to see if China Foreign Minister Wang Yi pulled his comments to John Kerry out of a 2,500 year old Confucius saying. It doesn't look like it was, but it could have been. He was well quoted as saying "*The US side wants the climate change cooperation to be an 'oasis' of China-U.S. relations,*" "*However, if the oasis is all surrounded by deserts, then sooner or later, the oasis will be desertified.*"

Some of Confucius's sayings

When we looked to see if Wang's comment were actually a Confucius saying, we couldn't help see some of his famous sayings. Don't forget Confucius lived from 551 BC to 479 BC so about 2,500 years ago. Here is a reminder of some of his sayings that are still relevant today. "*Without feelings of respect, what is there to distinguish men from beasts?*" "*Choose a job you love, and you will never have to work a day in your life.*" "*The superior man understands what is right; the inferior man understands what will sell.*" "*A superior man is modest in his speech but exceeds in his actions.*" "*Study the past if you would define the future.*" "*Real knowledge is to know the extent of one's ignorance.*" "*Success depends upon previous preparation, and without such preparation, there is sure to be failure.*" "*To be able under all circumstances to practice five things constitutes perfect virtue; these five things are gravity, generosity of soul, sincerity, earnestness, and kindness.*" "*Choose a job you love, and you will never have to work a day in your life.*" "*The will to win, the desire to succeed, the urge to reach your full potential... these are the keys that will unlock the door to personal excellence.*" "*When anger rises, think of the consequences.*" "*You cannot open a book without learning something.*"