

Energy Tidbits

Oct 24, 2021

Produced by: Dan Tsubouchi

Abdulaziz “If You Impact Negatively Your Economic Well Being, You Are Actually Impacting the Well Being of Your People”

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. Abdulaziz on technology not ready for Net Zero “if you impact negatively your economic well being, you are actually impacting the well being of your people” ([Click Here](#))
2. Baker Hughes forecasts added +45 bcf/d LNG capacity needed by 2030. ([Click Here](#))
3. Petronet forecasts India LNG imports to grow by 12.4 bcf/d to 2030. ([Click Here](#))
4. Another Asian LNG buyer (China's Sinopec) is locking in long term LNG supply. ([Click Here](#))
5. Reuters reporting “Canada oil producers grapple with Trudeau's demand for faster emissions cuts”. ([Click Here](#))
6. Please follow us on Twitter at [\[LINK\]](#) for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [\[LINK\]](#).

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Natural Gas – Natural gas injection of 92 bcf, storage now -461 bcf YoY deficit

The EIA reported a 92 bcf injection (vs 71 bcf injection expectations) for the Oct 15 week, which was above the 5-yr average injection of 62 bcf, and above last year’s injection of 49 bcf. Storage is 3.461 tcf as of Oct 15, decreasing the YoY deficit to -458 bcf, from 501 bcf last week and storage is 151 bcf below the 5-year average vs 174 bcf below last week. Below is the EIA’s storage table from its Weekly Natural Gas Storage Report [\[LINK\]](#).

YoY storage at -461 bcf YoY deficit

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	10/15/21	10/08/21	net change	implied flow	Year ago (10/15/20)		5-year average (2016-20)	
					Bcf	% change	Bcf	% change
East	862	834	28	28	921	-6.4	892	-3.4
Midwest	1,027	997	30	30	1,102	-6.8	1,047	-1.9
Mountain	211	210	1	1	244	-13.5	219	-3.7
Pacific	253	251	2	2	323	-21.7	305	-17.0
South Central	1,108	1,079	29	29	1,329	-16.6	1,148	-3.5
Salt	283	269	14	14	361	-21.6	293	-3.4
Nonsalt	825	810	15	15	968	-14.8	855	-3.5
Total	3,461	3,369	92	92	3,919	-11.7	3,612	-4.2

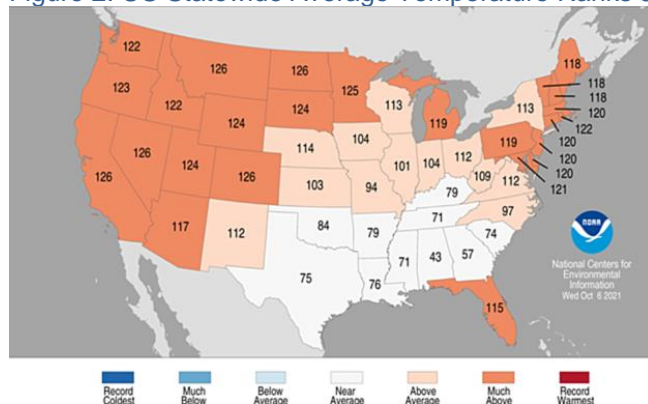
Source: EIA

Natural Gas – it was almost a record hot summer in US

It was a great summer for natural gas demand with summer 2021 being the third hottest summer in the last 127 years. NOAA posted its recap of September 2021 weather [\[LINK\]](#). September was the 5th warmest in the last 127 years. July, August and September were near a record 3-month average across all states, posting the third hottest in the last 127 years. And it was hot in most of the US. The average temperature during meteorological summer for the contiguous U.S. was 74.0 degrees F, 2.6 degrees above average. This technically exceeds the record heat of the 1936 Dust Bowl Summer, but the difference is extremely small (less than 0.01 of a degree F). Below are graphics depicting the state average temperature ranks.

Near record summer temperatures

Figure 2: US Statewide Average Temperature Ranks July/August/Sept 2021



Source: NOAA

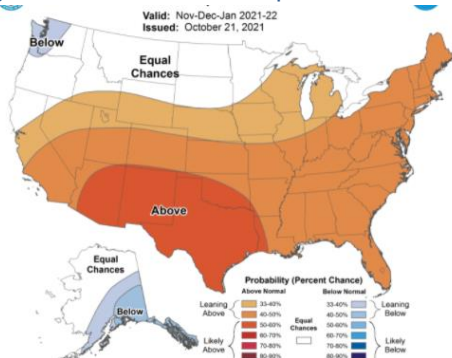
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Natural Gas – Looks like warmer than normal winter despite La Nina conditions

There was a good reminder from NOAA that all La Nina winters aren't necessarily expected to be cold. All of the outlooks recently have focused on the La Nina conditions and how that is more likely a colder winter. However, it is now the end of October and we are now getting close to the start of winter. On Thursday, NOAA posted its monthly update [\[LINK\]](#) to its seasonal temperature probability forecasts and NOAA is calling for a warmer than normal start NDJ to winter and a warmer than normal peak winter DJF. Last week's (October 17, 2021) Energy Tidbits memo October 17, 2021) Energy Tidbits highlighted the monthly update to the CPC/IRI El Nino/La Nina outlook [\[LINK\]](#). This new probability forecast is 87% La Nina (was 72%), 13% Neutral (was 27%) and 0% El Nino (was 1%). Below are the new NOAA temperature probability maps for Nov/Dec/Jan and for Dec/Jan/Feb.

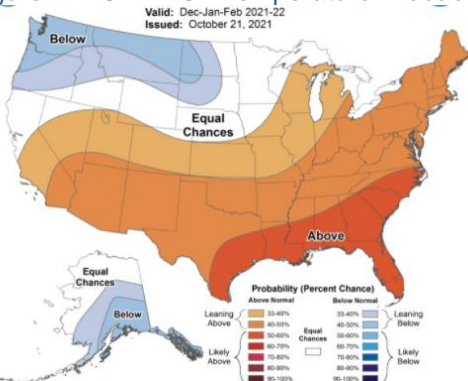
NOAA forecasts warm fall and winter

Figure 3: NOAA NDJ Temperature Probability Forecast



Source: NOAA

Figure 4: NOAA DJF Temperature Probability Forecast



Source: NOAA

Natural Gas – But La Nina correlations to cold winters are far from 100%

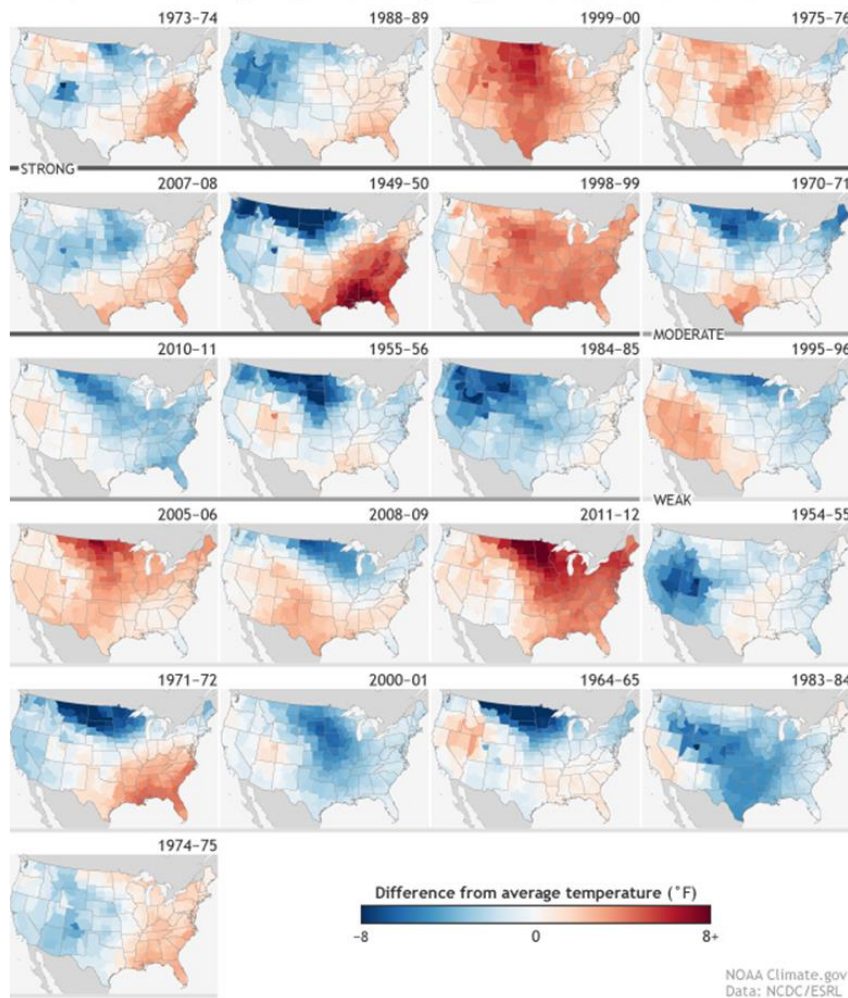
Last week's (October 17, 2021) Energy Tidbits also included a recurring item for our memo – the reminder that La Nina winters are unpredictable and aren't always cold. We link back to an October 6, 2017 NOAA brief "Temperature patterns during every La Niña winter since 1950", which looked at all La Nina winters from 1950 thru 2016/17, classified them as strong, moderate or weak La Nina, and then showed the average winter (Dec thru Feb) temperature map. We checked this weekend and the link still works [\[LINK\]](#). The bottom line is that it may slightly favor a normal to colder than normal winter, but there have some been near record high temperature La Nina winters. Below is the NOAA graphic.

La Nina winters are unpredictable

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Figure 5: Winter (Dec-Feb) Temp in Strong, Moderate And Weak La Ninas 1950 - 2017

Winter (December-February) temperature during strong, moderate, and weak La Niñas since 1950



Source: CPC

Natural Gas – EIA, US shale/tight natural gas keeps hitting new peaks

On Monday, the EIA issued its Drilling Productivity Report October 2021 [\[LINK\]](#), which is the EIA’s forecast for oil and natural gas production from the major shale/tight oil and gas basins for the current month (in this case Oct) and the next month (in this case Nov). (i) The EIA forecasts Nov at 87.924 bcf/d which is +0.257 bcf/d MoM. (ii) Note US shale/tight gas production is above the prior all-time peak of 86.884 bcf/d in Nov 2019. (iii) This month, all basins increased except for the Anadarko (-0.036 bcf/d MoM); Haynesville, Permian and Appalachia basins posted the largest increases, up +0.135 bcf/d, +0.078 bcf/d and +0.041 bcf/d, respectively; all other basins remained relatively flat. (iv) All basins are up YoY, save for Anadarko and Niobrara, with most notable YoY changes being Haynesville +1.550 bcf/d YoY, Permian + 1.820 bcf/d YoY, and Eagle Ford +0.283 bcf/d YoY. Total US shale/tight natural gas production is +3.056 bcf/d YoY for Nov. (v) Remember US shale/tight gas is ~90% of total US natural gas production. So whatever the trends are for shale/tight gas, are the trends for US natural gas in total. Below is our running table showing the EIA DPR data

Shale/tight gas up thru Nov

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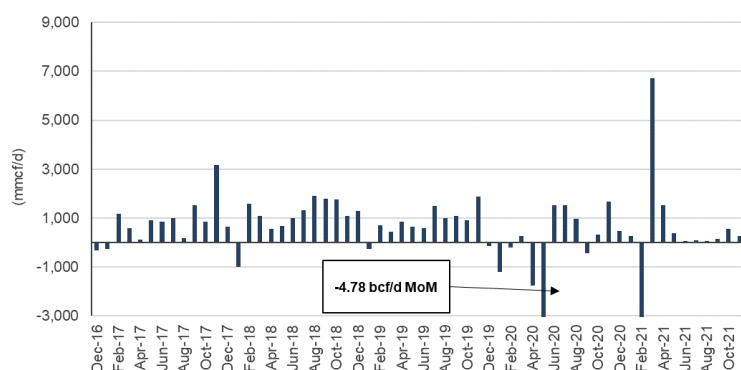
for the shale/tight gas plays, and the MoM changes in major shale/tight natural gas production. Our Supplemental Documents package includes the EIA DPR.

Figure 6: MoM Change – Major Shale/Tight Natural Gas Production

mmcf/d	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Nov YoY	Nov less Oct
Anadarko	6,272	6,627	6,598	6,411	5,257	6,163	6,082	5,992	5,919	6,129	6,192	6,139	6,107	6,069	-558	-38
Appalachia	33,762	34,829	35,653	35,587	34,894	34,823	34,685	34,619	34,586	34,364	34,366	34,783	34,838	34,879	50	41
Bakken	2,919	2,919	2,918	2,888	2,747	2,916	2,851	2,787	2,732	2,798	3,005	3,003	3,004	3,012	93	8
Eagle Ford	5,761	5,725	5,634	5,729	5,036	5,723	5,660	5,610	5,589	5,842	5,971	5,990	5,994	6,008	283	14
Haynesville	11,595	12,099	12,376	12,488	11,302	12,564	12,699	12,826	12,942	13,337	13,413	13,415	13,514	13,649	1,550	135
Niobrara	5,360	5,385	5,277	5,211	5,104	5,014	4,967	4,922	4,882	4,960	5,032	5,090	5,183	5,202	-183	19
Permian	17,248	17,285	16,902	17,510	14,164	17,461	17,499	17,543	17,602	18,030	17,947	18,700	19,027	19,105	1,820	78
Total	82,918	84,868	85,358	85,824	78,503	84,664	84,444	84,300	84,252	85,460	85,926	87,120	87,667	87,924	3,056	257

Source: EIA, SAF

Figure 7: MoM Change – Major Shale/Tight Natural Gas Production



Source: EIA, SAF

Natural Gas – Reduced loadings at Freeport LNG thru early Nov

It won't be a material item on global LNG markets, but Freeport LNG is reportedly to reduce the numbers of loading in early November. On Friday, Platts [\[LINK\]](#), and others similarly, reported on feedgas problems for the Freeport 2.0 bcf/d LNG project. Platts wrote "Freeport LNG will reduce the number of loadings at the 15 million mt/year capacity liquefaction facility through up to early November due to a planned maintenance outage on a segment of pipeline that feeds gas to the Texas terminal, a person familiar with the decision said Oct. 22. North to south capacity on a segment of Boardwalk Pipeline Partners' Gulf South pipeline will cut flows by up to 650 MMcf/d during the work that will occur from Oct. 26 to Nov. 9, according to a notice from the operator to market participants. That work will be along its main 30-inch line from Goodrich, a compressor just northeast of Houston, to South Texas. The operator will be conducting maintenance from Nov. 10-12 that will limit capacity by 400 MMcf/d from Brazos, a station just downstream of Goodrich, to South Texas." Freeport LNG decline to comment. Its not clear how many LNG loadings will be delays, but Platts noted there are other feedgas options to reduce the impact. Platts also wrote "Therefore, while the maintenance activities from Oct. 26 through Nov. 12 will reduce Gulf South deliveries into Coastal Bend, increased deliveries from Kinder Morgan's Tennessee Gas Pipeline and Enterprise Products Partners' intrastate system could help to offset some of those losses, according to Platts Analytics". Our Supplemental Documents package includes the Platts report.

Freeport LNG loads reduced

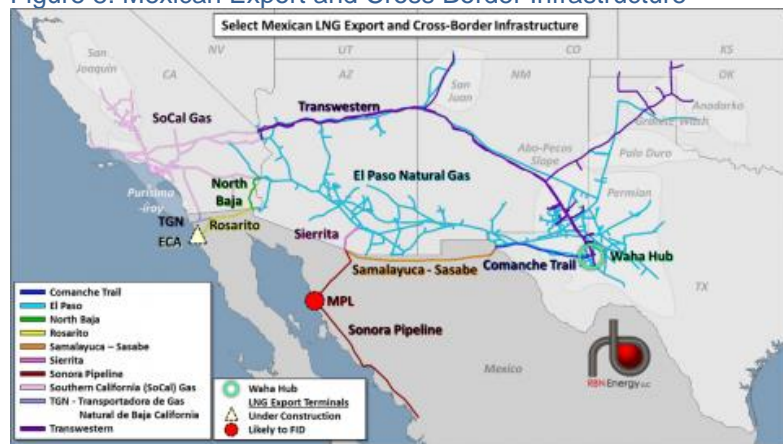
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Permian supplies Mexico LNG exports

Natural Gas – RBN blog: Permian is also key natural gas supply for Mexico LNG

There was a good reminder from RBN this week that the Permian is also the key natural gas supply for Mexican LNG projects on the Pacific coast. The “second wave” of North American LNG could finally be underway in 2022 with multiple LNG projects potentially reaching final investment decision. On Tuesday, RBN posted a good blog *Go West, Part 3 - Mexico's Pacific Coast LNG Export Projects Gain Traction* [LINK]. The blog noted logistical and economical advantages to exporting North American LNG from the Pacific coast to Asia as opposed to the GoM, namely transport times and lower costs for Asian offtakers. There are currently two projects underway – LNG Canada in British Columbia, and Sempra Energy's Energía Costa Azul (ECA) LNG in Mexico – with 2 more projects (MPL LNG) likely take to FID in 2022. A significant hurdle to Pacific coast export is linking the feedgas supplies for these projects, especially in Mexico who lacks the infrastructure to transport feedgas from basins close to the US border. ECA LNG was chosen as it was originally an import terminal already linked to the pipeline network. With ECA LNG single liquefaction train set for completion in 2024, it will have an initial offtake capacity of 0.33bcf/d, though the terminal will likely require 0.37 bcf/d of feedgas, all of which is expected to come from the Permian Basin. ECA LNG directly connects to the existing Gasoducto Rosarito pipeline, owned, and operated by Sempra through subsidiary, IENova. With pipeline expansion of North Baja, and currently running EPNG, there should be plenty of capacity for the liquefaction train currently under construction. The Mexico Pacific Limited (MPL) terminal has three trains planned for a total of 1.9 bcf.d of capacity, with the company stating it will need 2.3 bcf/d for the total project. The first two trains, likely to take FID next year, require approximately 1.5 bcf/d to supply. MPL also has access to Permian via the EPNG pipeline and deviates further south via the Sonora Norte Pipeline. The MPL says it has plans to build its own cross border pipeline directly from the Waha Hub, to the terminal. Pipelines from Permian to Mexico are often underutilized. The supply growth in the Permian that spawned cross border pipeline expansion has outpaced the buildout and connectivity for end users in Mexico, leaving available supplies for planned LNG terminals. This creates a huge advantage for Mexican LNG, putting them on par with Gulf Coast feedgas costs and access. Both ECA and MPL are utilizing this advantage and have stated they can go bigger should demand for Pacific Coast LNG increase. Below is a graphic depicting the Mexican pipeline network. Our Supplemental Documents package includes the RBN blog.

Figure 8: Mexican Export and Cross Border Infrastructure



Source: RBN

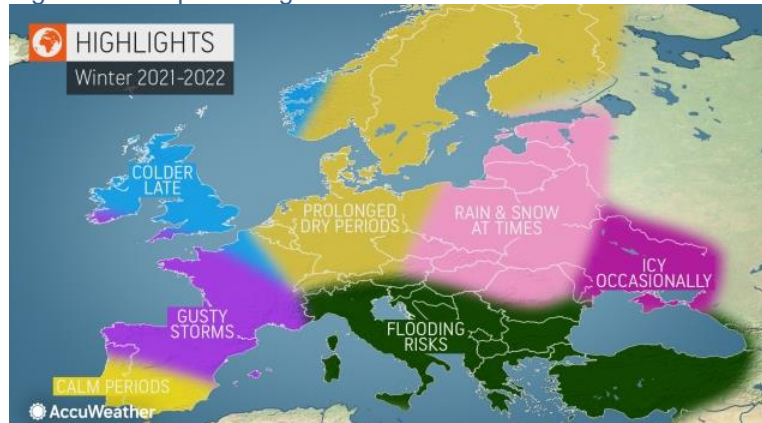
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Natural Gas – AccuWeather: Europe 2021-22 winter forecast

On Thursday, AccuWeather released its 2021-22 winter forecast for Europe [\[LINK\]](#). They do not give an overall assessment but rather forecasts by region, but it looks to be close to an average winter temperatures outlook. Southern Europe is expected to have around average temperatures for the season, with Italy, Greece and the Balkans the most likely to climb above average. Eastern Europe is expected to have portions that experience unseasonably cold temperatures with the chances of a polar vortex directing cold air to the East. The affected countries are likely to be Ukraine, Latvia, Estonia, west of Slovakia and Poland. Northern Europe is expected to have the most extreme weather variation for the first half of winter. AccuWeather wrote, “*Old Man Winter won't be content with staying in the shadows for the entire duration of the season. Later this winter, the opportunity for prolonged bouts of cold air will arrive across Northern Europe, especially across Ireland and the United Kingdom. Under a La Niña setup, typically the northern third to the northern half of Europe has an increased chance to encounter cold shots of air.*” The second half of winter is expected to be near and slightly below normal temperatures across northwest Europe. Our Supplemental Documents package includes the AccuWeather report.

European winter forecast

Figure 9: European Regional 2021-22 Winter forecast



Source: Accuweather

Natural Gas – Baker Hughes forecasts added +45 bcf/d LNG capacity needed by 2030

There was a confirmation of the hugely bullish LNG call by Baker Hughes in the Q&A section of the Q3 call on Wednesday. On Wednesday, we tweeted [\[LINK\]](#) “*Hugely bullish #LNG #NatGas view in \$BRK Q3 call Q&A. @simonelli_1 repeats "we increase the capacity requirement LNG to 800 MTPA" in 2030. Vs @GIIGNL est 2021 capacity 454 MTPA, this is +346 MTP or +45 bcf/d by 2030. See SAF Oct 3, 2021 Energy Tidbits [LINK]*”. This was not in the prepared remarks. In the Q&A, CEO Simonelli replied “*We've spoken about LNG before and as you look at the outlook for 2030, we increase the capacity requirement LNG to 800 MTPA. And during the course of the next few years, we see projects of 100 to 150 MTPA being awarded, and we've got a bias towards the upper end of that and feel very good about the projects coming through. A number of customer discussions that have been ongoing and you've seen what's happening in the industry at the moment.*” This no question a huge increase in LNG capacity. The GIIGNL - International Group of Liquefied Natural Gas Importers annual report 2021 reports (see below excerpt) estimates 454 mtpa of liquefaction capacity at the end of 2020, which is installed capacity of 59.7 bcf/d. The Baker Hughes forecast for 800 mtpa LNG capacity is 105.2 bcf/d, or an increase of 346 mtpa or 45.5 bcf/d to 2030. That is huge.

Baker Hughes sees massive need for LNG

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Baker Hughes 1st revealed this bullish +45 bcf/d LNG capacity to 2030 in Sept

Our Oct 3, 2021 Energy Tidbits highlighted the first time Baker Hughes CEO Simonelli revealed this LNG installed capacity requirement of 800 mtpa in 2030 at the Platts APPEC 2021 conference. At that time, we wrote *“Baker Hughes forecasts added +45 bcf/d LNG capacity needed by 2030. On Thursday, we tweeted on an extremely bullish view from an LNG player, Baker Hughes. Baker Hughes may not be an LNG supplier, but its been involved in most LNG liquefaction projects over the past few years as well as going forward. It is likely plugged in to LNG supplies more than anyone else. After we went to press last week, Reuters reported “APPEC Baker Hughes sees global required LNG capacity at 800 mln tonnes by 2030” [LINK]. Baker Hughes may not be a LNG supplier, but is as plugged in as anyone on the LNG outlook given it is involved in basically every major LNG supply project in progress or under consideration. Baker Hughes has been bullish on LNG but is increasing their bullish outlook. Reuters reported CEO Simonelli saying “We’ve taken up our estimate of the required installed based of LNG by 2030 up to 800 million tonnes”. That is truly huge and didn’t seem to get much market attention. Its why we tweeted [LINK] “1/2. hugely bullish #LNG #NatGas for 2020s. @SonaliPaul2 reports “we’ve taken up our estimate of the required installed base of #LNG by 2030 up to 800 million tonnes” & need to bring on 100-150 mtpa in the next few years says @bakerhughesco @simonelli_l. can’t be done ... #OOTT”, and [LINK] “2/2. think of massive demand pull for 2020s on #LNG #NatGas. Vs @GIIGNL liquefaction capacity 454 mtpa, that’s growth of 346 mtpa (45 bcf/d) to 2030. #Renewable can’t fill in fast enough, will need #Coal for longer for reliable power. #EnergyTransition will be very expensive #OOTT”. This is what anyone would call a huge increase at +45 bcf/d in capacity in less than 10 years. And means a massive demand pull in the 2020s for LNG and natural gas. The reality is that we don’t see how it is possible for the world to add +45 bcf/d in capacity for 2030, but it will be a huge demand pull. Our tweet also noted that the reality is that it means the coal will be required for longer. Wind/solar are already challenged to grow anywhere as fast as hoped for by the Net Zero drivers. And new nuclear doesn’t happen quickly.”*

Natural Gas – Bullish for LNG in 2020s if new XOM board says no to Rozuma LNG

There was a bit of a bombshell WSJ report that Exxon’s board, with its recent new 3 additions, may not proceed on its Mozambique Rozuma LNG project. Rozuma Phase 1 is 2 bcf/d and is counted on for LNG supply in the 2020s. And this would add to the projected LNG supply gap. If Exxon decides not to proceed with Rozuma, we would expect another LNG player to step up to buy Exxon’s Mozambique Rozuma LNG if Exxon were to put it up for sale. But even if so, we would expect to see some delays to this project. On Wednesday, we tweeted [LINK] *“Must read @EmilyGlazer report. Bullish to an already bullish #LNG in 2020s if #Exxon abandons Rozuma Mozambique LNG. Pre-Covid, was 1st LNG in 2024. See SAF Group 7-pg Apr 28/21 Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? #OOTT.”* The WSJ wrote [LINK] wrote *“Exxon Debates Abandoning Some of Its Biggest Oil and Gas Projects”* *“Exxon Mobil Corp’s XOM +0.17% remade board of directors is debating whether to continue with several major oil and gas projects as the company reconsiders its investment strategy in a fast-changing energy landscape, according to people familiar with the matter. Members of the board—which includes three directors successfully nominated by an activist investor in May and two other new members—have expressed concerns about certain projects, including a \$30 billion liquefied natural gas development in Mozambique and another multibillion-dollar gas project in Vietnam, the people said.”* *“The discussions are taking place as part of a review of the oil company’s five-year spending plan, on which the board is set to vote at the*

Exxon’s Rozuma Mozambique LNG

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end of this month, the people said. It isn't clear whether the board will make a final call on the Mozambique or Vietnam projects during the current review, according to the people. Both projects face potential political obstacles, and some Exxon board members have expressed concerns about whether they would return the billions in upfront." "But Mozambique lacks infrastructure and is fighting an Islamic State-linked insurgency that has claimed more than 3,000 lives. [TotalEnergies](#) SE halted construction of a \$20 billion gas project there in March after violence erupted near its construction site. Exxon spent \$2.8 billion to acquire a stake in the Rovuma project but has delayed a final investment decision for several years. Exxon hasn't disclosed an exact estimate of the project's cost; Mozambique has estimated it at \$27 billion to \$33 billion." Our Supplemental Documents package includes the WSJ report.

Exxon Rozuma is 2 bcf/d of the 5 bcf/d Mozambique LNG being delayed

Exxon's Rozuma 2 bcf/d has already been delayed and it is part of the major LNG market factor in the 2020s – the delay of 5 bcf/d of Mozambique LNG due to violence/fighting in Mozambique's LNG region. This was the game changer to LNG markets and why, on April 28 2021, we posted a 7-pg blog "[Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?](#)" [\[LINK\]](#) The April 28 blog included our view that there is a big new LNG supply gap starting around 2025 that is hitting faster and bigger than anyone expects. We saw Total's April 27, 2021 announcement of force majeure at its Mozambique Phase 1 LNG of 1.7 bcf/d was much more significant that viewed. We just didn't see market focused on the fact that this situation backs up an additional 3.3 bcf/d of LNG supply that is also being counted on in all LNG supply forecasts. Total's Phase 2 of 1.3 bcf/d was to follow, and Exxon's Rozuma Phase 1 of 2.0 bcf/d was originally expected to go FID in 2019 but FID is now not expected to have a FID decision until 2022 at the earliest. Mozambique is considered a premium LNG supply region for Asia and is in LNG supply forecasts. Total's original in service for Phase 1 is 2024. We had been warning that Mozambique has a major LNG market impact and its why we posted the April 28 blog. Our blog reminds that even if Total makes a restart development decision in 12 months, it will take months just to get back to where they left off including rehiring services so any return to where they were in the construction process is at least more likely 18 months at a minimum. This is going to create a bigger and sooner LNG supply gap and the reality is that the only projects that can step up in any reasonable time frame will be brownfield LNG projects. Its why we also said what about LNG Canada Phase 2. There is much more in the 7-pg blog. Our Supplemental Documents package includes our April blog.

TotalEnergies is hoping to restart its Mozambique LNG construction in 2022

Our Oct 3, 2021 Energy Tidbits highlighted the TotalEnergies 2-day investor outlook that included their longer term outlook, which had to include what are they now assuming for first LNG cargoes from Mozambique LNG. We have been highlighting how the entry of Rwandan troops has been the key driver for pushing out the rebels and re-establishing security in the LNG centered northern regions. Prior to then, TotalEnergies had not provided a restart date. But at the investor outlook, they presented their long term outlook including first Mozambique LNG in 2026. That is two years later than the original start year of 2024 but one year later in their revised timing before the force majeure. In their prepared remarks, mgmt said "*This forecast of upstream production in 2026 includes Mozambique LNG production only in 2026. This relies on the assumption that the project activity will review in 2022.*" No surprise there were a number of questions on this assumption. And mgmt did

caution “You know that we do not control all the situation, a security situation in Cabo Delgado. This would impact the '26 target by \$500 million” ie. a 1 year delay in Mozambique from this assumption reduces 2026 cash flow by \$500 million. In the Q&A, mgmt seemed to exercise caution on this assumption. Mgmt replied “We have some -- there are some positive evolutions on the ground, but it has to be consolidated. There is a war. So we will not -- what we will not do on Mozambique is remobilizing to remobilize. That's clear. So if we are not able to remobilize beginning next year, then the delay in Mozambique LNG this \$500 million could go to 27%.” We still believe TotalEnergies wants to avoid what happened in Dec 2020 thru March 2021. Recall, previously that, in Dec 2020, TotalEnergies had shut down development for 3 months due to the security risk and then had restarted on Wednesday, March 24, 2021. Then there were 3 days of violence and attacks followed, and TotalEnergies suspended operations on the Saturday and started to pull all staff out of Mozambique. That was when construction stopped and then a month later TotalEnergies declared force majeure. At that time, we thought TotalEnergies would want to have a longer period (ie. 6 months or so) of perceived security/stability before agreeing to restart. As of our 7am MT news cut off, we have not seen any TotalEnergies comment on the Club of Mozambique report this week. So at least for now, TotalEnergies is hopeful that construction restart can happen in early 2022. Our Supplemental Documents package includes the TotalEnergies LNG slide noting the Mozambique delay and their long term cash flow slide that shows 2026 is up because of Mozambique.

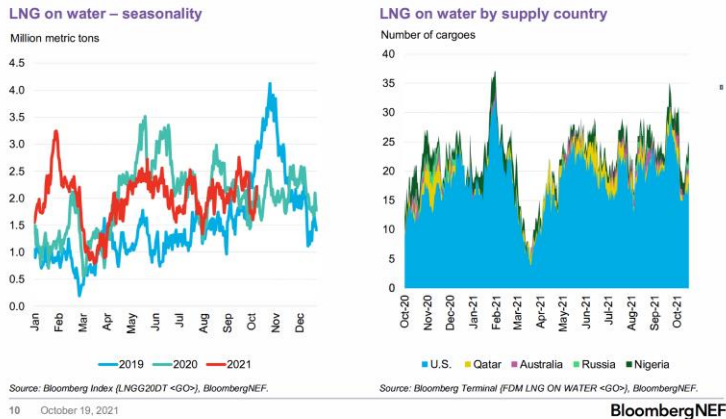
Natural Gas – Is there really any floating LNG storage if its almost all US LNG?

There was a great reminder graph from the BloombergNEF LNG Trade Weekly October 11-17, 2021 that was posted on Tuesday that makes us ask the question if the LNG market is much tighter than expected as there really isn't any floating LNG storage if all the LNG tankers on water >20 days are US LNG? On Tuesday, we tweeted [\[LINK\]](#) “A very tight #LNG market with very little floating LNG storage? US #LNG represents almost all of LNG on water for >20 days & US LNG takes a lot more than 23 days to Asia. Thx @BloombergNEF Lujia Cao, Kornelija Dauksaite, Fauziah Marzuki @PlattsLNG #OOTT.” BloombergNEF posted the below slide that two graphs side by side showing LNG on water for 20 days or more. This is generally considered what many would see as floating LNG storage. Our thought is that it makes no sense why there would be any floating LNG in storage with massive LNG prices. And once you see BloombergNEF's right hand graph, it prints a totally different picture as it shows that the vast majority of LNG on water for 20 days or more is from the US. If so, it means that there is likely very little floating LNG storage. We have been seeing how Asia prices have been and continue to attract US LNG cargos. Even with the shortened voyage thru the Panama Canal, Platts estimates the LNG tanker voyage time is 23 days to Japan and 28 days to China. This is why the vast majority of LNG tankers on water more than 20 days are US LNG but also why, especially under high LNG prices, are not floating LNG storage but just regular US LNG cargos making their normal trip to Japan and China. Below are the BloombergNEF graphs and Platts table of LNG voyage times

LNG on water
for >20 days

Figure 10: LNG on water for 20 days or more

LNG on water for 20 days or more



Source: Bloomberg

Figure 11: Platts LNG Tanker Voyage Times

	Japan/Korea	SChina/ Taiwan	West India	Southwest Europe	Northwest Europe	Northeast US	Argentina	Brazil	Egypt
Middle East	15	13	3	13*	16*	22*	21	24	8
Australia	9	7	9	21*	24*	29	21	25	15
Trinidad	33*	31*	22*	9	9	5	11	7	14*
Trinidad (via Panama Canal)	22**	27**							
Trinidad (most economic)	lower of above 2								
Nigeria	26	23	17	9	10	13	11	9	14*
Algeria	24*	22*	13*	1	4	9	14	12	5*
Belgium	28*	25*	16*	3	N/A	8	16	14	8*
Peru	21	24	27	23	24	24	9	14	29
Russia	3	5	15	27*	29*	35*	27	37	21
Spain	25*	22*	14*	N/A	3	7	14	11	5*
Norway	32*	28*	20*	6	3	9	19	18	12*
Sabine Pass (most economic)	lower of below 2, until Panama Canal starts	lower of below 2, until Panama Canal starts	lower of below 2, until Panama Canal starts	12	12	N/A	17	13	
Sabine Pass (via Suez Canal)	36*	32*	24*	N/A	N/A	N/A	N/A	N/A	17*
Sabine Pass (via Cape)	38	35	31	N/A	N/A	N/A	N/A	N/A	31
Sabine Pass (via Panama Canal)	23**	28**	N/A	N/A	N/A	N/A	N/A	N/A	

* Route uses Suez canal, adds one day extra for shipping and 24 cents/MMBtu for canal fees ** Route uses Panama canal, adds 21 cents/MMBtu for canal fees

Source: Platts

Natural Gas – Singapore steps into LNG spot market for energy security this winter

Nations around the globe are increasingly worried about natural gas supply this winter and are looking at different actions to mitigate that risk. Some are turning to coal, LPG or oil. And Others, that are more dependent on natural gas, are having to step into the high price spot LNG market. On Monday, Singapore announced [\[LINK\]](#), the measures being taken and indicated that 95% of domestic electricity is generated from imported natural gas; with gas prices increasing, so will electricity prices. As production issues in Indonesia’s West Natasa field have led to a decrease in piped gas, Singapore said they were moving to acquire more spot LNG cargoes for the winter. And they warned this will lead to electricity price increases. We suspect that Singapore didn’t want to commit to more LNG cargoes this winter when prices were high, but lower than today, and then kept seeing the LNG market move away from them and decided they had to step in now. Our Supplemental Documents package includes the EMA press release.

Singapore buying in LNG spot market

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Natural Gas – India Sept natural gas production up MoM at 3.42 bcf/d

India is assuming that it can return to growth in its domestic natural gas production. The key India natural gas theme for the past few years has been that India has not been able to grow its domestic natural gas production so any increase in natural gas consumption means equal increase in LNG imports. India's domestic natural gas production peaked in 2010 at 4.6 bcf/d, but it now looks like we are seeing modest return to growth. On Thursday, India's Petroleum Planning and Analysis Cell released their monthly report for September natural gas and oil statistics [\[LINK\]](#). The YoY comps are still impacted to some degree by the Covid impacts. But there is a small return to growth. India's domestic natural gas production was up 26.5% YoY from 2.29 bcf/d in September 2020 to 3.42 bcf/d, up from 3.33 bcf/d in August. The YoY increase is not necessarily reflective of significant growth, more so a return to pre-pandemic production, as April 2019 to March 2020 production averaged 3.02 bcf/d. India has consistently struggled to grow domestic natural gas production with 2018-2019 production averaging 3.18 bcf/d, declining to 3.02 in 2019-2020 and averaged 2.78 bcf/d 2020-2021. Our Supplemental Documents package includes excerpts from the PPAC monthly package.

India natural gas production +2.56% MoM

Natural Gas – India Sept LNG imports down 7.36% YoY to 3.11 bcf/d, down 4.8% MoM

India is always viewed as an extremely price sensitive buyer in terms of its LNG imports, which was exemplified in their 2020-2021 import data. India had ramped up exports from June to October 2020, taking advantage of low LNG prices to fill their stocks. Imports began to decline in November as LNG prices began to rise, with the price trajectory ramping up in late Dec and reaching record levels January. This resulted in India LNG imports declining from a 2020-2021 peak of 3.84 bcf/d in Oct 2020 to just 2.85 bcf/d in Jan 2021. Despite LNG imports normalizing in March and April to 3.06 bcf/d and 3.12 bcf/d, respectively, they have since decreased slightly, with imports in September of 3.11 bcf/d, down 7.36% YoY due to abnormally high spot prices. Note, imports in September were down by 4.8% MoM from 3.27 bcf/d in August as India's inventories are near full for the upcoming winter.

India LNG imports -4.8% MoM

Natural Gas – Petronet sees India LNG imports +12.4 bcf/d to reach 15.8 bcf/d in 2030

We continue to believe India's moves to increase natural gas to 15% of its energy mix by 2030 is a game changer for LNG markets in the 2020s. Especially as we have seen clear signs of action toward that target. On Friday, there was very bullish for India's LNG import growth from Petronet CEO Singh at the India Energy Forum on Friday. As soon as we saw the reports, we tweeted [\[LINK\]](#) "*Bullish for #LNG #NatGas in 2020s. #Petronet CEO fcasts India LNG imports +12.4 bcf/d to reach 15.8 bcf/d (120 MTPA) in 2030. In line with his June est, see below SAF Group June 20 Energy Tidbits #Petronet sees LNG imports +13 bcf/d to 2030. Thx @JournoDebjit @rajeshsing13 #OOTT*". Bloomberg's India energy team reported "*India's import of natural gas is expected to hit 120 million tons/year by 2030 as the nation targets an energy mix goal, Akshay Kumar Singh, CEO of Petronet LNG, said at the India Energy Forum by CERAWEEK. NOTE: India aims to boost use to natural gas to 15% of primary energy mix from about 6% now. * India's current annual LNG import is about 26 million tons*". Singh is forecasting India's LNG imports to grow from current 26 MTPA (3.4 bcf/d) to 120 MTPA (15.8 bcf/d) in 2030. That is an increase of 12.4 bcf/d to 2030. This is very bullish for LNG and natural gas in the 2020s. Our Supplemental Documents package includes the Bloomberg report.

India LNG imports +12.4 bcf/d to 2030

Petronet was the 1st to forecast India LNG import growth in June

We shouldn't have been surprised by this very bullish India LNG import growth forecast. The numbers are right in line with what we saw in June, when Petronet was the first India group to provide detailed forecasts for natural gas and LNG demand to 2030. Our June 20, 2021 Energy Tidbits highlighted those Petronet comments. At

that time we wrote “*Petronet sees India LNG imports +13 bcf/d to 2030 to meet gas targets. There was an even better reminder on Friday from India on how their plan to increase natural gas to 15% of its energy mix will be a major catalyst to LNG markets in the 2020s. Recently our June 6, 2021 Energy Tidbits noted the June 4 tweet from India’s Energy Minister Dharmendra Pradhan [\[LINK\]](#) “We are rapidly deploying natural gas in our energy mix with the aim to increase the share of natural gas from the current 6% to 15% by 2030. One Nation, One Gas Grid is being implemented to remove regional imbalances in access to natural gas. #IndiasGreenFuture.” Pradhan didn’t give a forecast of what this meant for increased bcf/d of natural gas and LNG imports. But this week Petronet CEO AK Singh gave a specific forecast. Reuters report “LNG’s share of Indian gas demand to rise to 70% by 2030: Petronet CEO” [\[LINK\]](#) included Petronet’s forecast if India is to hit its target for natural gas to be 15% of energy mix by 2030. Singh forecasts India’s natural gas consumption would increase from current 5.5 bcf/d to 22.6 bcf/d in 2030. And LNG shares would increase from 50% to 70% of natural gas consumption ie. ~3 bcf/d to 15.8 bcf/d in 2030. Singh did not specifically note his assumption for India’s natural gas production, but we can back into the assumption that India natural gas production grows from ~3 bcf/d to 6.8 bcf/d.”*

India has been serious to expand natural gas infrastructure

The biggest change in the past 2 years is that India is getting serious about increasing natural gas consumption including the infrastructure. Our September 19, 2021 Energy Tidbits wrote “*Natural Gas – India to expand natural gas distribution to cover 96% of population. LNG buyers better hope that the security picture in Mozambique get settled to an acceptable level for TotalEnergies, Exxon and others to get back to moving on 5 bcf/d of LNG capacity that has been held up now for several months. Because we continue to see support for the major LNG demand theme for the 2020s – India’s target to double the share of natural gas in its energy mix to 15% by 2030. Yesterday, we retweeted [\[LINK\]](#) “Positive to #LNG. India to expand #NatGas distribution to cover 96% of population. Fits move to double #NatGas share of energy mix to 15% by 2030, which #Petronet CEO est adds 13 bcf/d #LNG demand. See [\[LINK\]](#).” Our retweet was of an India Ministry of Petroleum and Natural Gas tweet [\[LINK\]](#) on the new 11th round of bidding for city distribution of natural gas, and that “once completed, the CGD network in India shall cover 86% of the Country’s area and 96% of the population”. This will take years to roll out but covering 86% of India and 96% of its population is a good indicator for a strong ramp up in natural gas uses post 2025. And we expect that the industrial/commercial coverage ratio is much the same ie. call it 90% of India.”*

Remember Modi’s highlighted India “should be a gas-based economy”

Our August 15, 2021 Energy Tidbits highlighted Modi’s 75th anniversary of India independence speech. Modi has been stressing the importance to increase natural gas share of India’s energy mix from 6% to 15% by 2030. India posted the Modi speech transcript at [\[LINK\]](#). This is a big picture speech about the future for India and Modi’s tries to set a vision for the next 25 years to the 100th anniversary. It’s a general speech but it is also good reminder to people in the west that India still has a long way to go to catch up. Modi notes how they “*have made authentic efforts to construct toilets in 100% households*”. One of his major themes was that India should be a gas based economy but targets to be energy independent in 25 years. Modi didn’t get into his policy to increase natural gas share of the energy mix from 6% to 15% by 2030 and only gave a glancing mention, but the mention is significant –

India “should be a gas based economy”. Our August 15, 2021 Energy Tidbits had more detailed on the other Modi speech themes.

Japan Aug LNG imports -16.8% YoY

Natural Gas – Japan LNG Imports in Sep -16.8% YoY to 8.66 bcf/d

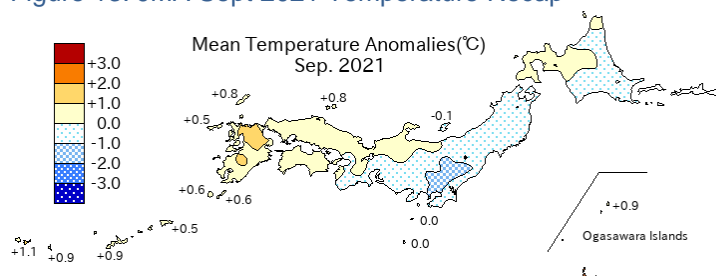
On Wed, Japan’s Ministry of Finance posted its import data for Sept. No one should be surprised with the lower YoY and MoM LNG imports. On Wednesday, we tweeted [LINK](#) “Japan #LNG imports Sept 8.66 bcf/d, -16.8% YoY, -12.2% MoM. No surprise, #Bloomberg @SStapczynski highlighted on 9/24 Japan LNG tanks were full & able to redirect LNG cargoes to China. #OOTT #NatGas”. Our October 3, 2021 Energy Tidbits highlighted that Japan’s power utilities LNG stocks were at record highs for this time of year and this allowed the utilities to redirect LNG cargoes to China. Japan Ministry of Finance released its September LNG import data last Thursday [LINK](#). Japan’s September LNG imports were 8.66 bcf/d, down 16.8% YoY and down 11.2% MoM from 9.75 bcf/d in August. In addition to having its LNG tanks full, it was also a mild temperature month in Japan, which would have reduced natural gas demand to end the summer. But there was also another factor was that Japan’s thermal coal imports were increased, and were +18.1% MoM. Below is a temperature map of September and our table that tracks Japan LNG import data.

Figure 12: Japan Monthly LNG Imports

bcf/d	2015	2016	2017	2018	2019	19/18	2020	20/19	2021	21/20
Jan	13.06	11.22	12.85	12.79	11.69	-8.7%	11.63	-0.5%	12.48	7.3%
Feb	13.26	12.30	13.36	14.23	12.61	-11.4%	10.99	-12.8%	13.84	25.9%
Mar	12.60	12.62	12.61	12.28	11.30	-8.1%	11.16	-1.2%	11.04	-1.1%
Apr	10.56	10.21	10.52	8.97	9.00	0.3%	8.31	-7.7%	7.96	-4.3%
May	8.91	8.55	9.66	9.92	8.62	-13.1%	7.09	-17.7%	7.67	8.1%
June	10.61	10.02	9.90	8.88	8.32	-6.3%	8.42	1.2%	9.13	8.5%
July	10.77	10.19	10.19	10.55	10.56	0.1%	9.35	-11.5%	9.58	2.5%
Aug	10.93	11.96	11.24	11.73	9.45	-19.5%	9.04	-4.3%	9.75	7.8%
Sept	11.06	10.67	9.31	10.04	10.30	2.6%	10.41	1.0%	8.66	-16.8%
Oct	9.38	9.73	9.50	10.12	9.75	-3.6%	9.20	-5.7%		
Nov	10.71	12.07	10.26	10.15	10.03	-1.2%	9.63	-4.0%		
Dec	12.51	11.69	12.31	11.23	10.54	-6.2%	11.96	13.4%		

Source: Japan Ministry of Finance

Figure 13: JMA Sept 2021 Temperature Recap



Source: Japan Meteorological Agency

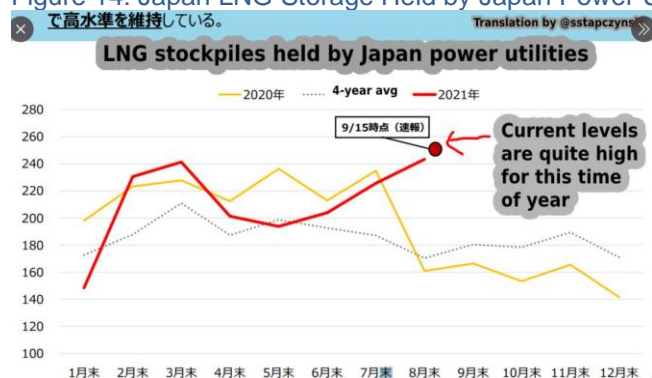
Japan’s been able to redirect LNG cargoes as its tanks are full

We have been expecting a drop in imports with Japan’s goal to keep LNG cargoes full for the summer. Our October 3 Energy Tidbit wrote Good timing for Japan’s LNG tanks to be full. Last week’s (Sept 26, 2021) Energy Tidbits noted Bloomberg’s Stephen Stapczynski tweet [LINK](#) that included the blow METI graph showing LNG stocks held by regional power utilities are well above normal levels and at approx. 2.5 to 2.6 metric tons of LNG, which is 120 to 125 bcf. The vast majority of Japan power utilities LNG is under long term indexed contracts ie. not subject to spot JKM prices. And it looks like some of these utilities are taking advantage of having high LNG

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storage and gaining the big arbitrage profit by redirecting some LNG cargoes to China. On Friday, Bloomberg reported “Japanese utilities are stepping in to help ease China’s fuel crisis, selling excess liquefied natural gas at sky-high prices as Beijing orders its top energy companies to secure supplies at all costs. Vessels typically chartered by Japanese companies including Jera Co., Tokyo Gas Co. and Kyushu Electric Power Co. delivered as many as six spot cargoes to Chinese ports in September, said BloombergNEF analyst Lujia Cao. State-owned Chinese firms are among the buyers that have negotiated purchases, including Sinopec, which called a tender for November to March supplies earlier last week.”

Figure 14: Japan LNG Storage Held by Japan Power Utilities



Source: METI, Bloomberg

Japan was expected to keep its LNG tanks full this summer

No surprise that Japan has been diligent in keep its LNG tanks full this summer – this was expected. Our May 16, 2021 Energy Tidbits noted Japan’s aim to keep LNG tanks full for the summer. We then wrote *There should be some positive support for LNG prices this summer from Japan especially if it’s a hot summer. The low electricity reserve margin (way lower than in the US) means that Japan will be doing all they can to ensure there is max available electricity, which we believe will include LNG. On Tuesday, we tweeted [LINK] “Japan will want to keep #LNG tanks topped up until worst is over. Japan summer peak power reserve only 3.7-3.8%. Positive for LNG & US LNG, less cargoes redirected to refill EU storage. Imagine the AC bill if they had 0.5 mm visitors for olympics. Thx @SSstapczynski #NatGas #OOTT.”* The tweet was driven by the Bloomberg report that “Japan’s power supply is expected to be the tightest in “several years” this summer amid an outlook for warmer-than-normal weather and lower electricity output as some thermal facilities are shut, Minister of Economy, Trade and Industry Hiroshi Kajiyama said to press on Friday”, and “Japan’s nationwide peak power reserve rate, excluding Okinawa and Hokkaido, is expected to be 3.7%-3.8% this summer, according to NHK, citing the Organization for Cross-regional Coordination of Transmission Operators ** NOTE: The minimum level required by the Japanese government during peak demand times is 3%.” After our tweet, we saw the Platts report [LINK] on the METI press comments that reinforced our LNG comment writing “Among possible measures, METI intends to request Japanese utilities to report their LNG as well as other fuel procurement plans for summer in June to scrutinize them, a METI source told S&P Global Platts.” Note that if any US areas have reserve margins below 10%, its generally considered some sort of critical situation. As we put in our tweet, it just means that Japan is likely to be having more LNG imports this summer to keep their LNG tanks full.

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Natural Gas – Another Asian LNG buyer (China’s Sinopec) locks up long term LNG

We continue to believe the best validation of a pending LNG supply gap in the 2020s is that more Asian LNG buyers are moving to lock up long term LNG supply thru the 2020s. The latest to do so is China’s Sinopec in the new deal with Venture Global; [\[LINK\]](#). This 20-year deal sees ENN purchasing 0.53 bcf/d from Venture Global with supplies tied to its proposed Plaquemines LNG facility in Louisiana. On Tuesday, we tweeted [\[LINK\]](#), “Best indicators of increasing LNG supply gap in 2020s. Asian LNG buyers keep locking in long term #LNG supply. New #VentureGlobal 20-yr deal with Sinopec for 0.53 bcf/d. Thx @PlattsLNG See SAF July 14 8-pg blog <https://safgroup.ca/news-insights/#OOTT>” The agreement is made up of two long-term contracts with both representing the largest contract volume for US LNG signed by a single Chinese entity. This agreement immediately follows the contract signed between Cheniere and ENN mentioned in last weeks (October 17) Energy Tidbits. The article stated “*The larger contract between VG’s Plaquemines LNG and Sinopec calls for the LNG to be delivered free on board. The smaller contract calls for the LNG to be delivered “DPU,” according to the letter, which did not define what that means. Sinopec will have destination flexibility, with the promise that it will only deliver the LNG to countries allowed under Venture Global’s permits, according to the letter to the DOE.*” Our Supplemental Documents package includes the S&P Global Platts report.

Sinopec signing long term LNG deal

Asian LNG buyers abruptly change and lock in long term supply

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

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Natural Gas – Colder than normal China winter with La Nina, already a cold October

No wonder China has been focused on ensuring energy security for this winter as it's been a cold October, especially in Beijing. Last Sunday, Global Times reported "*Beijing freezes 20 days earlier than average amid cold wave that will likely drive up heating demand, strain grid*" [\[LINK\]](#). It can't hurt that China's leaders have to feel the cold. Beijing saw freezing temperatures last Sunday, which is 20 days earlier than the Nov 8 average first freezing day. And on Friday, Xinhua reported [\[LINK\]](#) "*According to the latest news from the National Climate Center, since July this year, the sea temperature in the equatorial Central and Eastern Pacific has continued to decline, and it is expected to enter the La Niña state in October and form a weak to moderate La Niña event in the winter. In view of the occurrence of La Niña events in the autumn and winter of 2020-2021, 2021 will be the "Double La Niña Year. In the winter when most La Niña events reach their peak, the cold air activities that affect China are more frequent and stronger than normal.*" Our Supplemental Documents package includes the Xinhua La Nina report.

Early start to winter in China

Natural Gas – China asks Russia for more natural gas/coal this winter

China is doing all they can to make sure they minimize any energy shortages this winter. And no surprise, they have been taking action considering the early start to freezing temperatures. On Friday, TASS reported [\[LINK\]](#) on comments from Russia's Ambassador to China, Andrei Denisov. TASS reported "*The Chinese economy is quite rapidly emerging from the pandemic crisis and [at the same time] there are certain imbalances that no one hides here. And ahead, according to the forecasts that we see in the open press, a cold winter, the northeast, which is closer to us, may well face a certain deficit,*" he said. "*For this reason, yes, they really ask us to consider the possibility of increasing supplies. We are, of course, ready,*" the diplomat added. "*In addition to coal, we [have] a new product that emerged last year - natural gas. Last year we supplied it in a trial mode via pipes [of the Power of Siberia gas pipeline], and brought the supply to about 5 billion cubic meters. This year it was planned to increase it to 10 billion cubic meters, since we cannot bring everything to full capacity yet,*" he said. "*But the Chinese colleagues in such conversations say: how much you can supply us with different types of fossil fuels, we will take as much. Because there is really a rather big problem here,*" the diplomat explained." Our Supplemental Documents package includes the TASS report.

China asks Russia for natural gas

Natural Gas – China's natural gas imports up 5.1% MoM in Sept

China customs posted China's September natural gas imports split by pipelines vs LNG. The customs data is at [\[LINK\]](#). The customs data reports China Sept LNG imports of 10.81 bcf/d, +17.8% YoY and +5.0% MoM. And China natural gas pipeline imports of 6.2 bcf/d, +32.1% YoY and +5.1% MoM. Below are our running tables of China LNG and pipeline imports.

China LNG and pipeline imports

Figure 15: China LNG Imports

bcf/d	2016	2018	18/17	2019	19/18	2020	20/19	2021	21/20
Jan	3.84	8.03	50.0%	10.20	27.1%	10.31	1.1%	13.15	27.6%
Feb	3.10	6.84	66.9%	7.46	9.1%	7.26	-2.7%	9.52	31.1%
Mar	2.60	5.04	64.5%	6.28	24.8%	6.49	3.3%	8.74	34.6%
Apr	3.00	5.43	57.8%	7.27	34.0%	8.16	12.3%	10.77	32.0%
May	2.20	6.39	41.9%	6.87	7.6%	8.10	18.0%	10.89	34.4%
June	3.51	6.31	30.1%	7.25	14.9%	9.27	27.8%	10.76	16.1%
July	2.46	6.40	33.4%	7.56	18.1%	7.79	3.1%	8.78	12.7%
Aug	3.54	7.26	49.2%	8.04	10.8%	9.23	14.8%	10.30	11.6%
Sept	4.05	7.00	26.3%	8.16	16.7%	9.17	12.4%	10.81	17.8%
Oct	2.85	7.13	29.6%	6.26	-12.2%	7.78	24.3%		
Nov	4.26	9.59	47.5%	10.42	8.7%	10.58	1.6%		
Dec	5.80	9.75	25.0%	10.01	2.7%	11.76	17.5%		
Full Year Avg.	3.43	7.10	41.2%	7.98	12.5%	8.83	10.6%		

Source: Bloomberg, China Customs

Figure 16: China Pipeline Imports

bcf/d	2016	2017	17/16	2018	18/17	2019	19/18	2020	20/19	2021	21/20
Jan	4.3	3.7	-13.5%	4.0	8.2%	5.0	24.9%	5.2	3.5%	4.9	-4.5%
Feb	5.0	4.4	-12.9%	5.0	15.6%	5.5	9.0%	5.7	3.8%	6.1	7.2%
Mar	4.2	3.6	-15.6%	4.2	17.7%	4.5	6.4%	4.2	-5.2%	4.8	12.8%
Apr	4.5	4.7	4.1%	5.5	17.7%	5.0	-9.3%	4.2	-15.5%	5.5	30.1%
May	3.2	3.9	23.2%	5.1	30.4%	4.8	-4.3%	4.0	-16.6%	5.1	26.2%
Jun	3.3	4.1	22.1%	5.3	31.2%	4.8	-10.3%	4.1	-15.0%	5.6	37.4%
Jul	3.2	4.1	25.5%	4.7	14.5%	4.7	0.0%	3.6	-23.3%	5.7	58.9%
Aug	1.7	3.9	133.5%	4.7	21.3%	4.9	3.1%	5.3	7.9%	5.9	11.5%
Sep	5.1	4.0	-22.3%	5.2	30.7%	5.0	-4.2%	4.7	-6.0%	6.2	32.1%
Oct	3.1	3.5	13.2%	4.2	20.6%	3.8	-8.1%	3.9	1.0%		
Nov	3.1	4.0	27.4%	5.1	26.8%	4.7	-6.9%	4.1	-13.0%		
Dec	3.6	4.4	22.7%	4.6	2.8%	4.7	3.9%	5.6	18.9%		

Source: Bloomberg, China Customs

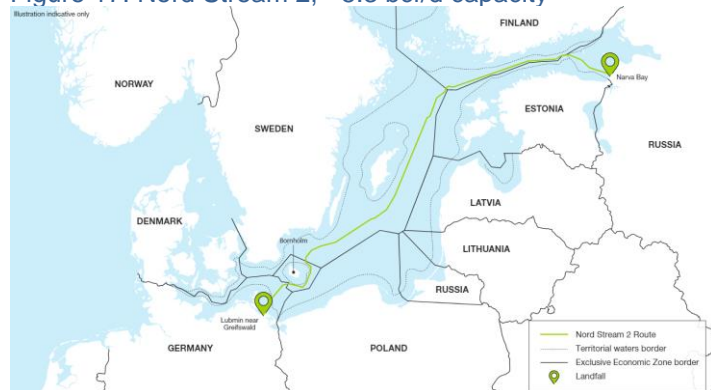
Natural Gas – Putin reminds Nord Stream 2 can deliver natural gas tomorrow

On Thursday, Putin said that Nord Stream 2 was ready to deliver natural gas the day after it receives German regulator approvals. Putin also gave the ramp up volumes saying Nord Stream 2 could deliver 1.7 bcf/d right away and reach its full 5.3 bcf/d capacity by the end of year. This was the first Russian disclosure we have seen that gave specific bcf/d ramp up volumes. TASS reported [\[LINK\]](#) "The first pipe of Nord Stream 2 is filled with gas. If tomorrow the German regulator gives permission for the supply, the day after tomorrow the delivery will begin, 17.5 billion cubic meters. By the end of this year - in the middle, at the end of December - technological work on filling the second gas pipe of Nord Stream 2. In total, this is 55 billion cubic meters. As soon as the second pipe is filled and as soon as the permission of the German regulator is received, the next day we will start deliveries," Putin said." 17.5 bcm over a year is 1.69 bcf/d and 55 bcm over a year is 5.3 bcf/d. Our Supplemental Documents package includes the TASS report.

Nord Stream 2 is ready to go

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Figure 17: Nord Stream 2, ~5.3 bcf/d capacity



Source: Gazprom

Natural Gas – Gazprom reaches record gas storage of 2.56 tcf

We previously noted Russia's comments that it would have its domestic natural gas storage full by November 1. It looks like they will do so and have it at record high levels of gas storage. On Friday, Gazprom announced [\[LINK\]](#) "Gazprom creating record-high amount of working gas inventories in Russia's underground storages at 72.6 billion cubic meters", which is 2.56 tcf. For comparison, US gas storage is current 3.461 tcf. Gazprom noted that last winter heating season saw a record 60.6 bcm (2.14 tcf withdrawn from its storage). Gazprom also noted "The potential maximum daily deliverability of Russian UGS facilities is being brought to an unprecedented level of 847.9 million cubic meters (taking into account the UGS facilities in Belarus and Armenia – 887.9 million cubic meters). The increase in deliverability against the previous withdrawal season (by 4.6 million cubic meters) is commensurate with daily gas consumption for the winter period in such Russian regions as the Republics of Karelia or Ingushetia." This is a maximum deliverability of 29.9 bcf/d. Our Supplemental Documents package includes the Gazprom release.

**Record Gazprom
2.56 tcf storage**

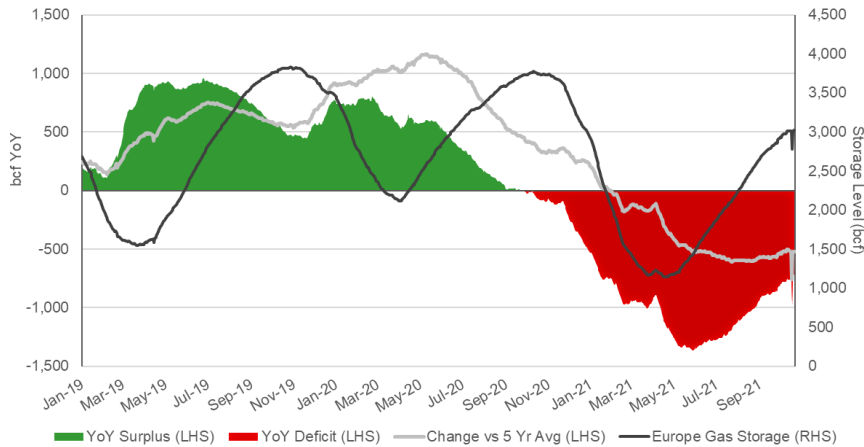
Natural Gas – Europe storage 77.36% full vs 5 year average of 91.49%

It's been a good last few weeks for refilling Europe natural gas. Its still far below normal levels but has been improving. Europe inventories are at their lowest level at this time of the year in more than a decade. The set up for winter natural gas prices continues to look bullish. Russian pipeline import variability continues to deliver uncertainties to European gas storages throughout the remainder of injection season. With The key indicator for winter Europe natural gas prices, and global LNG prices is Europe storage. Europe gas storage started the winter (Nov 1) at basically full levels at 94.66% and had dropped by 65.77% to be 28.89% at Apr 1. This 65.77% decline since Nov 1, compares to the 5 yr average that would be down 53.99% in the same period or to last winter that was only down 43.29% in the same period. Europe storage levels bottomed in late Apr at 29%, which was the lowest level since Apr 2018. Storage as of Oct 21 is 77.36%, which is -17.18% less than last year levels of 95.54% and are -14.13% below the 5-year average of 91.49%. Europe storage levels over the next few weeks will be the key item to watch for indications on LNG markets going into the winter. Below is our graph of Europe Gas Storage Level.

**Europe gas
storage 77.36%
full**

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Figure 18: Europe Gas Storage Level



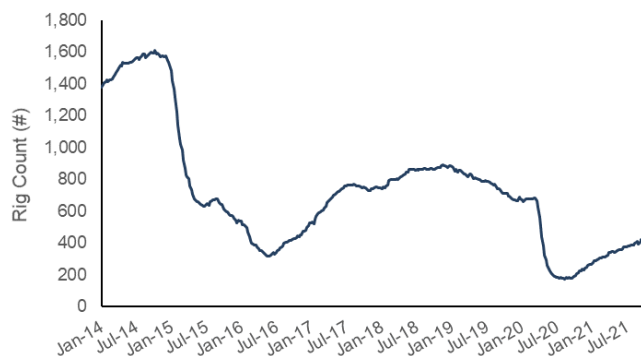
Source: Bloomberg

Oil – US oil -2 WoW at 443 oil rigs

Baker Hughes released its weekly North American drilling activity data at 11am Friday. This week US oil rigs were up -2 rigs WoW at 443 rigs. Oil rigs are +271 off the bottom of 172 in Aug14/2020 week. No surprise, the Permian was +1 this week as it is the oil basin expected to drive growth. With oil prices up 69% so far this year and expectations that consumers will switch to oil products with high gas prices, producers are increasing active rigs to boost production to accommodate demand and to rebuild DUCs inventory. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 236 to 443 oil rigs (-35%). The biggest contributor to the decrease is the Permian being down 151 oil rigs from the March 13, 2020 peak (-36%), although we are seeing it continue to ramp up slightly. Below is our graph of US oil rigs since January 1, 2014.

US oil rigs -2 WoW

Figure 19: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – Frac spreads -3 to 265 as of Oct 22

Mark Rossano (C6 Capital Holdings) provided his US frac spread recap for week ended Oct 22 on the Primary Vision network. The YouTube video is at [LINK](#). US frac spreads were -3 to 265 for the week ended Oct 22. He said the drop was in the smaller basins, also some factor of being moving days where spreads are in transit to another location. Rossano still has a target of 275 frac spreads by then end of October or early November. He isn't

Frac spreads -3 to 265

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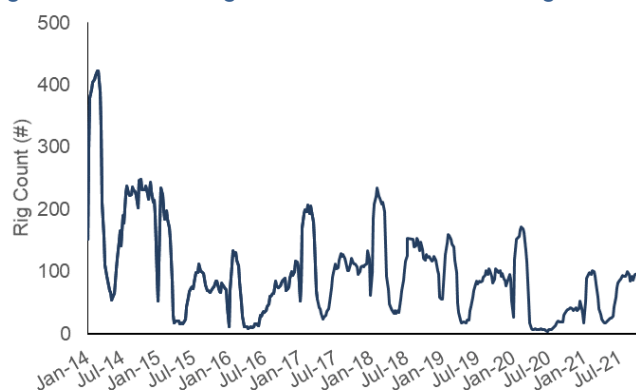
concerned with frac spread levels, still seeing that is on track with his forecast for US oil to exit 2021 at 11.5, 11.6, 11.7 mmb/d. As he looks to year end, he expects frac spreads to stay fairly flat and rig counts will run higher. Rossano noted the low level of DUCs and expects DUCs to get back to early 2018 levels. Haynesville still has a lot of DUCs available. Permian DUCs back to where they were in early 2018, expect this to balance out. And he expects Permian to hit new record production at end of this year or early next year but need more running room ie., more DUCs. His estimate for US oil production exit 2022 is 12.3 mmb/d.

Oil – Total Cdn rigs -4 to 164 total rigs and +84 rigs YoY

Total Cdn rigs were -4 this week to 164 total rigs. Cdn oil rigs were -5 at 93 rigs. Cdn gas rigs were +1 to 71 gas rigs. Total rigs are now +147 since the June 26, 2020 all-time low. We have been expecting a ramp up with the normal Aug/early Sept pause comes to an end. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 40 and Cdn gas rigs were 40 for a total Cdn rigs of 80, meaning total Cdn rigs are +84 YoY and total rigs are up +21 vs 2019.

Cdn rigs -4 WoW

Figure 20: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production down marginally WoW at 11.3 mmb/d

The weekly drop in US oil production was only -21,000 b/d WoW, but due to rounding shows up as down 0.100 mmb/d. US oil production was 11.331 mmb/d for the Oct 15 week. There are no items to highlight. US oil production is up YoY at +1.400 mmb/d, and is still down significantly at -1.8 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The EIA DPR has expectations of a slight increase for Oct/Nov for the major shale/tight oil plays.

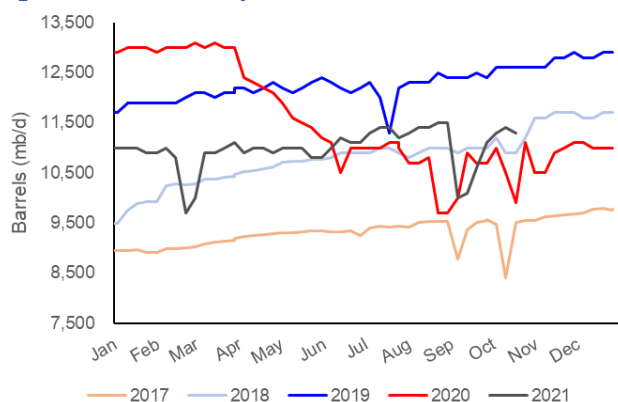
US oil production down WoW

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		
2021-Sep	09/03	10,000	09/10	10,100	09/17	10,600	09/24	11,100		
2021-Oct	10/01	11,300	10/08	11,400	10/15	11,300				

Source: EIA

Figure 22: US Weekly Oil Production



Source: EIA, SAF

Oil – EIA DPR continues to forecast increasing shale/tight oil production

The EIA issued its Drilling Productivity Report Oct 2021 on Monday [\[LINK\]](#), which is the EIA's forecast for oil and natural gas production from the major shale/tight oil and gas basins for the current month (in this case Oct) and the next month (in this case Nov). (i) The takeaway is that US shale/tight oil started to return to growth in July and that steady modest growth is expected to continue thru November. This is expected with the increase rig count, frac spread count and significantly higher than budgeted oil and gas cash flows. (ii) The EIA forecasts November at 8.219 mmb/d, up +77,000 b/d MoM and 0.285 mmb/d YoY. (iii) No surprise, the growth is driven in the Permian, which is +62,000 b/d MoM. YoY most basins are down, with Permian continuing to ramp up at +0.529 mmb/d YoY. The total US shale/tight oil production is now +0.323 mmb/d YoY. (iv) US shale/tight oil production peaked at 9.158 mmb/d in Nov 2019. (v) Note that shale/tight oil is approx. ~70% of total US production, so whatever the trends are for shale/tight oil are the trends for US oil in total. Below is our table of running

US shale/tight oil production

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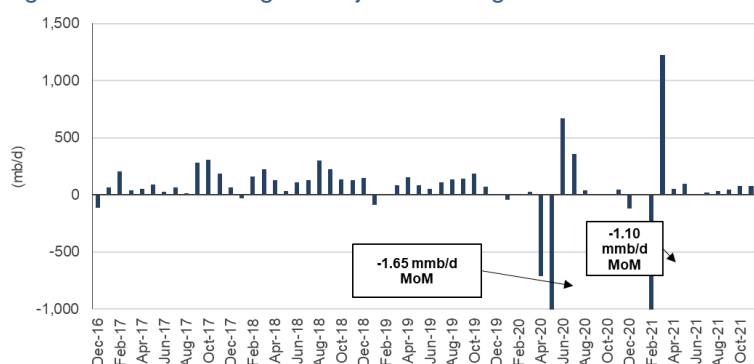
DPR estimates of shale/tight oil production and our graph of MoM changes in major shale/tight oil production. Below is our table of running DPR estimates of shale/tight oil production and our graph of MoM changes in major shale/tight oil production.

Figure 23: MoM Change – Major Shale/Tight Oil Production

Thousand b/d	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Nov YoY	Nov less Oct
Anadarko	404	444	432	423	309	386	373	361	353	354	370	369	363	362	-82	-1
Appalachia	130	122	126	128	123	126	126	127	128	131	129	125	118	119	-3	1
Bakken	1,242	1,237	1,204	1,166	1,106	1,129	1,118	1,108	1,102	1,116	1,139	1,139	1,131	1,137	-100	6
Eagle Ford	1,116	1,111	1,075	1,054	882	1,062	1,045	1,032	1,027	1,043	1,054	1,053	1,076	1,077	-34	1
Haynesville	34	34	35	34	28	33	33	32	32	34	34	34	34	34	0	0
Niobrara	594	588	574	571	556	544	534	524	516	540	555	576	594	602	14	8
Permian	4,330	4,359	4,308	4,354	3,546	4,471	4,510	4,555	4,607	4,647	4,756	4,773	4,826	4,888	529	62
Total	7,850	7,896	7,752	7,729	6,549	7,751	7,739	7,738	7,765	7,865	8,037	8,069	8,142	8,219	323	77

Source: EIA Drilling Productivity Report

Figure 24: MoM Change – Major Shale/Tight Oil Production



Source: EIA Drilling Productivity Report

Oil – EIA DUC’s worked down by 241 in September

Our biggest concern in the past on EIA’s Drilling Productivity Report [\[LINK\]](#) estimate of Drilled UnCompleted wells was that the data had been constantly revised and sometimes significantly. However, the EIA DUC data shows a clear trend since August 2020, of a continued work down of DUCs and we expect that trend is correct. It also reinforces the need for drilling rigs to pick up to replenish the DUC inventory if the US to have strong oil growth in 2022. (i) The EIA estimates DUCs are down another 241 MoM in September, meaning a total 3,489 DUCs were worked down since the Jun/20 peak of 8,874. The largest work downs are coming from the Permian (-1,638) and Eagle Ford (-462). With DUCs being worked down so significantly we will need to see rig counts go up to replenish DUCs in the near future. (iii) Bakken DUCs. As per the NDPA presentation on April 22, 2021, they estimate there are only 395 economic DUCs at April 30. This is 268 DUCs or ~40% lower than the EIA estimate of 663 as of April. Bakken DUCs were worked down 71 since then and in 2021 DUCs have dropped ~23 per month. This means that at this rate, the Bakken has ~14 months of economic DUC inventory. Below is our running table of the EIA Drilling Productivity Report DUCs.

DUCs continue to work down

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Figure 25: EIA - Estimated Drilled UnCompleted Wells

Drilled UnCompleted	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	August	September	September YoY
Anadarko	1,048	1,022	1,002	982	965	952	932	921	901	880	863	856	838	824	808	-194
Appalachia	688	678	661	648	645	641	623	616	603	590	598	595	590	588	572	-89
Bakken	876	865	832	805	786	760	731	710	688	663	656	619	590	566	539	-293
Eagle Ford	1,374	1,340	1,288	1,252	1,220	1,181	1,152	1,135	1,102	1,071	1012	954	912	869	826	-462
Haynesville	397	393	395	383	374	380	375	389	387	385	392	399	402	406	400	5
Niobrara	779	783	767	713	663	621	575	530	489	448	402	373	380	379	371	-396
Permian	3,690	3,622	3,507	3,363	3,227	3,116	2,988	2,955	2,852	2,731	2,598	2,419	2,249	1,994	1,869	-1,638
Total	8,852	8,703	8,452	8,146	7,880	7,651	7,376	7,256	7,022	6,768	6,521	6,215	5,961	5,626	5,385	-3,067

Source: EIA, SAF

Oil – Halliburton, high global prices are pull on US oil and gas production

One of the big wildcards for oil in 2022 is the level of US oil growth. No question that with higher oil prices, oil producers have hugely higher cash flows that can be used for drilling while still growing dividends. There was a good reminder from the Q&A of Halliburton’s Q3 call on Tuesday that global oil prices and global natural gas prices are a huge pull for US oil and gas production to be exported. On Tuesday, we tweeted [LINK](#) “when we look at 2022, clearly there is a call on U.S. production at the current commodity prices” says @Halliburton CEO in Q3 call Q&A. Good way to describe how high #Oil prices are providing the clear incentive to drill more US shale wells. #OOTT”. Later in the memo, we have more insights from the Halliburton Q3 call.

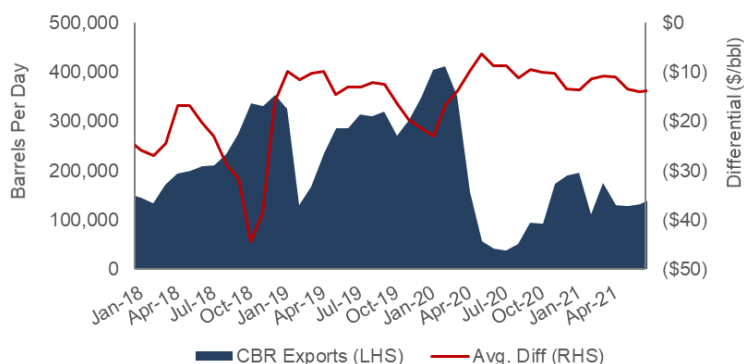
Halliburton on high global oil prices

Oil – Cdn crude by rail exports up 25,824 b/d MoM to 168,659 b/d in Aug, up 230% YoY

The Canadian Energy Regulator (successor to NEB) reported Canadian crude by rail exports were +25,824 b/d MoM in August to 168,659 b/d vs 142,825 b/d in July [LINK](#). This puts August export volumes at +117,607 b/d YoY (+230%) vs August 2020 of 51,052 b/d. CBR volumes are +129,792 since the July 2020 bottom of 38,867 b/d, when COVID-19-fueled capital spending reductions and lower drilling activity in Western Canada were in full effect. August WCS-WTI differentials remained around the \$13-\$14 range. Normally we would expect WCS-WTI differentials below \$15 to not be an incentive for crude by rail, but with the starting point being WTI >\$70, the absolute price remains attractive for producer returns, ie. it’s not just the differential, but the base WTI oil price starting point as well as transportation costs. Below is our graph of Cdn crude by rail exports compared to the WCS – WTI differential.

Cdn crude by rail exports increase MoM

Figure 26: Cdn Crude by Rail Exports vs WCS Differential



Source: Canadian Energy Regulator, Bloomberg

Oil – Covid outbreaks in oil sands facilities not updated since 6 outbreaks as of Oct 5

As of our 7am MT news cut off, Wood Buffalo has not posted a Covid-19 update for oil sands facilities. The last posted update is still their Oct 5 Covid-19 update [LINK](#). Versus their prior

Covid in oil sands

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Sept 30 update, the number and names of oil sands facilities on the Covid outbreak list are unchanged. The 6 outbreak oil sands facilities are: CNRL Albion, CNRL Horizon, CNRL Kirby Jackfish, MEG Christina Lake, Suncor Firebag and Suncor Fort Hills.

Oil – Cdn Oil Sands Pathways 3-phase plan to achieve Net Zero

On Friday morning 9am ET, the *“Oil Sands Pathway to Net Zero initiative, an alliance between Canada's five largest oil sands producers, has announced additional details of its plan to achieve the goal of net zero greenhouse gas (GHG) emissions from oil sands operations. “As a significant source of Canada's GHG emissions, we know we must also be part of the solution,” says Pathways Director Al Reid. “That's why we're working together on innovative approaches to achieve our shared vision of net zero emissions.”* The alliance is Canadian Natural, Cenovus, Imperial, MEG and Suncor. They wrote *“Pathways alliance members, who operate facilities accounting for 90% of Canadian oil sands output, are working collectively with the federal and Alberta governments, with a goal to achieve net zero (neutral) emissions from oil sands operations by 2050 to help Canada meet its climate goals, including its Paris Agreement commitments and 2050 net zero aspirations. The Pathways alliance has already begun work to eliminate 68 megatonnes (Mt) of annual oil sands production emissions in three phases*: Phase 1 (2021 – 2030) - 22 Mt Phase 2 (2031 – 2040) - 25 Mt Phase 3 (2041 – 2050) - 21 Mt.* Our Supplemental Documents package includes the

Oil Sands Pathways to Net Zero

No surprise, Trudeau & O'Regan still haven't acknowledged the plan

This oil sands plan to Net Zero would have been a good COP26 message that Canada's oil sands are on a path to Net Zero. That is the theory, however, as of our 7am MT news cut off, no surprise, its been 48 hours and there is still no acknowledgement from Trudeau and O'Regan of the Oil Sands Pathway plan to get to Net Zero. Earlier this morning, we tweeted [\[LINK\]](#) *“Negative to Cdn #Oil #NatGas. No surprise, @SeamusORegan or @JustinTrudeau still haven't acknowledged this plan by #OilSands to achieve #NetZero. But 12 hrs later, @JustinTrudeau did say “need to be bolder and act faster on climate change” #OOTT”.* The Oil Sands Pathway release came out Friday at 9am ET. 12 hours later on Friday night, Trudeau tweeted [\[LINK\]](#) *“The twin crises of climate change and nature loss are impacting our environments, our health, and our livelihoods. It's up to all of us to tackle these challenges, but we need to be bolder and act faster. Our government is committed to doing that.”*

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

No one should have been surprised by the lack of acknowledgement by Trudeau to the Oil Sands Pathways to Net Zero. This is the same as happened in June, when Trudeau wouldn't even acknowledge the oil sands efforts on climate and effectively gave a clear warning that more hits were to come against the Cdn oil and gas sector in 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

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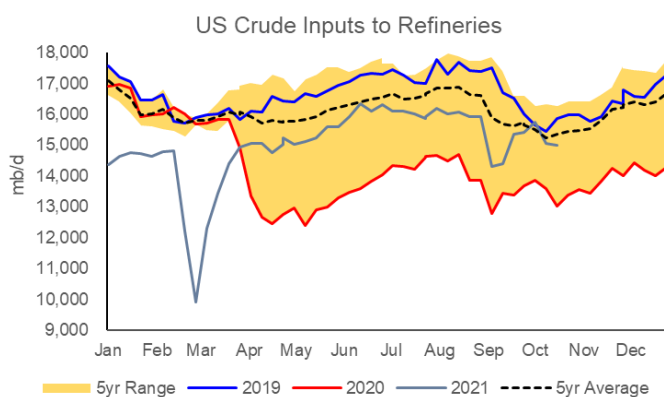
available in scale and on sequestration. He gives a lengthy answer that doesn't even acknowledge the oil sands pathway, let alone whether it is good enough or realistic. No question he is ducking even any acknowledgement that it exists, which would seem to signal that he is not interesting in trying 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."

Oil – Refinery inputs +1.964 mmb/d YoY at 14.990 mmb/d

This week we saw a shift towards normal seasonal trends in crude inputs to refineries. Refineries continue to recover from the impacts of Covid and Hurricane Ida, though we observed inputs decrease slightly as the maintenance season is underway as is normal for October. There was a slight decrease in refinery inputs as refineries across the US engage in their seasonal maintenance. Crude inputs to refineries were down -0.079 mmb/d this week to 14.990 mmb/d, and are +1.964 mmb/d YoY. Refinery utilization was down -2.0% to 84.7%, which is still +7.6% YoY with the maintenance season ramping up across the nation. Total products supplied (i.e., demand) was up 1.957 mmb/d to 21.832 mmb/d. Motor gasoline was up -0.449 at 9.634 mmb/d from 9.186 mmb/d last week. Gasoline supplied, a proxy for demand, was down last week. Not a surprise with higher retail prices. With the driving season over, demand tends to fall. The four-week average of production supplied increased to 7.589 mmb/d, up from last year. Below is our graph of crude inputs to US refineries.

Refinery inputs down WoW

Figure 27: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA, SAF

Oil – Exxon Beaumont refinery lockout to continue as Union rejects contract

The 6-month Beaumont refinery lockout will continue as Union members of the refinery overwhelmingly voted to reject Exxon's contract bid. On Oct 17 [\[LINK\]](#), Exxon Mobil Corp told refinery workers that the lockout would end should the company's most recent offer be accepted or the United Steel Workers be removed as their Union representative. Exxon

Beaumont lockout continues

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statement on the contract offered, "as we have told the Union, the conditions which would end the lockout remain the same: the company will end the lockout when we have a signed, ratified agreement," Exxon said in a message posted on-line. "This has not changed, and anything said to the contrary is untrue. Additionally, if employees were to decertify, the company would return employees to work." On Tuesday, Bloomberg reported Union members overwhelmingly voted down the company's contract offer by a vote of 243-13. Exxon is the second largest oil company by market value with plans to expand the 369,000 b/d Beaumont site by 250,000 b/d. The plans will add a third crude unit that could begin processing crude from the Permian basin by 2023. We still don't know what the actual throughput is at Beaumont since the lockout, but we would assume it would be at less than 100%, perhaps in the 75% range.

Oil – US "net" oil imports down -0.715 mmb/d WoW at 2.765 mmb/d

US "net" imports were down -0.715 mmb/d to 2.765 mmb/d for the Oct 15 week. US imports were down -0.169 mmb/d to 5.825 mmb/d. US exports were up +0.546 mmb/d to 3.060 mmb/d. The WoW decrease in US oil imports was driven by US's top 10 imports by country were down -0.428 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was down this week by -0.187 mmb/d to 3.254 mmb/d, which is now -0.439 mmb/d below the average levels in Jan/Feb of 2020. (ii) Saudi Arabia was up 15,000 b/d to 0.319 mmb/d this week. (iii) Colombia was down 0.171 mmb/d to 0.211 mmb/d. (iv) Ecuador decreased imports this week, down -0.208 mmb/d to 0. (v) Iraq was up +51,000 b/d to 239,000 b/d. (vi) Venezuela remained at 0 due to US sanctions. (vii) Mexico was up by +146,000 b/d to 0.462 mmb/d.

US "net" oil
down WoW

Figure 28: US Weekly Preliminary Oil Imports by Major Countries

US Weekly Preliminary Crude Imports By Top 10 Countries (thousand b/d)												
	Aug 06/21	Aug 13/21	Aug 20/21	Aug 27/21	Sept 03/21	Sept 10/21	Sept 17/21	Sept 24/21	Oct 1/21	Oct 8/21	Oct 15/21	WoW
Canada	3,371	3,057	3,555	3,612	3,580	3,200	3,143	3,034	4,039	3,441	3,254	-187
Saudi Arabia	302	363	286	345	296	369	399	561	622	304	319	15
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	601	629	595	674	372	538	835	764	652	316	462	146
Colombia	293	143	370	71	145	0	212	255	0	382	211	-171
Iraq	120	150	77	174	106	50	42	0	31	188	239	51
Ecuador	150	197	261	195	0	174	102	235	59	208	0	-208
Nigeria	150	214	95	43	116	82	95	64	133	211	137	-74
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	4,987	4,753	5,239	5,114	4,615	4,413	4,828	4,913	5,536	5,050	4,622	-428
Others	1,409	1,597	918	1,226	1,195	1,348	1,637	1,639	1,499	944	1,203	259
Total US	6,396	6,350	6,157	6,340	5,810	5,761	6,465	6,552	7,035	5,994	5,825	-169

Source: EIA, SAF

Oil – Norway September oil production of 1.772 mmb/d, up +2.3% MoM

The Norwegian Petroleum Directorate released its September production figures [\[LINK\]](#) of 1.772 mmb/d of oil, which is +18.8% YoY and -2.3% MoM from August of 1.813 mmb/d. September production down slightly (+0.019 mmb/d) with the forecast amount of 1.753 mmb/d. The NPD does not provide any explanations for the MoM changes, but we expect it was because of the timing of turnarounds. The story for Norway has been that its oil production returned to growth in the last 3 years because of the Johan Sverdrup oil field. Our Supplemental Documents package includes the NPD September release.

Norway oil
production

Figure 29: Norway September 2021 production

		Oil	Sum liquid	Gas	Total
		mill bbl/d	mill bbl/d	Msm ³ /d	Msm ³ o.e./d
Production	September 2021	1,772	2,022	296,8	0,620
Forecast for	September 2021	1,753	2,040	287,9	0,612
Deviation from forecast		0,019	-0,018	8,9	0,008
Deviation from forecast in %		1,1 %	-0,9 %	3,1 %	1,3 %
Production	August 2021	1,813	2,092	304,4	0,637
Deviation from	August 2021	-0,041	-0,070	-7,6	-0,017
Deviation in % from	August 2021	-2,3 %	-3,3 %	-2,5 %	-2,7 %
Production	September 2020	1,492	1,777	277,1	0,560
Deviation from	September 2020	0,280	0,245	19,7	0,060
Deviation in % from	September 2020	18,8 %	13,8 %	7,1 %	10,7 %

Source: Norwegian Petroleum Directorate

Oil – Japan asks OPEC to produce more oil

This week, we saw Japan join the US push to get OPEC+ to produce more oil. Last Sunday night, we tweeted [\[LINK\]](#) “US wants #OPEC+ to increase #Oil exports. EU wants RUS to increase #NatGas exports. Now @business Emi Nobuhiro reports Flag of Japan PM Kishida says important to encourage oil producing countries to ramp up output. US EU JP want/need #FossilFuels, how will they spun this at #COP26? #OOTT”. Bloomberg reported on Japan’s new PM Kishida’s press conference. Nikkei Asia’s reporting of the press conference [\[LINK\]](#) added “Tokyo will work with the IEA to ask Saudi Arabia, the United Arab Emirates and other major oil producers to boost output” and “Koichi Hagiuda, the trade and industry minister, said after Monday’s meeting that he intends to talk with oil producing nations ahead of the OPEC Plus meeting set for early November. “I look to prepare to make my petitions to OPEC nations through direct talks online,” he told reporters. Daishiro Yamagiwa, Japan’s economic revitalization minister, also attended Monday’s meeting. Foreign Minister Toshimitsu Motegi spoke by phone Monday with Kuwaiti counterpart Ahmad Nasser Al-Mohammed Al-Sabah, asking for the Persian Gulf country’s cooperation toward stabilizing the market including via greater crude production.”.

Japan asks
OPEC for more
oil

Oil – Biden keeps asking OPEC for more oil to lower US gasoline prices

The Biden administration officials have been consistent in believing the key action to reduce US gasoline prices is to get OPEC+ to increase production. And like his officials, he made no mention of trying to support US oil companies to increase US oil supply to help, rather only noted OPEC+. Biden himself echoed this commentary in his CNN Town Hall on Thursday night. We watched the Town Hall even though it interrupted NFL Thursday Night Football. Biden was asked about gas prices and blamed OPEC. Keep in mid that this was Thursday night and Saudi Energy Minister Abdulaziz spoke on Wednesday that echoed his comments last week on not supplying more oil right now. So Biden knew what Abdulaziz said but still replied “Gas prices relate to a foreign policy initiative that is about something that goes beyond the cost of gas. And we’re about \$3.30 a gallon most places now, when it’s up from — when it was down in the single digits. I mean — single di- — a dollar-plus. And — and that’s because of the supply being withheld by OPEC. And so, there’s a lot of negotiation that is — there — there’s a lot of Middle Eastern folks who want to talk to me. I’m not sure I’m going to talk to them. But the point is, it’s about gas production. There is things we can do, in the meantime, though.” The quotes are from the White House transcript. [\[LINK\]](#)

US keeps asking
OPEC

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Oil – Saudi’s Abdulaziz non-response to Biden is a good one

Earlier this morning, we tweeted on Bloomberg’s interview with Saudi Energy Minister Abdulaziz [\[LINK\]](#). Bloomberg asked Abdulaziz for his response on Bidens Town Hall comment basically blaming Saudi Arabia for the high energy prices. It was another great Abdulaziz comment. We tweeted [\[LINK\]](#) “1/2. *Once again, Saudi’s Abdulaziz is The Man. See SAF transcript. @youseftv asks how he responds to @POTUS blaming KSA for high energy prices. ABS “i don’t, i wouldn’t reflect on that, its above my paygrade. But i am a technician” then gives common sense technical reasons. #OOTT*”. Abdulaziz then goes thru a good explanation of the technical reasons. Our other tweet was [\[LINK\]](#) “2/2. *Gasoline prices are high. mixed with ethanol that is up 10x, still 2 mmb/d refining capacity off line, no gasoline stocks, and how about limiting exports of gasoline. “but i am not here reflecting on anybody’s option”. Abdulaziz is The Man. Great interview @youseftv #OOTT*”. There was a lot in the Abdulaziz answer but he concluded his answer saying the gasoline price issue is indigenous ie. look inward and says “*With regards to gasoline, as I said I think the remedy is indigenous, it has to do with doing something about ethanol and It has to do with about limiting exports*”. Our Supplemental Documents package includes our SAF group created transcript of his answer.

**Abdulaziz
response to
Biden**

Oil – Saudi again says no to the calls for more oil

On Wednesday, Argus Media reported [\[LINK\]](#) on Abdulaziz comments at the India Energy Forum by CERAWEEK. Argus wrote “*Saudi energy minister Prince Abdulaziz bin Salman today again pushed back against calls for Opec and its non-Opec partners to raise their collective crude output more aggressively to help temper rising prices, and said the current energy crunch is not down to a shortage of crude. “[Saudi Arabia] has been the guardian of energy security when it comes to oil. And in doing so, we have asked ourselves deliberately here what we can do as an additional contribution to mitigate the situation,” Prince Abdulaziz told the India Energy Forum by CERAWEEK. “Unfortunately, for the first time, we see our role extremely limited... because the issue is not availability of crude,” he said. “Even if we made the crude available in tons and tons, who is going to burn it? Where are the refineries that will convert it? And who is in need? Are they in need of crude? Or gas?”* Our Supplemental Documents package includes the Argus report.

**Saudi says no to
more oil**

Abdulaziz had a more colorful response last week to calls for more oil

Last week, Abdulaziz had a much more colorful response to all the calls for OPEC+ to produce more oil. We are fans of Saudi Energy Minister Abdulaziz for the amazing job he has done in leading oil markets to where we are today and also for his colorful commentary. Its why we call him the most interesting man in the world. All the world has heard about from the US over the past month is how they keep calling their OPEC country friends and ask them to increase oil exports. On October 14, we tweeted [\[LINK\]](#) “*Saudi’s answer to @POTUS asking #OPEC+ to export more #Oil. Another great KSA Energy Minister Abdulaziz quote “it is important to always look a little further than the tip of your nose. And if you look at 2022, you will see a lot of excess stocks”. #OOTT*”. His full quote was “*“And we think that by the end of this year we will see a very balanced situation. But it is important to always look a little further than the tip of your nose. And if you look at 2022, you will see a lot of excess stocks,” he said, noting that “such arithmetic consists of data from eight independent sources.”*”

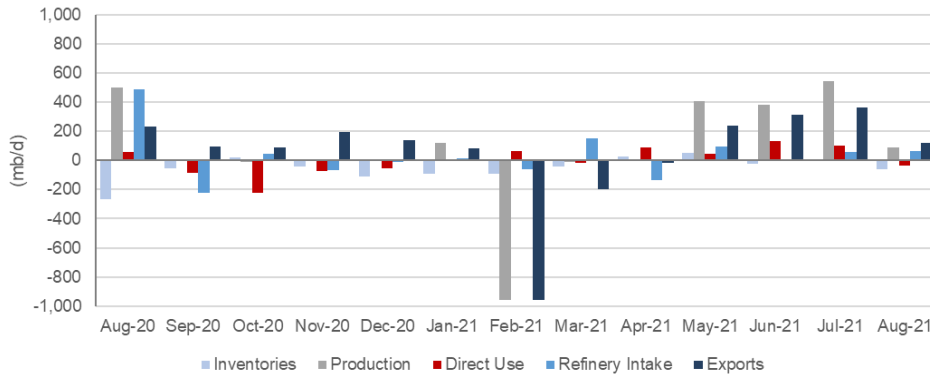
Oil – Saudi use of oil for electricity starting seasonal decline, more for export

The JODI data for August was updated on Monday [\[LINK\]](#). Saudi continued to increase oil production. (i) The key reminder from the JODI data is that Saudi’s use of oil for electricity

**Saudi to have
more oil for
export**

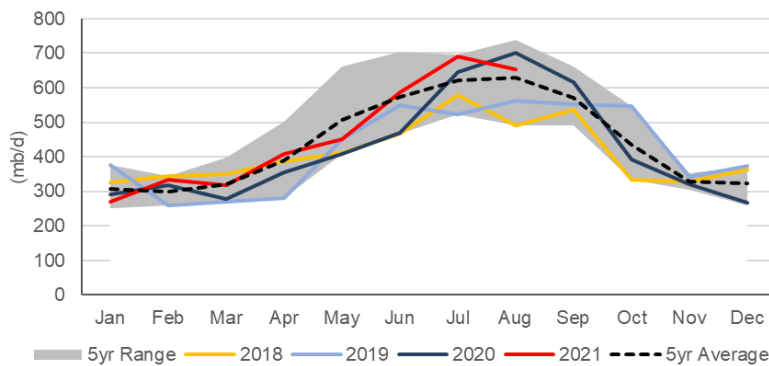
has now started its seasonal decline and that will free up more oil for export. (ii) There was +125,000 b/d of unaccounted demand and 0 b/d of unaccounted supply. There was a significant draw to inventories, down 1.941 b/d this month. For August, Production was +88,000 b/d MoM to 9.474 mmb/d, with the continued gradual return from its voluntary 1 mmb/d production cuts. Exports also rose at a faster rate than production, being +123,000 b/d MoM to 6.450 mmb/d. Direct use for electricity was -37,000 b/d to 654,000 b/d. (iii) Inventories decreased slightly down -1,941 b/d from 135,105 b/d to 133,164 b/d. Inventories remain at historically low levels, sitting below 150 mmb for the first time since Apr 2004, which was 149.8 mmb. (iv) Saudi Arabia is now moving into the normal seasonal decline in oil used for electricity. Saudi used slightly less oil for electricity in Aug vs Jul, despite temperatures being above average for the month. Jul was 691,000 b/d (vs Jul 2020 of 645,000 b/d) and Aug was 654,000 b/d (vs Aug 2020 of 702,000 b/d). Aug was above the latest 5 yr average of 630,000 b/d. Below are the AccuWeather Temp maps for Riyadh for Aug, Sept, and Oct MTD. Careful they are different scales but look for oil for electricity to remain relatively flat as we continue in peak season. Below are our updated graphs for the Saudi JODI data for July.

Figure 30: MoM Saudi Inventories, Production, Direct Use, Refinery Intake & Exports



Source: JODI, Bloomberg

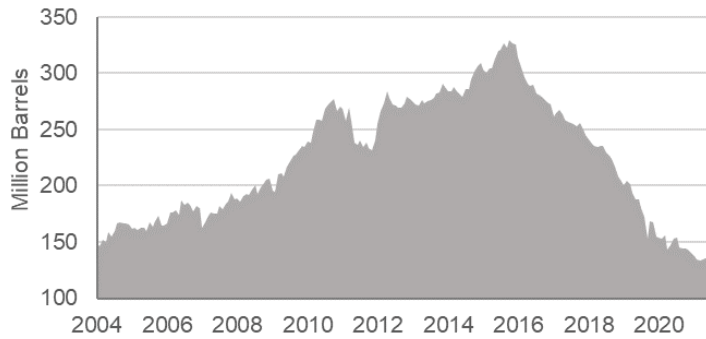
Figure 31: Saudi Arabia Direct Use of Crude Oil For Electric Generation



Source: JODI

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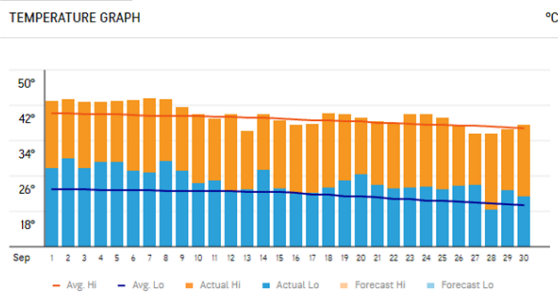
Figure 32: Saudi Arabia Crude Oil Inventories (million barrels)



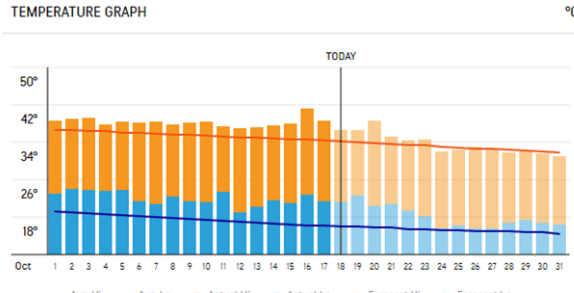
Source: JODI

Figure 33: Riyadh Temperature Recaps for Aug and Sept

September 2021

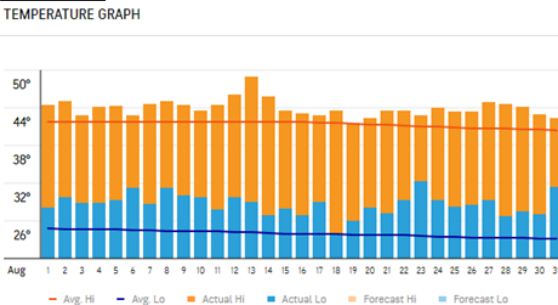


October 2021

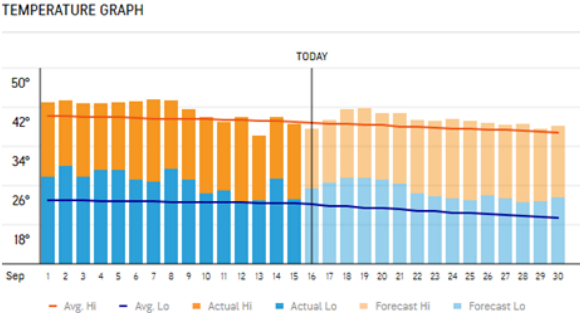


Source: AccuWeather

August 2021



September 2021



Source: AccuWeather

Oil – US, JCPOA negotiations to resume precisely where they left off after the 6th round

As of our 7am MT news cut off, we have not seen any specific Iran response to the what might be a change in US position on resuming the JCPOA negotiations or, at least, its publicly stated position on the resumption of the JCPOA negotiations. We can't believe this new US state department position on the JCPOA negotiations will be well received by Iran. And, absent some secret negotiations, this suggests there is still a way to go before they even get back to the table. At the US State Department briefing on Friday, State Department spokesman Ned Price responded to a question on the JCPOA saying "*In the Gulf, Special*

US on JCPOA negotiations

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Envoy Malley met and discussed with our partners a range of concerns with Iran, including its activities in the region and our attempt to negotiate a mutual return to compliance with the Joint Comprehensive Plan of Action. Following those consultations, the special envoy traveled to Paris. He met with his E3 counterparts there. He also met with his GCC counterparts. I don't want to get into the details of diplomatic discussions, but suffice to say that the United States, the E3, the broader P5+1, is united in the belief that diplomacy continues to provide the most effective pathway to verifiably and permanently prevent Iran from obtaining a nuclear weapon, and we are united in the belief that negotiations should resume in Vienna as soon as possible and that they should resume precisely where they left off after the sixth round." Price saying the negotiations should resume as soon as possible is standard US position, but we don't recall them stating the negotiations should "resume precisely where they left off after the sixth round". The Price quotes are from the US State Dept transcript [LINK](#)

Oil – Kuwait oil capacity down 0.5 mmb/d since 2018

We recognize that we are seeing mixed signals sourced to Iran as to when they will re-enter JCPOA negotiations. Some are tweets by Iranian MPs but, at least as of this morning, we will tend to go with the IRNA report “*Iran assessing how to enter nuclear talks*” posted at 2:29am MT [LINK](#). IRNA is the official news agency for Iran. The IRNA reports seem to suggest it will still be awhile before Iran is ready for the next round of Vienna talks. IRNA reported on comments

IRNA on JCPOA negotiations

Oil – China’s oil imports dropped to 10.03 mmb/d in September

China’s is the near term look ahead oil story with the increasing Delta impact over the next few months. Oil imports decreased with importers being weighed down by stricter oversight on imports, refining operations and market practices of refiners. On a look back basis, Bloomberg reported that China’s customs data showed September imports were 10.03 mmb/d, down 4.7% MoM from 10.53 mmb/d in August, representing a YoY decrease of ~15%. China’s demand for crude oil is recovering after nearly five months of slower purchases. Chinese economic activity was moderated in September, further depressing crude imports. Since China increased earlier the scrutiny over the import and business practices of its independent refiners, commonly known as teapots, imports from those refiners have been lower. Our Supplemental Documents include the Bloomberg report.

China preliminary oil imports

Oil – India oil imports up MoM to 4.25 mmb/d in September

On Thursday, India’s Petroleum Planning and Analysis Cell released crude oil import data for September [LINK](#). Total crude oil imports increased 14.47% YoY in Sept to 4.25 mmb/d and increased from 4.11 mmb/d August, as refiners shut units for maintenance and cut crude imports anticipating lower fuel demand during the monsoon season. Crude imports for the 2020-2021 financial year were down 12.7% YoY. Petroleum products demand for September was +5.3% YoY to 3.88 mmb/d and increased slightly MoM from 3.78 mmb/d in August. Refinery throughput in September was +9.57% YoY to 4.58 mmb/d and a decrease from 4.18 mmb/d in August.

India oil imports up in Sept

Oil – Vortexa est 86.24 mmb at Oct 22, -23.88 mmb vs revised up Oct 15 estimate

Note that we are referencing the Vortexa global crude oil floating storage data posted on the Bloomberg terminal as of 5:15pm MT yesterday and that these estimates often get revised over the weekend, and then again for the next week. There were upward revisions this week vs the estimates posted as of Oct 15. Vortexa crude oil floating storage as of Oct 22 or 86.24 mmb, which is down 23.88 mmb vs revised up Oct 15 of 110.12 mmb. There were massive revisions to prior data. Vortexa revised Oct 15 of 110.12 mmb, is revised up 12.71

Vortexa floating storage

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mmb from last Saturday night's estimate of 97.41 mmb for Oct 15. Note the revisions to Oct 8 and Oct 1 were small, both revisions were less than 1 mmb. Oct 22 of 86.24 mmb is above the recent June 25 trough of 78.92 mmb. There were immaterial revisions to the June 25 trough. Oct 22 of 86.24 mmb is down 134.3 mmb from the June 26, 2020 peak of 220.54 mmb. There were immaterial revisions to the June 26, 2020 peak. Oct 22 of 86.24 mmb is up vs pre-Covid of 59.14 mmb as of Oct 21, 2019. Below is the Bloomberg graph of the Vortexa data back to Oct 21, 2019 as posted on the Bloomberg terminal at 5:15pm MT yesterday.

Figure 34: Vortexa Floating Storage Oct 22, Posted on Bloomberg 5:15pm MT Sat



Source: Bloomberg, Vortexa

Oil – Bloomberg Oil Demand Monitor, US air travel nears 2019 levels

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. This week's edition highlighted Indian diesel sales nearing 2019 levels with sales thus far in October 15% higher than the previous month, with help from the onset of annual festivities. San Paulo, Brazil had the highest levels of congestion on Monday, with other measured cities all posting decreases MoM. Toll volumes in Brazil were +0.6% above 2019 levels with Italy, Spain, Chile and Mexico also seeing increased roadway volumes from the equivalent week in 2019, Chile had the largest increase of +16% above 2019 levels. UK fuels sales have decreased slightly since the late September panic buying to below 2019 levels according to sales data from 4,500 retail filling stations. China continues to outperform the rest of the world in air travel with seat capacity just 3.5% below 2019 levels. The US and Mexico continue to observe recovery in the air travel sector with seat capacities 13% and 7.5% below 2019 levels, respectively. Singapore has the lowest seat capacity, still down 81% from 2019, though recently they announced they would begin to open up flights to other countries without requiring passengers to quarantine. US jet fuels demand was down 3.1% MoM, still down 17% from 2019. Refinery utilization is up 4.6% MoM with a significant increase in GoM refineries, though Midwest and eastern refineries saw a slight MoM decrease in utilization with Maintenance season underway. Below is a chart depicting the average sales of gasoline in the UK. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Bloomberg's Oil Demand Monitor

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Figure 35: UK Avg Gasoline Sales per Filling Station



Source: Bloomberg

Oil – Retail jet fuel prices continue to move higher

It's always amazing how increasing spot prices for oil seem to more quickly work their way into retail prices than decreasing spot prices for oil. We all can see this in gasoline prices when we go to fill up the tank. For retail jet fuel it's tougher, but we asked one of our Calgary small jet pilot friends for some real life jet fuel prices. The example he gave was for a round trip to Los Cabos in mid July vs mid October. At the Calgary YYC airport, jet fuel in July was US\$1.26/litre and was +7.1% to US\$1.35/litre in October. At the San Jose del Cabo airport, jet fuel in July was US\$0.98/litre in July and was +18.4% to US\$1.16/litre in October.

Retail jet fuel prices up

Oil – September truck tonnage +2.4% MoM, up 1.7% YoY

While supply chain issues and labour shortages continue in the US, demand for freight services still remains. Truck tonnage was up during September but not from an increase in trucks on the road. The American Trucking Association released its seasonally adjusted Truck Tonnage Index for September on Tuesday [\[LINK\]](#). September observed a 2.4% increase MoM from August, after increasing 0.3% last month. It was the largest gain in all of 2021 but Chief Economist Bob Costello noted *“It is good that tonnage rose in September, but it is important to note that this is happening because each truck is hauling more, not from an increase in the amount of equipment operated as contract carriers in the for-hire truckload market continue to shrink from the lack of new trucks and drivers.”* The index is up 1.7% YoY from September 2020, with the first YoY gain since May. Trucking serves as a barometer of the U.S. economy, representing 72.5% of tonnage carried by all modes of domestic freight transportation, including manufactured and retail goods. Trucks hauled 11.84 billion tons of freight in 2019. Motor carriers collected \$791.7 billion, or 80.4% of total revenue earned by all transport modes. Costello noted that demand from retail, construction, manufacturing and a surge in imports are responsible for the monthly increase. Our Supplemental Documents package includes the ATA release.

Truck tonnage index +1.7% in September

Oil and Natural Gas – sector/play/market insights from Q3 calls

This is our favorite time each time of each quarter as it is quarterly reporting and this is when we get the best insights into a range of oil and gas themes/trends, sectors and plays. And as usual, the big oil and gas service companies are the first to report. As a reminder, our Energy Tidbits memo does not get into the quarterly results, forecasts or valuation. Rather the purpose of highlighting a company is to note themes/trends and plays that will help shape a reader's investment thesis to the energy sector. In the conference calls, we also tend to find the best insights from the Q&A portion as opposed to the prepared remarks. Plus we tend to get the best E&P sector insights from services, pipelines, refineries and utilities

Sector insights from Q3 calls

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Baker Hughes – Favorable outlook for the oil market, strong natural gas/LNG

Baker Hughes held its Q3 call on Wednesday. (i) Earlier in the memo, we highlighted the CEO Simonelli's reminder of the huge LNG capacity growth to 2030. (ii) Positive on oil, bullish on natural gas/LNG. In the Q3 release *"Despite these headwinds, global growth appears to be on relatively solid footing, underpinning a favorable outlook for the oil market, aided by continued spending discipline by the world's largest producers. Natural gas and LNG fundamentals remain strong, with a combination of solid demand growth and extremely tight supply in many regions. In addition, we believe the positive case for structural demand growth in natural gas as part of the broader energy transition is becoming increasingly evident."* (iii) More on the bullish view of natural gas. Mgmt went thru why they see natural gas being needed to complement renewable energy sources and offset intermittencies. It's a lengthy answer worth a read. (iv) Broad-based multi-year recovery in OFS. (iv) See multiple LNG projects moving ahead. *"In LNG, while we did not book any awards during the fourth quarter, we still expect to book 1 or 2 additional awards by the end of 2021. Based on the pace of discussions with multiple customers and the positive fundamentals in the global gas markets, we still see the opportunity for an additional 100 to a 150 MTPA of awards over the next 2-3 years with a bias towards the upper end of that range."* (v) There weren't that many questions on sector/commodity outlook items. Our Supplemental Documents package includes excerpts from the Baker Hughes Q3 call transcript.

Halliburton – Oil supply to be tight for "really quite some time"

Halliburton held its Q3 call on Tuesday. (i) Earlier in the memo, we highlighted Halliburton's comment on global oil prices being an incentive for US shale oil. (ii) The CEO quote from the Q3 release was the good one. *"I see a multi-year upcycle unfolding. Structural global commodity tightness drives increased demand for our services, both internationally and in North America."* (iii) Global oil supply to be tight for quite some time. One of the themes they mentioned a few times was that there has been a period of underspend by oil & gas companies and by service companies. but the CEO also highlighted decline rates. This is the key theme that is still mostly overlooked and one that we have highlighted for a few years. It was the basis for our pre-Covid view that oil was going to be stronger for longer. In the Q&A, they linked that to a view for oil supply to be tight for really quite some time. the CEO replied *"Look, I think what we're going to find internationally is there has been a lot of underspend for quite a long time and a lot of countries are declining today. Declining is hard to overcome, they'll work hard to do that, but that doesn't necessarily move the needle in terms of production and might get it back to flat and steady, even with extra work. It takes extra work to just stem the decline. All of that's positive for us. I mean, clearly, we see more activity as we go into 2022 in the Middle East and Latin America. But again, I think that those that can spend and are in a position to do so will, but there is the sort of the capital austerity by a number of clients is still well in place. And so I think that — and I say that in the sense that I think that production is going to all be near wellbore, which is very good for us and I think that a lot of work will get done. But I still see supply as tight for really quite some time. I mean it doesn't turn back on. Maybe a point worth remembering, in 2014, the number of big multi-billion dollar projects with 30-year payouts that were being completed or in the process of finishing, we don't see those today. And the reality is that means there's less spend on infrastructure and a lot more spend on what we do, and I think that's all very, very positive."* (iv) Latin America is a highlighted international area. There were a few mentions of this. In the Q&A, the CEO said they are *"super excited about*

Latin America and the paces of growth and outlook there". (v) See 20% increase in US but in the Q&A they were asked about how much is inflation vs activity. CEO replied "*biased more to price than activity, probably*". (vi) Bullish outlook to international. A number of positive comments throughout the Q3 call. (vii) Service sector underspend. Noted this on a few occasions how the underspend is causing strong demand for equipment. And equipment availability isn't deep. Our Supplemental Documents package includes excerpts from the Halliburton Q3 call transcript

Precision –Most promising backdrop in almost a decade

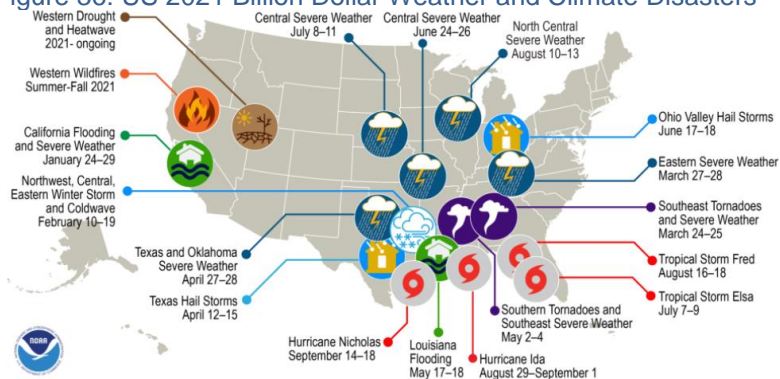
Precision Drilling reported Q3/21 on Thursday morning. Precision is different than the big US service companies as it is better plugged into the Cdn oil and gas producers. We tweeted [\[LINK\]](#) on CEO Kevin Neveu's comments in the Q3 release ""*We believe current industry fundamentals are providing the most promising backdrop for our business that we have experienced in almost a decade. Strong oil and natural gas prices, a significantly improved Canadian market structure and rapidly declining drilled but uncompleted well inventories all point to higher drilling activity in our core markets. Although we are likely in the early innings, our firm bookings and current customer inquiries indicate substantially stronger demand for our services and improved fleet utilization as this rebound continues.*" And he had a key reminder that the Cdn natural gas business will soon see the impact of LNG Canada. Neveu said "*Additionally, we expect the prospects of LNG exports materializing on the medium term will bolster the outlook for Canadian drilling activity.*" That was a bullish outlook for the strength of the Cdn oil and gas sector for the coming years.

Oil & Natural Gas – US billion-dollar disasters hit oil & gas regions

The frequency of storms causing damages exceeding \$1bn has increased significantly in recent years. The bill for US natural disasters has increased exponentially since 1980 with estimated costs of damages in 2021 to be over \$18 bn per event as of October 8 [\[LINK\]](#). 2021 has observed 18 weather/climate disaster events that had losses exceeding \$1bn each to affect the US. There were 2 flooding events, 9 severe storm events, 4 tropical cyclone events, 1 wildfire, 1 drought, and 1 winter storm event. To put this into perspective, the US has experienced 308 events since 1980 that cost \$1 bn in damages. The 1980 – 2020 average is 7.1 events, and the 5-year average for 2016-2020 is 16.2 events. A significant amount of these events has taken place in the Permian region, significantly affecting oil and natural gas development in recent years. Pictured below are the dispersions of 2021 billion-dollar weather events in the US. Our Supplemental Documents package includes the NOAA report.

US billion dollar disasters

Figure 36: US 2021 Billion Dollar Weather and Climate Disasters



This map denotes the approximate location for each of the 18 separate billion-dollar weather and climate disasters that impacted the United States January–September 2021.

Source: NOAA

Oil & Natural Gas – New Calgary mayor wants to move past oil and gas

The Calgary municipal elections were Monday and there was a big win for Mayor by Jyoti Gondek who won by a wide margin with 45% of the vote. The voter turnout was only 46% of enumerated electors. Her election looks like it represents a tipping point in Calgary politics, where for the first time, its mayor wants a priority to move past oil and gas. The National Post report “*Jesse Kline: A historic alignment of Calgary and Ottawa against Canada's oil and gas sector*” [\[LINK\]](#) wrote ““As your new mayor, my first order of business will be to shoot us all in the collective foot”: this is essentially what Calgary mayor-elect Jyoti Gondek said when she told an interviewer that her first big act would be to declare a “climate emergency,” so the city can “move past” oil and gas. It’s a foolhardy mission that will see political leaders in Ottawa and Calgary aligned in their opposition to Canadian energy. The ink hadn’t even dried on the ballots when Gondek appeared on the “Real Talk” podcast with former Edmonton radio host Ryan Jespersen the morning after Monday’s municipal vote. Asked what her “top priority” would be, Gondek responded by saying that, “We have had the opportunity to declare a climate emergency for years ... so let’s get serious, let’s declare this.” Our Supplemental Documents package includes the National Post report.

New Calgary mayor

Energy Transition – Cdn oil producers grapple with Trudeau faster emissions cuts

We are surprised that its taken almost two months to hear that Cdn oil producers are realizing the significance of the Liberals Aug 29 press release on their climate plan. Maybe they realized it sooner but, if so, why didn’t they raise it during the election campaign. Regardless, on Thursday, the Reuters report “*Canada oil producers grapple with Trudeau's demand for faster emissions cuts*” [\[LINK\]](#) wrote “*Canada's oil producers face new pressure from Prime Minister Justin Trudeau to reduce emissions in just three years, a sudden acceleration of their plans that at least one major company said looks unrealistic. Suncor Energy (SU.TO), the second-largest Canadian crude producer, says it remains focused on cutting emissions by 2030, not 2025 as the Canadian government will require. "Honestly, 2025 is going to be tough," Martha Hall Findlay, Suncor's Chief Sustainability Officer, told Reuters. "That's not a number we've used, it's a number the feds have used." Trudeau's advanced timetable for cuts to the oil sector's total emissions by 2025, announced last month, comes as the oil sector has focused on longer-term targets, and on reducing emissions on a per-barrel basis.*” Our Supplemental Documents package includes the Reuters report.

Liberals faster emissions cuts for oil & gas

Liberals big hit to Cdn oil & gas still to be revealed

We highlighted this Liberals action in our Sept 5, 2021 Energy Tidbits memo. In that memo, we wrote “*Last Sunday, the Trudeau and the Liberals issued a press release*

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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 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 backgrounder, 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 backgrounder.”

Energy Transition – How can COP26 keep 1.5c alive without poor nations & China?

There are lots of challenges for the Net Zero drivers at COP26 and we know they won't accomplish what they first thought and are going to be trying to keep alive the potential to keep temperature rise to 1.5c. The Net Zero drivers find themselves in a box – they know they need strong commitments from poor nations and China to have a chance at 1.5c. China and the US are the top 2 polluters in the world and, as we noted in our Energy Tidbits, are backing away from their emissions priorities to make sure they have energy security. And the Net Zero drivers probably blew any chance for China cooperation at COP26 by the US, and some of its followers, going after China on a range of issues. The poor nations are still at moving down the emissions levels on fossil fuels and need 24/7 reliable, available and affordable energy if they are to keep developing. And for the poor nations, they probably blew it by not delivering on their commitment to provide \$100b a year in financing. The question will be what can the Net Zero drivers salvage on these two critical components to 1.5c and how will they message a success?

Poor nations and China challenges

Energy Transition – Rich nations are already short of \$100b/yr funding to poor nations

One of the most interesting messages coming out of COP26 will be how the rich nations are funding the poor nations in emissions reductions. Note in this case, we use poor nations to describe those normally considered developing countries like in Africa. We don't see how the rich nations of the world will set up with a real commitment that satisfies the poor nations such that the poor nations will step up for a real commitment to reduce emissions and try to almost skip over fossil fuels stage. We have heard many Net Zero drivers say its just like skipping over the use of phone land lines to cellular phones. We just don't believe its that simple and they forget the world runs on reliable, available and especially for poor nations, affordable. Its not just at COP26, but this has been a part of the way to meet the Paris Accord and before. And the rich nations haven't stepped up to meet their prior commitments and that was for a lesser goal than Net Zero. The poor nations know the rich nations haven't delivered on the current \$100b/yr commitment so how can they commit significantly more to fund an increasingly more costly push to reduce emissions. On Monday, we tweeted [\[LINK\]](#) “A big reason #EnergyTransition will take longer, be bumpy & cost more. Poor nations emission cuts crucial to #NetZero, need trillions to deliver cuts, yet rich nations can't even hit current \$100b/yr target to help poor nations. Demise of #Oil #NatGas #Coal won't be quick #OOTT”. The current commitment has been for the rich countries to provide \$100b per year to the poor countries. We won't get into the issue on how real and what form this \$100b really is for the poor countries. But for now, the point is that the rich countries can't get to \$100b/year. On Monday, the WSJ wrote [\[LINK\]](#) “Strike a Climate Deal, Poor Nations Say They Need Trillions From Rich Ones. Industrialized countries were already struggling to pay earlier commitments to help with clean-energy development and other infrastructure needs. Now the cost of buying cooperation has skyrocketed. At a July global climate gathering in London, South African environment minister Barbara Creecy presented the world's wealthiest countries with a bill: more than \$750 billion annually to pay for poorer nations to shift away from fossil fuels and protect themselves from global warming. The number was met with silence from U.S. Climate Envoy John Kerry, according to Zaheer Fakir, an adviser to Ms.

Rich nations funding of poor nations

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Creecy. Other Western officials said they weren't ready to discuss such a huge sum." And the WSJ has the key Catch 22 reminder "Without poorer countries on board, the world stands little chance of preventing catastrophic climate change, say many climate scientists." Earlier, we noted the other big dilemma here – what can they accomplish without China. Our Supplemental Documents package includes the WSJ report.

Why don't the poor nations use Elizabeth Warren's two cents argument

We have been waiting for someone supporting the poorer nations push for more funding from the rich nations to use Elizabeth Warren's two cents agreement for her wealth tax. And for the poor nations to say we are only asking for two cents every year. Our January 31, 2021 Energy Tidbits noted her CNBC interview on this. The clip is at Raw Story [\[LINK\]](#) and they also reported *"That's the two cents Sen. Elizabeth Warren shared on Thursday in response to CNBC host Sara Eisen's fear-mongering about the alleged consequences of requiring the super-rich to pay their fair share in taxes. After Eisen asserted that a wealth tax "might... chase wealthy people out of this country as we've seen has happened with...other wealth taxes," the Democratic senator from Massachusetts asked: "Can we just keep in mind, right now, in America, who's paying taxes?" "If they added a two-cent wealth tax," Warren noted, "they'd still be paying less than most of the people in this entire nation... Someone has to pay to keep this nation going. And right now, what the 0.001%, the wealthiest people in this country, have said is: 'Let's let everyone else pay for it.'" And then she added "'You're telling me that they would forfeit their American citizenship if they had to... step up and pay a little more?" the senator asked. "I'm just calling your bluff on that. That's not going to happen."* Why don't the poorer nations make the same argument to the rich nations like the US. Here are some different US numbers: 2020 GDP ~\$21 trillion. US household net financial position ~\$140 trillion. Could you imagine 1 cent on \$21 trillion is \$210 billion.

Energy Transition – “Working class” nations feeling the Net Zero squeeze ie. Poland

Economists, governments and investors talk about the poor vs rich nations, but don't talk about what we call the “working class” or “middle class” nations. As noted above, the poor nations are asking the rich nations for more to help in the energy transition. The working class nations such as Poland are doing fine, but don't have huge wealth and must care about how much things cost. The problem for these working class nations in the EU is that they tend to get dragged along by the wealthy countries. But no surprise, we are now starting to see these working class nations say they can't afford the Energy Transition right now. This week, we saw Poland petitioning the EU to amend its climate policy in lieu of the recent spike in gas and electricity prices. On Monday, Reuters reported [\[LINK\]](#) *"Poland seeks EU climate policy rethink amid high energy prices"*. Poland was asking for the EU to cancel or delay parts of its climate change plan ahead of the EU summit. Poland is cited in a paper, that circulated to other countries, that they would reject the climate aims if they are determined to put an “excessive burden” on consumers. An excerpt from the paper wrote *"we should analyse in detail all elements of the Fit for 55 package that can have a negative impact on the energy price and consider their revision or postponement."* Fit 55 refers to the EU policy that aims to cut emissions by 55% from 1990 levels by 2030. The paper singled out plans to launch a carbon market for transport and buildings, which has been a point of tension amongst other countries over concerns of higher cost to consumers. The European commission stated that there would be a multi billion-euro EU fund set up to shield consumers from any price increase. Poland is likely to be met with opposition as other countries believe the recent gas price spike should encourage a shift away from fossil fuels. Our Supplemental Document package includes the Reuters article.

EU asked to delay climate policy

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Energy Transition – Saudi to target Net Zero by 2060

Yesterday, the Saudi Press Agency reported [\[LINK\]](#) on Saudi Crown Prince MBS launching the inaugural edition of the annual forum of the Saudi Green Initiative in Riyadh. The SPA reported *“In a key opening speech at the Saudi Green Initiative Forum, His Royal Highness the Crown Prince announced the launch of the first package of qualitative initiatives in the Kingdom, to set a roadmap for protecting the environment and confronting climate change, designed to contribute to achieving the ambitious goals of the Saudi Green Initiative.”* The SPA also noted Saudi’s Net Zero by 2060 target. The SPA wrote *“His Royal Highness the Crown Prince further announced that the Kingdom of Saudi Arabia aims to reach Net Zero in the year 2060 through the Carbon Circular Economy approach, in line with its development plans and enabling its economic diversification, in accordance with the Dynamic Baseline, while preserving and reinforcing the Kingdom’s leading role in the security and stability of global energy markets, amid the availability and maturity of the required technologies to manage and reduce emissions.”* We have to believe the Net Zero drivers will be happy to have MBS use Net Zero in their target even if it is for 2060. Our Supplemental Documents package includes the SPA report.

Saudi targets Net Zero by 2060

Energy Transition – Abdulaziz says what other global leaders are afraid to say

It was a busy Saturday for energy news with many global leaders speaking at the Saudi Green Initiative Forum, including the early comments by Saudi Energy Minister Abdulaziz. The Saudi Ministry of Energy tweet [\[LINK\]](#) included a clip of Abdulaziz comments with the caption *“‘2060 [net-zero target] will enable us to have a smooth and viable transition, without risking economic or social impacts,’ HRH Minister of Energy says at #SGIForum.”* There was much more in the 1:20 min clip and we made a transcript of his comments and tweeted [\[LINK\]](#) *“Here’s why Saudi’s Abdulaziz is The Man, says what other global leaders are afraid to say. Technologies aren’t yet mature enough for #NetZero #EnergyTransition. ‘if you impact negatively your economic well being, you are actually impacting the well being of your people’. #OOTT”*. He just says it like it is and what all the other global leaders know but are afraid to say. We should have said other countries like China. Abdulaziz reminds of the fact that everyone agrees – the technology is not here or not mature today to deliver the assumed cuts to emissions in Net Zero plans. Energy Transition drivers are making commitments hoping/assuming these technologies get developed fast enough and become available, economic and reliable. Here the transcript we made of Abdulaziz comments *“... we know and, in accordance to the latest IPCC report, which says that most of these technologies may not mature before 2040. So if we are relying on this scientific [?] whom we all honor and accept what they submit and if they say that these technologies will only mature by 2040, we need to have that time and that space to allow us to do things properly. And again, we have to do it properly. Yet make sure that we don’t lose sight of our economic well being because if you impact negatively your economic well being, you are actually impacting the well being of your people within that sector and within that economy. Which also the 2060 will enable us to have a smooth and vibrant transition, without risking economic or social impacts”*.

Abdulaziz’s straight talk on Net Zero

Energy Transition leaders like Kerry & Fink have said the same on technology

We recognize that many will say that the only reason Abdulaziz is saying this is because he is speaking to his book. But others who been the pushers on the Energy Transition and Net Zero have said the same thing that the world doesn’t have the technology today to deliver the assumed emissions reductions. Our May 16, 2021 Energy Tidbits wrote *“Earlier this morning the Guardian reported [\[LINK\]](#) on Kerry’s comments in the UK. After seeing the Guardian report, we tweeted [\[LINK\]](#) ‘#JohnKerry ‘I am told by scientists that 50% of the reductions we have to make to*

get to net zero are going to come from technologies that we don't yet have. That's just a reality". This means other reality is will need #NatGas #Oil for longer. #OTTT" His comments on the reality check and that governments are setting real targets without knowing how it will accomplish is a reality check that the demise of natural gas and oil won't be as fast as the Energy Transition aspirations about technology." Our June 6, 2021 Energy Tidbits wrote "On Wed, BlackRock CEO Larry Fink spoke at a US sellside conference and he made several comments that are in line with our thesis. Don't forget Fink has been one of the global financial leaders supporting and pushing the energy transition view. Fink isn't talking about anything new, but hopefully the policymakers will listen. Fink says several comments on this thesis, but concluded "The last thing I just want to say and to link in ESG&E with the question on inflation, let's be clear. If we rush this and if our solution is entirely just to get a green world, we're going to have much higher inflation, because we do not have the technology to do all this yet to have it equivalent to the cheapness of hydrocarbons. And so that's going to be a big policy issue going forward too. Are we going to be willing to accept more inflation if the inflation is to accelerate our green footprint? And that's going to be a big policy question".

China agrees "supply shortage is the biggest energy insecurity"

One country that does agree with Abdulaziz is China. Last week's (October 17, 2021) Energy Tidbits memo noted the big energy market news on China's focus on energy supply security. On October 12, we tweeted [\[LINK\]](#) "Must read. Bullish for #Coal #NatGas #Oil. Not just for this winter, China changing 5-yr plan to improve energy security. Increase coal generation, strengthen construction NatGas & Oil storage capacity. Develop new timetable/roadmap to reach carbon peak #OTT #EnergyTransition." China made a change in energy policy statement and we had to tweet as soon as we saw it that morning. The China govt statement was titled "Li Keqiang presided over a meeting of the National Energy Commission, emphasizing on ensuring stable energy supply and safety, enhancing the ability to support green development and Han Zheng attended the meeting". [\[LINK\]](#) This is a relatively short, but a must read. The guiding principle to energy and climate change is "Li Keqiang pointed out that energy security is related to development security and national security. my country is still a developing country, and development is the foundation and key to solving all problems." Its all about ensuring energy security. And China said "Supply shortage is the biggest energy insecurity." And "Aiming at the endowment of coal-based energy resources, the layout of coal production capacity should be optimized, advanced coal-fired power should be constructed rationally according to development needs, and backward coal-fired power should be eliminated in an orderly manner. Increase domestic oil and gas exploration and development, actively develop shale gas and coalbed methane, and carry out diversified international oil and gas cooperation. Strengthen the construction of gas and oil storage capacity, promote the large-scale application of advanced energy storage technology, and continuously enrich the insurance tools for safe energy supply." And on the energy transition, China is going to look at a revised timetable for when it reaches peak carbon. China wrote "To advance the realization of the "dual carbon" goal in a scientific and orderly manner, long-term arduous efforts must be made. It is necessary to take into account the recent situation of dealing with the contradiction between power and coal supply and demand, in-depth calculations and demonstrations, and study and put forward the timetable and roadmap of the steps to reach the peak of carbon." There is more in the statement. Our Supplemental Documents package includes the China statement.

Energy Transition – Saudi to focus on mangroves as part of its carbon reduction plans

The SPA reporting of MBS speech yesterday also noted the Saudi focus on trees as part of their Net Zero 2060 plans *“His Royal Highness confirmed the start of the first phase of afforestation initiatives by planting more than 450 million trees, in addition to rehabilitating eight million hectares of degraded lands, and allocating new protected areas, bringing the total protected areas in the Kingdom to more than 20% of its total area.* MBS did not specifically mention mangrove trees, but that is part of this tree focus. We have been surprised to not see many announced mangrove forest projects as a way to meet net carbon reduction targets. We would have thought that the 4x higher carbon absorption by mangrove forests vs regular forests would have led to more announced projects. Especially in countries like Mexico that have global manufacturing and are familiar to oil and gas companies. But Friday night MT (Saturday morning local time), Arab News reported [LINK](#) that, as part of Saudi Green Initiative that starts on Oct 23/24, *“Plans to establish Saudi Arabia’s first national mangrove park are underway to enhance the Kingdom’s efforts in environmental protection and tourism development through vast green spaces.”* And *“Mangrove forests are vital for climate change, as highly productive and biodiversity-rich inter-tidal forests sequester carbon faster than terrestrial forests. The more CO2 the mangroves capture, the faster the greenhouse gases are removed from the atmosphere. The distinctive ecosystems also protect shores and can help prevent direct damage in case of storms. More than a quarter of the world’s mangroves have been lost over the past decade due to artificial intrusions.”* Our Supplemental Documents package includes the Arab News report.

Saudi to focus on mangrove trees

Indonesia, Mangrove forests absorb 4x carbon vs tropical forests

Our April 25 2021 Energy Tidbits included this item. *“One of the big emissions reductions themes will be tree planting. But we hadn’t appreciated (and should have realized) that not all tree planting is created equal. Makes perfect sense. Indonesia President Jokowi’s speech certainly fit into the category that they are open for investment. Earlier this morning, we tweeted [LINK](#) “Did you know carbon absorption of mangrove forests is multiples higher than tropical forests? Indonesia Pres @jokowi says 4 times higher. Makes sense not all plants absorb the same amount of carbon. Good for ID, MEX, others. #OOTT #NetZero.”* In his Biden climate speech, Jokowi said *“We are currently rehabilitating 620 thousand hectares of mangrove forests until 2024, the largest in the world with carbon absorption reaching fourfold higher than that of tropical forests”. Currently rehabilitating sounds like an invitation for capital. 620,000 hectares is ~2,400 square miles.”*

Energy Transition – Good Bloomberg roadmap to COP26

Earlier this morning, Bloomberg posted a good, short report *“Climate Talks in Times of Crisis: Your Roadmap to COP26”*. They lay out some of the common themes/reminders. There will inevitably be some sort of signed agreement, but unlikely to be anywhere near as expected. *“The U.K. hosts describe the aims for this COP as “coal, cars, cash and trees.” That means ending the use of the most polluting fossil fuel; phasing out the internal combustion engine; raising cash to help developing countries transition to cleaner energy and protect against the ravages of climate change; and reversing deforestation.”* The US/UK are trying to have a face saving methane emissions agreement. The priority is to put the world on a coal phase out mode. Rich countries are not stepping up to fund poor countries. The issue of double counting items like carbon offsets. A reminder that side deals will be done and aren’t part of the main deal. Its worth a read. Our Supplemental Documents package includes the Bloomberg report.

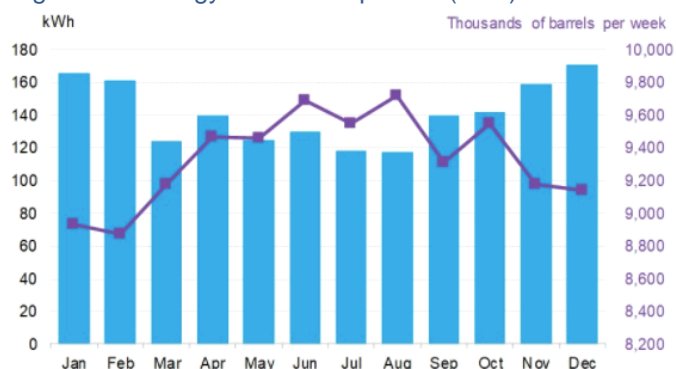
Bloomberg roadmap to COP26

Energy Transition – EV owners used 34% more electricity to charge in the winter

It feels we are stating the obvious when we say that electric vehicles do not operate as efficiently during the winter months. On Tuesday, Bloomberg [\[LINK\]](#), highlighting the energy consumption by EVs by month. BloombergNEF analyzed one million home EV charging sessions; 34% more energy was consumed from November to February in the US when compared with May to August consumption. This is contrasted with the consumption of gasoline, which was 6% higher in summer months than in winter months. Bloomberg wrote “a rise in electricity consumption could lead to higher peak electricity demand and increased investment in grid upgrades. Companies such as Enel X, Nuvve and EV.energy are designing software to move charging loads to more suitable times for the grid. Grid operators including National Grid, UK Power Networks and Southern California Edison are also bringing grid services to market that will pay companies to shift the load and reduce the need for grid upgrades.” And as we all know from our mobiles, electric toothbrushes, etc, more charging means shorter battery life. Below is a chart depicting energy delivered per EV and motor gasoline consumption. Our Supplemental Documents package includes the Bloomberg report.

EVs use more energy in winter

Figure 37: Energy consumed per EV (LHS) vs Motor Gasoline (RHS)



Source: Bloomberg

Capital Markets – Canadian investors acquire \$15.2 bn in foreign securities

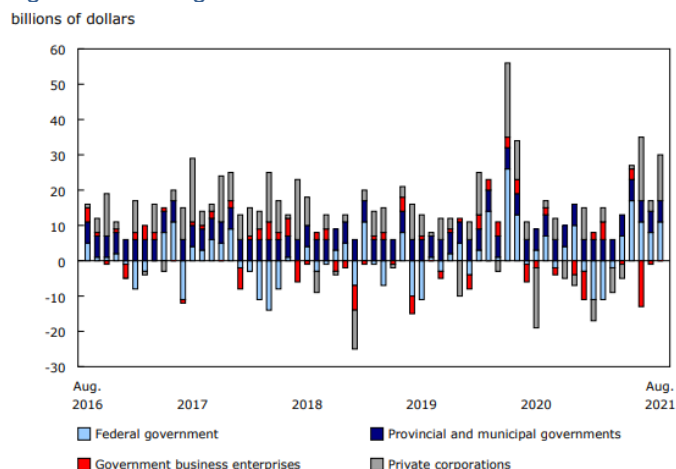
Statistics Canada released Canada’s international transactions in securities for August 2021 on Monday [\[LINK\]](#). Foreign investors acquired \$26.3 bn of Canadian securities in August with government debt securities leading purchases. This marks the largest investment since April 2020 when a record investment was incurred at the outset of Covid. Non-residents added \$3.3 bn of Canadian equity securities to their portfolios after a \$1.2 bn divestment last month. Non-resident investors acquired \$23.0 billion of Canadian government and corporate debt securities in August, a fifth consecutive month of investment for a total of \$90.2 billion. Over the month, foreign investors added \$12.6 billion of federal government bonds to their portfolios, the largest investment since April 2020. In addition, they added \$13.1 billion of private corporate debt securities to their portfolios, almost equally split between bonds and money market instruments. Long term interest rates rose for the first time since March while the Canadian dollar depreciated against the US dollar for the third consecutive month. Canadian investors acquired \$15.2 bn of foreign securities in August after divesting by \$4.7 bn in July. The investment activity was split almost evenly between foreign bonds and equities. The report stated, *Canadian investment in foreign debt securities amounted to \$7.1 billion in August, a seventh straight month of purchases, for a total of \$33.6 billion. Investors acquired \$3.5 billion of non-US foreign bonds, mainly government securities. This was the largest investment since September 2020. In addition, Canadian investment in US*

International transactions in Cdn securities

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government bonds resumed to reach \$2.6 billion. In August, US long-term interest rates fell to their lowest levels since February.” Below is a graph illustrating foreign investment in Canadian debt securities.

Figure 38: Foreign Investment in Canadian debt securities



Source: Statistics Canada

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.

Kennedy assassination conspiracy fans have to wait 14 mths for the good stuff

We always find it interesting to see what governments and companies release after markets close or, in the White House case, after the daily press briefing. Its typically things that hey hope don't get on the news cycle. On Friday afternoon, the White House released “*Memorandum for the Heads of Executive Departments and Agencies on the Temporary Certification Regarding Disclosure of Information in Certain Records Related to the Assassination of President John F. Kennedy*” [\[LINK\]](#). JFK was assassinated on Friday November, 1963 by Lee Harvey Oswald in Dallas. Although the conspiracy theories are still top of mind for many on who actually did I

and made Oswald the patsy. And the release of the records is eagerly anticipated by the conspiracy side to look for more clues to their puzzle but it looks like they will have to wait at least 14 months for the good stuff. Biden notes how the pandemic has delayed the ability of the involved agencies to get this done. There will be the first dump of less sensitive material on Dec 15, 2021, but the good stuff is not planned to be released until Dec 2022.

NFL players are like Goldman analysts, don't take kindly to old school rules

We couldn't help think of how Goldman's analysts weren't prepared to accept the same old investment banking expectations for analysts. And power to them, they seem to have effected change, which is not easy to do in investment banking. But anyone who has been in investment banking knows the analyst grind was pretty hard on young people. And the Goldman analysts still work hard, just not 7 days a week. So it's a little different than what we saw with the Chicago Bears this week, but the concept is similar. The Bears sent him a letter "this is to inform you that you are hereby fined \$2,745.00 for your Unexcused Late to Building at Daily Specified Mandatory Report Time on October 19, 2021. Johnson arrived at 8:16am for the 8:15am meeting. This reminds of the standard that former NY Giants Head Coach Tom Coughlin used to have about being early is on time and being on time is being late. The difference today is that Johnson didn't just complain to his teammates, he posted the fine letter on Instagram with a colorful caption.

More bad press for Chipotle, this time from the NFL

Chipotle has been out of the press for the past several months, at least for bad press related to customer health/safety issues from their restaurants. It won't get as much attention, but NFL fans know that there was bad press on Chipotle this week from Tennessee Titans wide receiver A.J. Brown. The big Monday Night Football game this week was the Titans upsetting the Bills. Brown said his food poisoning illness came from eating at Chipotle. That was bad enough, but then Brown was widely reported saying ""*Yeah, Chipotle has reached out to me,*" "*They want to know my location and possibly do something with me.*" The interpretation from all was a possible commercial or endorsement that he might consider but then he added ""*I'm not eating it, though... No sir.*"