

Energy Tidbits

Dec 26, 2021

Produced by: Dan Tsubouchi

Norway's Wealth Fund is Another Major Investor, Like CPPIB, to Keep Investing in Oil & Gas Stocks

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. Norway's Wealth Fund is following CPPIB's lead last week to say they will keep investing in oil and gas stocks ([Click Here](#)).
2. High Europe natural gas prices attract US LNG cargos providing some temporary relief to the crazy high prices ([Click Here](#)).
3. Another Asian LNG buyer moves to lock in long term LNG supply ([Click Here](#)).
4. Does Shell's Russia head include LNG Canada Phase 2 as an "other region" it may develop that are in close proximity to Asia demand? ([Click Here](#)).
5. Libya is now in limbo with Dec 24 Presidential election postponed, will need to set a new date soon to avoid a black hole. ([Click Here](#)).
6. Happy New Year! Wishing everyone happiness, health, and good fortune in 2022.
7. 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.
8. 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 draw of 55 bcf, storage now -234 bcf YoY deficit

The EIA reported a 55 bcf draw (vs 55 bcf draw expectations) for the Dec 17 week, which was massively below the 5-yr average draw of 153 bcf, and last year's draw of 152 bcf. Storage is 3.362 tcf as of Dec 17, decreasing the YoY deficit to -234 bcf, from 324 bcf last week and storage is 34 bcf above the 5-year average vs 90 bcf below last week. Below is the EIA's storage table from its Weekly Natural Gas Storage Report [\[LINK\]](#).

**YoY storage at
-243 bcf YoY
deficit**

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	12/17/21	12/10/21	net change	implied flow	Year ago (12/17/20)		5-year average (2016-20)	
					Bcf	% change	Bcf	% change
East	809	818	-9	-9	849	-4.7	791	2.3
Midwest	963	982	-19	-19	1,021	-5.7	953	1.0
Mountain	188	199	-11	-11	214	-12.1	195	-3.6
Pacific	247	261	-14	-14	297	-16.8	276	-10.5
South Central	1,155	1,158	-3	-3	1,214	-4.9	1,114	3.7
Salt	334	328	6	6	339	-1.5	321	4.0
Nonsalt	820	829	-9	-9	875	-6.3	793	3.4
Total	3,362	3,417	-55	-55	3,596	-6.5	3,328	1.0

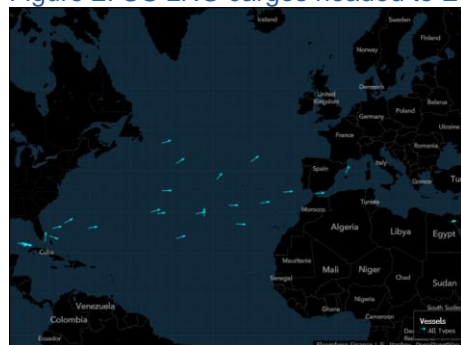
Source: EIA

Natural Gas – High Europe prices vs Asia are attracting US LNG cargos

It looks like the Europe natural gas prices flipping to a big premium to Asian LNG price over the past week did its job – it attracted a lot of LNG cargoes and provided Europe natural gas price relief, at least for now. On Friday, we tweeted [\[LINK\]](#) “Europe #NatGas price relief, at least temporarily, from US #LNG cargoes declared destinations to Europe jumped 50% to 15 on Thurs vs 10 on Wed, Plus another 11 with undeclared destinations but heading to Europe. Thx @SergioChapa for US #LNG cargo tracking. #OOTT.” Bloomberg reported “The number of tankers crossing the Atlantic with U.S. liquefied natural gas that declared Western European ports as their destinations jumped 50% in just 24 hours as the continent's energy crisis deepens. They are now 15, up from 10 on Wednesday, shipping data compiled by Bloomberg show. Plus, there are another 11 U.S. LNG cargoes with undeclared destinations whose paths suggest they're headed for Europe.” Our Supplemental Documents package includes the Bloomberg report.

**US LNG cargos
off to Europe**

Figure 2: US LNG cargos headed to Europe



Source: Bloomberg

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Natural Gas – Mexico's natural gas production still stuck below 5 bcf/d, flat YoY

On Thursday, Pemex reported its oil and gas data for November. Pemex reported natural gas production of 4.752 bcf/d, which was down -0.4% YoY and up slightly -0.7% MoM, from October. For the past 3 years, an ongoing theme of the Mexican energy sector, has been their inability to grow domestic natural gas production. As a result, Mexico has relied on imports from the US which are reaching record levels; US pipeline exports to Mexico have increased ~2 bcf/d since Jan 1, 2018. Pemex does not provide any commentary along with its production data. Below is our ongoing table of Pemex reported monthly natural gas production.

Mexico natural gas still stuck below 5 bcf/d

Figure 3: Mexico Natural Gas Production (bcf/d)

Natural Gas Production bcf/d	2015	2016	2017	2018	2019	2020	20/19	2021	21/20
Jan	6.584	6.162	5.326	4.910	4.648	5.005	7.7%	4.848	-3.1%
Feb	6.676	6.122	5.299	4.853	4.869	4.942	1.5%	4.854	-1.8%
Mar	6.558	6.030	5.383	4.646	4.857	4.946	1.8%	4.839	-2.2%
Apr	6.257	5.921	5.334	4.869	4.816	4.827	0.2%	4.671	-3.2%
May	6.202	5.841	5.299	4.827	4.841	4.460	-7.9%	4.730	6.1%
June	6.390	5.881	5.253	4.840	4.843	4.754	-1.8%	4.727	-0.6%
July	6.374	5.785	5.216	4.856	4.892	4.902	0.2%	4.725	-3.6%
Aug	6.366	5.686	5.035	4.898	4.939	4.920	-0.4%	4.656	-5.4%
Sept	6.477	5.619	4.302	4.913	5.017	4.926	-1.8%	4.746	-3.7%
Oct	6.397	5.583	4.759	4.895	4.971	4.928	-0.9%	4.718	-4.3%
Nov	6.316	5.515	4.803	4.776	5.015	4.769	-4.9%	4.752	-0.4%
Dec	6.236	5.380	4.811	4.881	5.024	4.846	-3.5%		

Source: Pemex

Natural Gas – Shell Prelude FLNG 0.47 bcf/d restart is still likely at least weeks away

There isn't a definitive timeline but we have to believe the restart of Shell's Prelude FLNG 0.47 bcf/d (NW Australia) is still likely at least weeks away, at least a month or two. Our Dec 5, 2021 Energy Tidbits highlighted the unplanned shutdown of Shell's Prelude FLNG 0.47 bcf/d (NW Australia) on Dec 2 due to a fire and a main power outage. On Friday, we tweeted [\[LINK\]](#) "Doesn't sound like #Shell Prelude FLNG 0.47 bcf/d will be restarting soon. down since Dec 2. Note @nopsema Direction Section 574 notes shortfalls in Shell's investigation & directions for NOPSEMA sign off prior to restart of #LNG production. #OOTT." On Thursday, NOPSEMA (Australia's Northern Offshore Petroleum Safety and Environmental Management Authority) posted its Direction – Section 574 notice to Shell. [\[LINK\]](#). There is no specific timeline estimate, but NOPSEMA is indicating issues with Shell's internal investigation (not unfixable but shortfalls) and their Direction #4 points to at least the potential that they may not be signing off on a restart until sometime after Feb. NOPSEMA's background already raises issues with Shell's internal investigation – "The Inspectors concluded that the operator did not have a sufficient understanding of the risks of the power system on the facility, including failure mechanisms, interdependencies and recovery. • NOPSEMA is aware that a Shell investigation is planned to determine the cause(s) of the power system issues that led to this incident, however, the proposed scope of the investigation does not provide for: • a thorough review of the evidence and root cause analysis of the entire series of events experienced during the incident on 2 December 2021; and • a review of the risks for future similar incidents and actions to mitigate them". NOPSEMA didn't give a restart date but did lay out a to do list before NOPSEMA will approve a restart that include Shell developing "a detailed plan, schedule and commitment to timely implementation of all necessary corrective actions. Present the plan to NOPSEMA once

Shell Prelude FLNG still down

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complete, Direction #3 is “prior to hydrocarbon production commencing, demonstrate to NOPSEMA’s satisfaction that the facility can safely recover essential power and associated essential services following a loss of power, and that the safety systems and essential support systems operate to maintain safety of personnel.” NOPSEMA also plans for the potential it may not be restarted in Jan or Feb as Direction #4 is “On the first business day of each month commencing March 2022 provide an update to NOPSEMA detailing progress under Directions 1 and 2 until NOPSEMA is satisfied under Direction 3,” Our Supplemental Documents package includes the NOPSEMA Direction.

Unplanned LNG supply interruptions have helped make this tight LNG market

On Nov 23, we posted an 11-pg blog “LNG Supply FIDs Starting to Happen, Does Shell Need to Get LNG Canada Phase 2 FID in the Queue To Protect Its Brownfield Advantages?” that reminded how unplanned LNG supply interruptions from in-service LNG supply projects have helped created the current tight LNG market. And the problem is that, unlike oil, there aren’t strategic LNG reserves to draw upon in the event of a supply interruption. Our blog noted a few examples of unplanned supply interruptions. (i) Equinor’s Melkøya 0.63 bcf/d in Norway was shut down for 18 months due to a fire. A massive fire led to the Sept 28, 2020 shutdown of the 0.63 bcf/d Melkøya LNG facility in Norway. The original restart date was Oct 1, 2021 but that was revised to March 31, 2022 with the caveat “there is still uncertainty related to how the Covid-19 development will impact the project progress.” (ii) Algeria’s 0.5 bcf/d Skikda LNG Plant had an unplanned 8-week shut down due to failure of gas turbine control mechanism. Skikda also had an unplanned 6-mnth shut down in 2020. (iii) Petronas Bintulu LNG in Malaysia, there have been multiple reports that Petronas has been seeking approval for the cancellation of some winter cargoes due to upstream natural gas quality issues. (iv) Chevron Gorgon LNG. This was the high profile unplanned outages that caused each of the three trains to have unplanned repairs staring in H1/20. Even another one last week. On Nov 16, Reuters reported ““Train 1 was shut down due to a small gas leak,” the spokesperson said, adding that it was too early to tell how long the unit would be down. “We are preparing plans for investigation and repairs.” The leak was detected on piping associated with the dehydration unit on Train 1 and the unit was shut down as a precautionary measure. As of this morning, still no word on how long it will be down. The three trains have a total capacity of ~2.3 bcf/d. Gorgon produced ~2.3 bcf/d in 2019 but was down to 2.0 bcf/d in 2020. (v) Last November, the 1.03 bcf/d Qatargas LNG Train 1 had a 3-week unplanned shut down for a compressor repair. (vi) There have been many more LNG supply interruptions or reduced LNG cargoes from in-service LNG supply projects, whether it be from hurricanes, or production issues at Chevron Wheatstone or, even yesterday Bloomberg reported that the 0.9 bcf/d capacity Brunei LNG export project “requested to reduce volumes for winter delivery to long-term buyers due to an upstream natural gas production issue, according to traders with knowledge of the matter.” Our Supplemental Documents package includes our Nov 23 blog.

Natural Gas – Mozambique Pres says reduced terrorist attacks by 3x

On Monday, we tweeted [\[LINK\]](#) on Mozambique President Nyusi’s comments last Thursday reported by Club of Mozambique (Mozambique news) [\[LINK\]](#). They wrote “Mozambique’s President Filipe Nyusi Thursday said his country had witnessed fewer jihadist attacks this

**Mozambique
restart decision
soon?**

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year than last, after Rwanda and neighbouring countries helped tackle the four-year insurgency. The country's gas-rich Cabo Delgado province has been rocked by attacks by Islamic State-linked militants since 2017, killing at least 3,340 people and displacing more than 800,000 others. But since July, more than 3,100 African, European and US soldiers have been deployed to the northern province to quell the unrest. Despite ongoing attacks against villages and civilians on a weekly basis, Nyusi told parliament that these efforts had been partially successful. "We were able to reduce terrorist attacks by three times," he said. While in 2020 the country registered just over 160 attacks, that number was reduced to 52 in 2021, he said." Our tweet on Nyusi's comments was ""we were able to reduce terrorist attacks by three times" MZ President. Doesn't seem enough for @TotalEnergies to lift MZ #LNG force majeure. Throw in #Omicron wildcard, will it be enough by 02/10 yr end results? or when? #NatGas #OOTT". We can't believe TotalEnergies will take the risk of restarting until there is an even better view of security. Plus our tweet notes the Omicron wildcard that would also impact timing. On Monday, Club of Mozambique reported [\[LINK\]](#) "Addressing the nation, Nyusi said that, in the past four weeks, the number of new Covid-19 cases in Mozambique had risen from just 32 cases a week to 5,955 cases in the past week. Over the same period, the positivity rate (the percentage of people tested found to be carrying the virus) had risen from 0.4 per cent to 24.4 per cent." So as opposed to Dec 31, we think the next big disclosure date for TotalEnergies will be its planned Q4 release on Feb 10. Maybe TotalEnergies will get there but we think the biggest challenge for TotalEnergies is that they want to minimize the risk that they have to halt construction again like they did last year. And we have to believe Covid also would factor into this timing. It just feels that a full restart decision isn't likely to happen by the Feb 10 Q4 results.

Mozambique reminds Mozambique had a large Covid wave in Q3/21

On Tuesday, the IMF posted its "Statement at the end of an IMF Staff Visit to Mozambique" [\[LINK\]](#). The IMF highlights LNG and that the longer term outlook for Mozambique is "shaped by LNG production, with downside risks". The IMF doesn't say anything on any potential timing for a potential restart of TotalEnergies Mozambique LNG, but does include the current expectation for 2026 LNG which would link to a restart of construction in H1/22. It also mentioned Covid saying "The COVID pandemic, and the conflict and humanitarian emergency in the north of the country are intensifying fragility. Two large waves of COVID infections in the first and third quarters of 2021 prompted strict confinement measures, lowered incomes, and resulted in loss of schooling for an already vulnerable population. Terrorist attacks have caused thousands of deaths and displaced more than 800,000 people in the northern province of Cabo Delgado, with many in the northern region suffering food insecurity." Our Supplemental Documents package includes the IMF report.

Mozambique was expecting a TotalEnergies decision by Dec 31

In our Nov 28, 2021 Energy Tidbits, we wrote "On Thursday, we tweeted [\[LINK\]](#) on the news out of Mozambique. We tweeted "Re: @TotalEnergies Mozambique #LNG force majeure. MZ energy minister says "outlook is that before the end of the year we are going to have all the conditions for us to sit down and decide to resume the project". If so, 1st LNG in 2026. #OOTT." The Club of Mozambique (Mozambique news) reported on comments from Mozambique Energy minister Tonela. "the

Minister of Mineral Resources and Energy, Max Tonela, said that there could be an imminent decision to restart work. According to Tonela, "we have recently held meetings with Total, we have had meetings with ENI, and today we met Galp [CEO Andy Brown] and Mitsui; and the outlook is that before the end of the year we are going to have all the conditions for us to sit down and decide to resume the project". A decision to restart in early 2022 would fit with TotalEnergies estimate for 1st LNG cargos in 2026 "if" there was a 2022 restart. There is no question Mozambique is keen to get TotalEnergies to restart and probably more so with neighbouring Tanzania pushing hard for a FID to restart their potential LNG FID. (see Our November 14, 2021 Energy Tidbits for the Tanzania update)."

Total wants security on a sustained manner to restart Mozambique LNG

In our Nov 14, 2021 Energy Tidbits, we wrote "We think TotalEnergies comments continue to point to the hope that it can get back to construction in mid-2022 on its Mozambique LNG ie. an effective construction pause of about 1.5 yrs so they can have first LNG in 2026. Their comments are security is getting better but not yet to the point where they can restart construction. On Tuesday, Platts reported "Mozambique security improving, but TotalEnergies seeks more stability to restart LNG project" [\[LINK\]](#). Platts quoted TotalEnergies SVP of Africa, Henri-Max Ndong Nzue, on the sidelines of the Africa Oil Week conference. Nzue said "We are looking at the situation and, so far, the steps taken by the Mozambican government are going in the right direction", "Things are improving by what we can see on the ground. The African forces are doing quite a good job" and "So things are improving. But what is key is to have security in a sustained manner, and that is very important."

A 2022 restart would keep Mozambique LNG delays to 2 yrs behind original

The TotalEnergies construction stoppage was a game changer to LNG markets because the delays to TotalEnergies Mozambique Phase 1 are more than just a delay to the 1.7 bcf/d Phase 1, its actually a delay of 5 bcf/d. This was the reason 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?" [\[LINK\]](#) We thought, and still think, there has been a major change to the outlook for LNG supply in the 2020s and one that is still being overlooked – 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 than 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 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.

Natural Gas – Does Shell incl LNG Canada 2 in “other regions” for LNG supply growth

We couldn't help think of LNG Canada Phase 2 in seeing the head of Shell's Russia operations (Ekaterina Grushetskaya) comments in her TASS interview on Wed. [\[LINK\]](#) She made 4 key points on Shell's LNG outlook. (i) LNG demand to almost double from 2020 to 2040, which is +45 bcf/d. This was consistent to Shell's forecast such as we noted in our Aug 2, 2021 Energy Tidbits memo on Shell's Q2 results call. See below item. (ii) 75% of the demand growth is in Asia. This was always in Shell's outlook, but Grushetskaya's 75% puts in perspective at approx. +34 bcf/d to 2040. (iii) Russia is ideally located for LNG supply project development because of its proximity to Asian markets. (iv) Then Grushetskaya notes that Shell's development of new LNG supply will have to come from places outside the Far East to supply the growing Asian LNG demand. Far East typically includes Australia and Papua New Guinea. She isn't specific, just calls its “other regions”. Grushetskaya highlighted Russia, but then said *“Therefore, it is logical that Russia will occupy a significant place here. At the same time, we see that production capacity is not enough to meet this demand. In this sense, we would like to participate in such projects in the Far East, because the Asian market, of course, is in need of this energy resource.”* TASS asks *“That is, Shell's ambitions in the development of the LNG business lie in the Far East region?”* Grushetskaya replies *“Not necessarily just there. I'm talking about where it makes sense to develop this area in terms of proximity to the Asian region. But we may be interested in other regions as well.”* So the question is what are these “other regions” that Shell will look to supply LNG to the Asian LNG demand growth. If Shell is looking to advantaged areas, the three that jump to mind are future NW Shelf Australia development, future potential in Tanzania and, of course, our pick, LNG Canada Phase 2. Our Supplemental Documents package includes the TASS Grushetskaya interview.

**Shell Russia Head
on Asian LNG
demand**

LNG Canada Phase 2 would be a game changer to Western Can natural gas

If Grushetskaya's “other regions” does include Shell's LNG Canada Phase 2, it would fit perfectly with our views that LNG Canada Phase 2 is ideally positioned to take advantage of the abrupt change in Asian LNG buyers to long term supply deals. 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*

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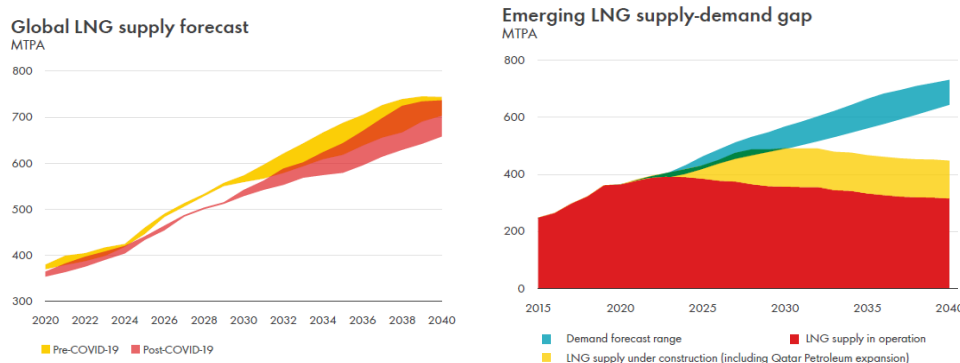
To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?" and saw a much bigger and sooner LNG supply gap driven by the delay of 5 bcf/d of Mozambique LNG that was built into most, if not all LNG supply forecasts. Asian LNG buyers are committing real dollars to long term LNG deals, 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." Below is our graphic noting recent Asian long-term LNG supply contracts. Our Supplemental Documents package includes our July 14 blog.

Shell sees LNG demand to ~double by 2040, LNG supply gap mid 2020s

Here is what we wrote in our Aug 2, 2021 Energy Tidbits on Shell's LNG demand forecast. *"Maybe Shell doesn't want to be criticized by the Net Zero proponents for being too bullish on long term oil, natural gas and LNG markets or else we don't know why they didn't say their views on LNG markets in their Q2 call early Thursday morning. Its why we tweeted [\[LINK\]](#) "1/3. #LNGSupplyGap. Great #Shell reminder of bullish #LNG outlook in 2020s. Wasn't in today's Q2 results/call, but in #Tellurian #DriftwoodLNG release Shell signed 10-yr LNG purchase deal for 0.4 bcf/d." and [\[LINK\]](#) "2/3. #Shell says #LNG demand to nearly double by 2040, secures volumes for portfolios by the mid-2020s. same view as per Shell LNG outlook Feb 25/21 to nearly double (+340 mtpa or +45 bcf/d) by 2040 & #LNGSupplyGap in mid 2020s." Shell did not mention its new LNG purchase deal with Tellurian that came out in a Tellurian press release [\[LINK\]](#) issued after the Shell Q2 call on Thursday. Shell signed a sale and purchase agreement to buy LNG from the Tellurian Driftwood LNG project for 0.4 bcf/d for 10 years. The Tellurian release included a quote from Shell management "Steve Hill, EVP Shell Energy stated, "LNG demand is expected to nearly double by 2040. This deal secures additional competitive volumes for our portfolio by the mid-2020s, enabling us to continue providing diverse and flexible LNG supply to our customers. We look forward to working with Tellurian." Shell's statement on LNG demand to nearly double by 2040 is exactly what they said in their LNG Outlook 2021 on Feb 25, 2021. This represents an increase of 45 bcf/d to 2020. The LNG Outlook 2021 also included Shell's forecast for an emerging LNG supply gap in the mid 2020s. Below are the Shell LNG forecast slides from the Feb 25, 2021 LNG Outlook 2021."*

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Figure 4: Global LNG supply forecast & Emerging LNG supply-demand gap



Source: Shell LNG Outlook 2021 on Feb 25, 2021

Natural Gas – GUNVOR tells Pakistan won't deliver LNG cargo in Jan, will take penalty

It looks like Pakistan can't catch a break on LNG cargos this winter. They didn't buy enough spot LNG in the fall because spot prices were too high and, now, some LNG providers are prepared to pay the penalty by not paying a contracted LNG cargo because the provider can make substantially more by paying the penalty to Pakistan and selling the LNG cargo on the spot market. On Monday, The News (Karachi) reported Singapore based LNG trading company, GUNVOR indicated to Pakistan "that it will not be able to deliver its term LNG cargo which is due on January 10, 2022 by claiming the force majeure". This is the 2nd GUNVOR LNG cargo and ENI also did one LNG cargo. The News reported a senior official Energy Ministry official "said that technically it will be a second default by GUNVOR in a row in the current winter season 2021-22, as it earlier defaulted from the provision of the term cargo on November 19-20, 2021. The Italian company ENI also defaulted on November 26-27, 2021 from the delivery of its term cargo. ENI had earlier backed out of its term LNG cargo in August, 2021. "And this is how both the LNG trading companies have defaulted twice."

The News also provided details on the penalty clause and it's easy to see why they defaulted. And we have to wonder if this is the standard penalty why there haven't been more of these force majeure. The News wrote "Under the term agreements with Pakistan LNG Limited, Italy-based ENI is bound to provide LNG cargo every month at 11.95% of the Brent and GUNVOR is also in a 5 year term agreement and bound to provide a cargo at 11.6247% of the Brent. Under the contract, in case of default, PLL can impose a penalty of 30 percent of the contractual price of one cargo to each LNG Company and both the companies are ready to pay the penalty as the profit in the spot market is so huge which has prompted them to sell Pakistan's term cargo to the international market. PLL has inked the term agreements with both the companies to avoid purchasing of LNG cargoes at higher prices, but both the companies have backed out and defaulted the agreements twice." Our Supplementals Documents package includes The News report.

LNG force majeure for spot price wins

Natural Gas – India Nov natural gas production +23.1% YoY to 3.38 bcf/d

India continues on its modest recovery in its domestic natural gas production and is even more important given the stronger than expected LNG prices in 2021. The key India natural gas theme for the past decade was that India's natural gas production declined, which meant that increases in natural gas consumption had to be met by increased LNG imports. India's

India natural gas production +23.1% YoY

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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 Tuesday, India's Petroleum Planning and Analysis Cell released their monthly report for November natural gas and oil statistics [\[LINK\]](#). India's domestic natural gas production was up 23.08% YoY from 2.74 bcf/d in November 2020 to 3.38 bcf/d and basically flat to 3.44 bcf/d in October. 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.

Natural Gas – India Nov LNG imports down 20.8% YoY to 2.62 bcf/d, down 14.9% MoM

The other benefit of the above noted modestly increasing India domestic natural gas production is that it reduces the need for LNG imports. 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 imports from June to October 2020, taking advantage of low LNG prices to fill their stocks. Imports began to decline in November 2020 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 November of 2.62 bcf/d, down 20.8% YoY due to abnormally high spot prices. India has been trying to avoid high spot lng prices. Note, imports in November were down by 14.9% MoM.

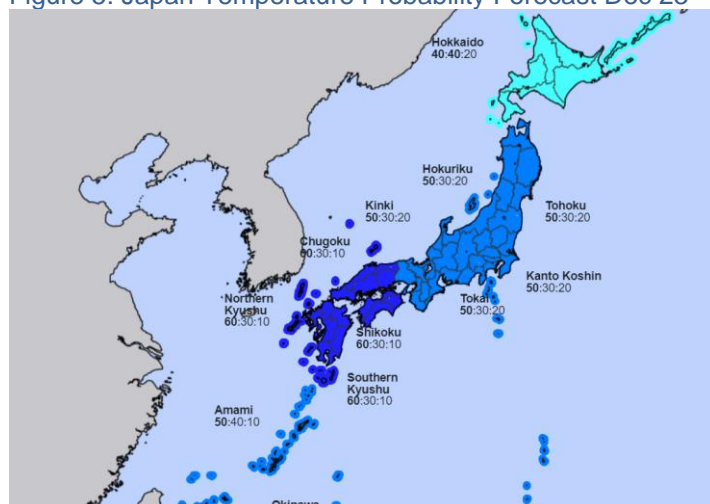
**India LNG imports
-14.9% MoM**

Natural Gas – Japan forecasts below average temperatures to end 2021

The Japan Meteorological Agency posts its weekly temperature probability forecast for the next 4 weeks on Thursday mornings. [\[LINK\]](#). Finally, we are going to see some colder weather this winter. The new forecast predicts cold temperatures to close out 2021 as well as temperatures well below the seasonal average for the first half of January. Below is the JMA forecast for the next four weeks of the forecast period (Dec 23 – Jan 24) and it expects significantly colder temperatures in the first two weeks of January before returning to normal and slightly below average temperatures in the third week of the New Year.

**Japan cold start to
the New Year**

Figure 5: Japan Temperature Probability Forecast Dec 23 – Jan 24



Source: Japan Meteorological Agency

Natural Gas – Japan's LNG stocks remain high, down to 2.27 mm tons

Japan METI data was released on Wednesday [\[LINK\]](#) and gave us insight into Japan's LNG stocks. LNG stocks declined for the week ended Dec 19, from 2.4 mm tons the previous week, and are now at 2.27 mm tons (109 bcf); this is above last year's levels of 1.42 mm tons and 36% above the 5-year average of 1.71 mm tons. This much higher LNG storage is a positive, but we have to remember the absolute level of LNG storage is only about 10 days worth of LNG imports. We believe the high LNG storage levels plus the warm start to winter will continue to give Japan the flexibility to redirect some LNG cargos in December.

Japan LNG stocks remain high

Natural Gas – China's natural gas imports up 15.56% MoM in Nov

As expected in 2021, China's YoY LNG import growth is less for two key reasons – higher pipeline imports via Gazprom's Power of Siberia and increasing domestic natural gas production. China customs posted China's November natural gas imports split by pipelines vs LNG. The customs data is at [\[LINK\]](#). The customs data reports China Nov LNG imports of 11.05 bcf/d, +4.4% YoY and +15.56 MoM. And China natural gas pipeline imports of 6.1 bcf/d, +48.9% YoY and +22.97% MoM. Below are our running tables of China LNG and pipeline imports.

China LNG and pipeline imports

Figure 6: 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%	4.09	-42.6%	7.78	90.0%	9.56	22.9%
Nov	4.26	9.59	47.5%	10.42	8.7%	10.58	1.6%	11.05	4.4%
Dec	5.80	9.75	25.0%	10.01	2.7%	11.76	17.5%		
Full Year Avg.	3.43	7.10	41.2%	7.80	9.9%	8.83	13.1%	10.39	17.8%

Source: Bloomberg, China Customs

Figure 7: China Natural Gas 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%	5.0	28.0%
Nov	3.1	4.0	27.4%	5.1	26.8%	4.7	-6.9%	4.1	-13.0%	6.1	48.9%
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 – Another Asian LNG buyer (SPIC Guangdong) locks up long term LNG

Since July 1, 2021, there have now been 15 deals of Asian LNG buyers locking up long term LNG supply past 2030. 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. We tweeted [\[LINK\]](#) “Another Asian LNG Buyer rushing to lock up long term LNG security of supply. 15th Asian deal in H2/21, China’s CNOOC 20-yr #LNG supply with #VentureGlobalLNG. Also a separate undisclosed shorter duration deal. #LNG #NatGas looks good thru 2030s. See SAF Group 07/14 blog. #OOTT.” Venture Global issued a press release that they have entered into a Sale and Purchase Agreement with China’s CNOOC. This 20-year deal sees CNOOC purchasing 0.26 bcf/d of LNG from Venture Global on a free on board (FOB) basis from its Plaquemines LNG export facility, in Plaquemines Parish, Louisiana. Additionally, Venture Global and CNOOC have also signed an additional deal for 0.13 bcf/d of LNG for an undisclosed, presumably shorter duration. This agreement follows the contract signed between SPIC Guangdong and Qatar BP Energy mentioned in our December 19 Energy Tidbits. BP’s CEO stated in the release, “*Venture Global is pleased to announce the expansion of our footprint in Asia through two new deals to supply the Chinese market with clean, low-cost US LNG. China is critical to global climate efforts, and LNG supplied by Venture Global will serve as an important addition to their low carbon energy mix for decades. This new long-term partnership with CNOOC builds on our company’s continued*

**Another Asian
long term LNG
deal**

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momentum in a very active 2021." Our Supplemental Documents package includes the Venture Global press release.

Asian LNG buyers abruptly changed and moved to 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." Below is our graphic noting recent Asian long-term LNG supply contracts.

Updated list of new Asian LNG buyer long term contracts

We have now seen 15 deals since July 1, 2021 where Asian LNG buyers locked up long term LNG supply past 2030. Below is the updated table of Asian LNG buyer new long term supply deals since the end of June. This table was in our July 14 blog. Note the below table is for Asian LNG long term supply deals so it excludes a Poland 20 year supply deal, a France 11 year supply deal and JERA \$2.5b investment to buy 25.7% interest in the Freeport LNG supply. Our November 21, 2021 Energy Tidbits highlighted the JERA deal.

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Figure 8: Long Term Asian LNG Supply Deals since July 1, 2021

Long-Term Asian LNG Buyer Deals Since July 1, 2021					
Date	Buyer	Seller	Country	Volume	Duration
			Buyer / Seller	(bct/d)	Years
July 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0
July 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0
July 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0
July 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0
Sept 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0
Nov 4, 2021	Unipet	Venture Global LNG	China / US	0.46	20.0
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5
Nov 22, 2021	Foran	Cheniere	China / US	0.04	20.0
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				3.29	
*Excludes Asian short term/spot deals					
*Excludes non-Asian long term deals: Poland PGNIG 20-yr deal for 0.26 bct/d w/ Venture Global					
*Excludes non-Asian long term deals: France Engie 11-yr deal for 0.16 bct/d w/ Cheniere					
*on Dec 20, CNOOC also agreed to buy an additional 0.13 bct/d from Venture Global for an undisclosed shorter period					

Source: Bloomberg

Natural Gas – Novak reminds Europe natural gas prices will likely go higher

This week, both Novak and Putin reminded Europe that they are the cause of their own natural gas and electricity problems. Putin in his annual long news conference on Thursday [\[LINK\]](#) and Novak in his interview with Russia-24 TV channel as reported by TASS [\[LINK\]](#). (i) Novak also reminded that higher natural gas/electricity prices are likely this winter. We had two tweets [\[LINK\]](#) on his comments. Novak said “*This artificial pressure, including political pressure, has led to a situation for which now the population, citizens living in European countries are forced to pay. Prices have increased 4-5 times and this is not the limit, because now gas is being used, which was pumped into underground gas storage facilities at old prices, and as soon as energy resources are used in full at new prices, this will lead to even greater growth. electricity prices.*” (ii) Putin said “*We were saying – and I want to repeat it – that there was no point in destroying long-term contracts. The European Commission was telling us: no, it is necessary to move to market relations, the market will set it right. This is how the market made its adjustment – over \$2,000 for a thousand cubic metres. Take it. No! You are correct, just yesterday they were shouting: help, this is Russia and Gazprom expanding and taking over the market. We are not taking over anything. Indeed, we supply a lot, but we are not the only suppliers to the European market. However, we are probably the only ones who are increasing our supplies. We are being told to pump to cover the needs of the spot market, since they need to first meet the demand of their counterparties under long-term contracts.*” There was more in Putin’s address. Our Supplemental Documents package includes the TASS Novak report and excerpts from the Putin press conference transcript.

Novak warns on Europe gas prices

Natural Gas – Putin says Germany reselling Gazprom long term gas into spot prices

The most interesting comment from Putin’s lengthy press conference was on the accusations of Gazprom reversing the flow of gas from west back to east on the Yamal-Europe natural gas pipeline ie. not delivering natural gas to western Europe. Putin said don’t blame Russia,

Germany reselling Gazprom gas

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its Germany who are getting surplus volumes from Gazprom under long term low natural gas prices and then reselling those volumes at higher prices. Putin said *"You just mentioned the Yamal–Europe natural gas pipeline. I see Russia and Gazprom accused of Gazprom failing to book capacity for gas supplies to Europe via the Yamal–Europe route for the second or third day in a row. That is disgusting, how should I put it... Well, okay. This is just totally out of line. After all, it failed to book capacity, because its counterparties and companies, mostly German and French, who buy gas from this route, failed to submit bids for purchase. What is there to transit if Gazprom has not received purchase requests? What did they do then? They turned on this route in reverse mode and have been pumping gas from Germany to Poland for several days now. I think everyone would find it interesting. Why? Because we supply gas to Germany under long-term contracts at prices that are three, four, six, or even seven times lower than on the spot market. Should you resell even 1 billion cubic metres of gas, you will make almost a billion dollars, 900 million plus. This is business. This is my first point. They have stocked up on gas, having received from us 5.6 billion cubic metres on top of what is provided under long-term contracts, and are now reselling it. But there is more to it. After all, they are pumping gas in reverse mode, so how can it be supplied in the other direction? Gas cannot move in both directions in one pipe at the same time. So, they: a) failed to place an order; b) turned it on in reverse mode. But this is only a portion of the information. There is a connecting pipe that connects the Polish pipeline system with the Ukrainian system. The volume is about 3 million cubic metres per day. This is exactly the amount that Germany is supplying to Poland. I have every reason to believe that this gas is eventually supplied to Ukraine. Consumers in Europe and Germany should know what is really happening, and, perhaps, ask certain authorities to clarify their stance. Instead of supplying gas to Poland and then to Ukraine in an effort to help someone tide over, it would be better to continue supplies to Europe, Germany, for instance, and to reduce the spot price, because the more product on the market, the lower the price. No, they began to pump in reverse. This is the problem. How is Gazprom involved in this?"*

Natural Gas – Novak thinks Nord Stream 2 certification “could” be done by mid 2022

It looks like Russia is resigned to the likelihood that Nord Stream 2 certification isn't likely until sometime in H2/22. That's bad news for Russia, but also bad news for Europe natural gas markets as it means Nord Stream 2 won't be much help in the spring/summer refill season for natural gas storage. On Dec 16, we tweeted [\[LINK\]](#) on the bad news for Nord Stream 2 and Europe's high natural gas prices this winter and likely next winter – Germany says no approvals for Nord Stream 2 start until at least H2/22. We tweeted *"No Germany #NordStream2 decision before July 2022. Means will not be in service to bring added volumes in refill season for EU #NatGas storage that starts ~April. Support for #LNG prices in summer 2022 & adds upside risk to winter 22/23 prices. Thx @ArneDelfs @d_khrennikova #OOTT."* This will be more than a winter 2021/22 issue. Europe storage is down huge and Nord Stream 2 won't be in operation to help rebuild storage levels for winter 2022/23 from April, rather it won't be there to help until sometime in H2/22. On Friday, TASS reported [\[LINK\]](#) that Novak hopes that the Nord Stream 2 certification will be done by the middle of 2022. Novak said *"In the summer, an application for certification was submitted. This is a rather lengthy process, although it can be shorter if desired. But, nevertheless, if we talk about those regulations that have been adopted in Europe, this is a rather lengthy process. And we hope that in By 2022, by about the middle of the year [certification] will be completed."* Novak also reminded that Nord Stream 2 is ready to deliver gas at any time. Novak said

Novak on Nord Stream 2

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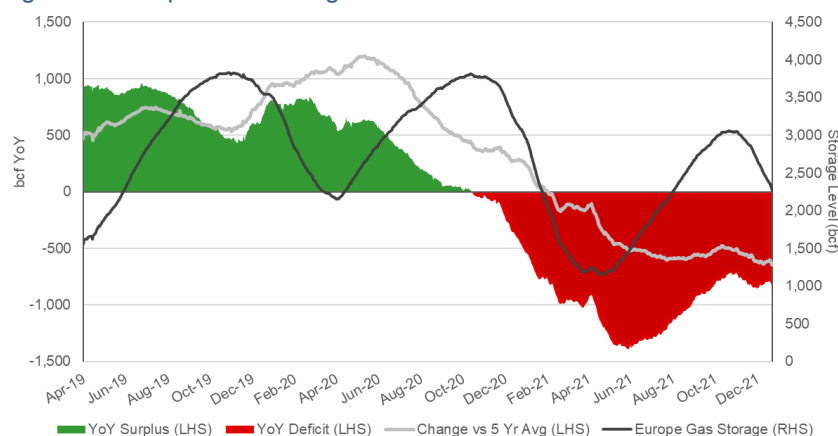
"The pipe has already been filled with process gas on one line, the filling has begun on the second line. This will be completed in the near future. And it will be fully ready so that from the moment decisions are made the next day, gas will go to European consumers." Our Supplemental Documents package includes the TASS report.

Natural Gas – Europe storage 57.5% full vs last year of 77.76%

The YoY Europe storage gap has widened since the start of the winter natural gas season. Europe gas storage started down 18.52% YoY and is now down 20.26%. Draws to European gas storage units continued this week. It was a larger draw and marked the seventh consecutive week of draws, indicating winter is underway. Europe inventories are at their lowest level at this time of the year in more than a decade. Europe gas storage started last winter (Nov 1/20) at basically full levels at 94.66% and had dropped by 65.77% to be 28.89% at Apr 1/21. Europe storage levels bottomed in late Apr at 29%, which was the lowest level since Apr 2018. This winter began (Nov 1/21) with gas storage at 77.14% capacity, down 18.52% YoY. The YoY deficit has widened since Nov 1. Storage as of Dec 22 is 57.5%, which is -20.26% less than last year levels of 77.76% and are -17.27% below the 5-year average of 74.77%. The set up for winter natural gas prices continues to support strong winter natural gas prices. Below is our graph of Europe Gas Storage Level.

Europe gas storage 57.5% full

Figure 9: Europe Gas Storage Level



Source: Bloomberg

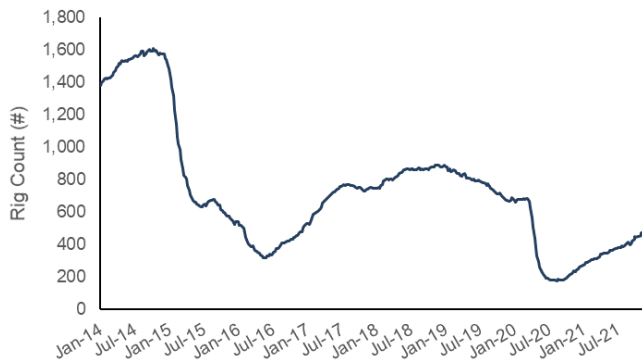
Oil – US oil +5 WoW at 480 oil rigs

Baker Hughes released its weekly North American drilling activity data on Friday. This is not the normal Xmas seasonal pattern to rigs and frac spreads. But there are strong oil, NGLs and natural gas prices and industry is still just catching up in 2021 from an extremely low 2020 activity level. This week US oil rigs were up WoW at 480 rigs. Oil rigs are +308 off the bottom of 172 in Aug14/2020 week. Permian was up this week driven by New Mexico rigs and is the oil basin expected to drive growth. US normally reach their seasonal peak around US Thanksgiving and seasonally decline thru year end. However, it seems that the seasonal decline this year will be less with high oil prices and a need to replenish DUCs. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 203 to 480 oil rigs (-30%). Below is our graph of US oil rigs since January 1, 2014.

US oil rigs up WoW

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Figure 10: Baker Hughes Total US Oil Rigs



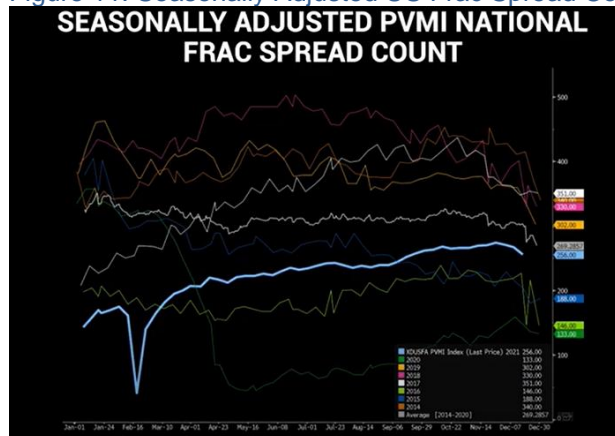
Source: Baker Hughes

Oil – US frac spreads down 12 to 244 for week ended Dec 24

Mark Rossano (C6 Capital Holdings) had his weekly US frac spread recap for week ended Dec 24 on the Primary Vision network. YouTube video at [\[LINK\]](#). US frac spreads were down 12 to 244 as of Dec 24, although he did the video on the afternoon of Dec 23 given Xmas. There was a steady drop across the board, no one area led the drop. Rossano highlighted that he continues to see a lot of demand and activity in the Haynesville and in these natural gas areas. Permian had a step down but very small, and don't see too much of a seasonal drop. May see another seasonal drop this week, but once Jan 1 rolls around, will see activity pick back up. He still expects to be 270 to 275 spreads by the 2nd, 3rd week of Jan. Rossano also provided the below graph to note that there is the normal seasonal slowdown this year, but the pace of the slowdown is less this year because starting from a lower level and pricing is there to stay the course.

**Frac spreads
down 12 to 244**

Figure 11: Seasonally Adjusted US Frac Spread Count

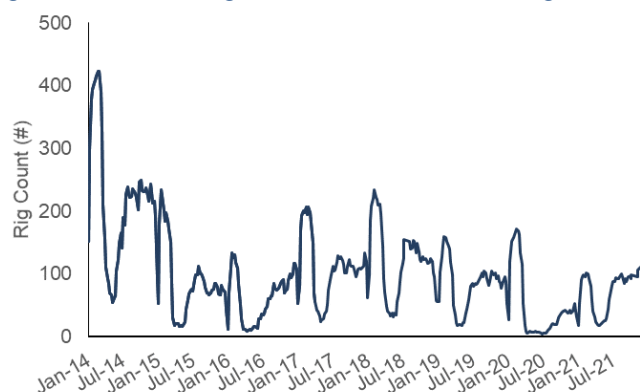


Source: C6 Capital Holdings

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Oil – Total Cdn rigs -34 to 133 total rigs and +51 rigs YoY

Cdn rigs are moving more in line with normal Xmas seasonal patterns. Total Cdn rigs were down -34 this week to 133 total rigs. Cdn oil rigs were -20 at 84 rigs. Cdn gas rigs were down -14 to 48 gas rigs; although rigs are down, no surprise as there is typically a decline over the holidays. Total rigs are now +116 since the June 26, 2020 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 31 and Cdn gas rigs were 51 for a total Cdn rigs of 82, meaning total Cdn rigs are +51 YoY and total rigs are up -16 vs 2019.

Cdn rigs -34 WoW**Figure 12: Baker Hughes Total Canadian Oil Rigs**

Source: Baker Hughes

Oil – US weekly oil production down -.0100 mmb/d at 11.6 mmb/d

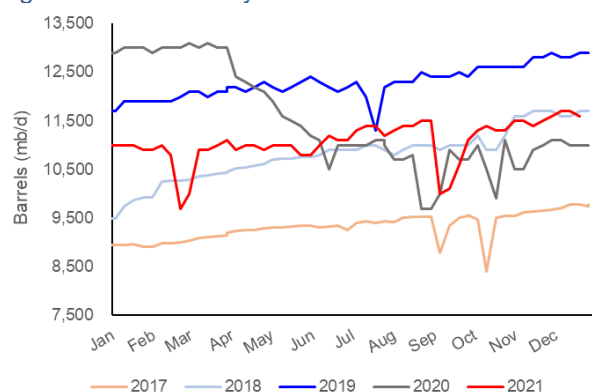
Weekly production in the US was down this week at 11.6 mmb/d for the week ended Dec 17. Lower 48 production drove total production and was down from last weeks level at 11.1 this week; US oil production is up YoY at +0.600 mmb/d and is still down significantly at -1.5 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. Unless there are weather interruptions, the expectation is that US oil production should at least stay flat if not inch up a little higher in Q1/22.

Figure 13: 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	10/22	11,300	10/29	11,500
2021-Nov	11/05	11,500	11/12	11,400	11/19	11,500	11/26	11,600		
2021-Dec	12/03	11,700	12/10	11,700						

Source: EIA

Figure 14: US Weekly Oil Production



Source: EIA, SAF

Oil – Trans Mountain, still not clear what % capacity running at or when back to 100%

As of our 7am MT news cut off, Trans Mountain has not posted any updates since its Dec 15 update that we highlighted in last week's (Dec 19, 2021) Energy Tidbits. Its not clear at what % of capacity Trans Mountain is running or when it will be back to full capacity. (i) On Dec 14, we tweeted [\[LINK\]](#) "#TransMountain #Oil pipeline update: @CdnPressNews reports now

Trans Mountain updated didn't provide details

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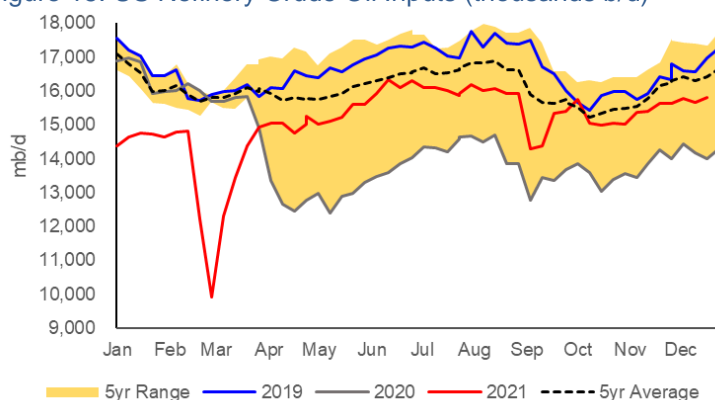
moving >70% capacity but its "chief operating officer says the pipeline will likely return to full capacity in late January at "the earliest". Thx @CdnPressNews @business #OOTT." Bloomberg posted a Canadian Press report "Trans Mountain's chief operating officer says the pipeline will likely return to full capacity in late January at "the earliest" as work continues after fallout from torrential rains that the company says will cost tens of millions of dollars." And "It is now back up to more than 70 per cent capacity, he says, which allows gas rationing in southern B.C. to end today. Trans Mountain said in a Dec. 6 release it expected gasoline and crude oil supply levels would "return to normal levels within a week." The end of January is not what the market expects. (ii) On Dec 15, Trans Mountain issued an update [\[LINK\]](#) and we tweeted [\[LINK\]](#) "#TransMountain Dec 15 update, safely returned to service on Dec 5 at reduced volumes. No indication of current throughput or when expect back to normal volumes ie. doesn't contravene the @CdnPressNews report of >70% & likely full return in late Jan. #OOTT". The Trans Mountain update did not give any indication of the current volume throughput or any ETA for when it would be back to full capacity. Its why our tweet said that there was nothing in the Dec 15 update to contravene the Canadian Press report.

Oil – Refinery inputs +0.148 mmb/d WoW at 15.818 mmb/d

Refineries normally ramp up oil processing to year end and then decline in the new year. But this week, there was a small WoW increase in crude inputs to refineries, up slightly +0.148 mmb/d this week to 15.818 mmb/d and are +1.804 mmb/d YoY. The normal ramp up is to still produce winter fuels before refineries go into the turnaround in Q1 to switch to more summer fuels. Refinery utilization was down at 89.6%, which is still +11.6% YoY as the typical seasonal decline over the holiday's approaches. Total products supplied (i.e., demand) was up -2.737 mmb/d to 20.464 mmb/d. Motor gasoline was down -0.486 at 8.986 mmb/d from 9.472 mmb/d last week. Gasoline supplied, a proxy for demand, was down last week. Gasoline stockpiles are at their lowest levels with demand for gasoline at a 4-week high. The four-week average of production supplied decreased to 9.054 mmb/d, up from last year.

Refinery inputs up
WoW

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



Source: EIA

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Oil – Exxon says minimal impact to production from Baytown refinery fire

We always find it amazing how refineries seem to bounce back quickly from fires or explosions with an impact not what one might expect. On Thursday morning, there was a fire at Exxon's big Baytown complex. Our first tweet [\[LINK\]](#) reminded “#Exxon Baytown is a huge complex, includes 2nd largest US refinery at 584,000 b/d, a chemical plant, olefins plant and plastics plant. not clear what areas will be impacted and for how long. #OOTT.” We included the GoogleMaps satellite view to reinforce the size of the complex. Later on Thursday, Bloomberg reported on the details “The blaze broke out in a unit called a reformer feed hydrotreater, according to Wood Mackenzie’s Genscape unit. Exxon spokeswoman Julie King said the company is adjusting rates at other Baytown facilities to focus on stabilizing the affected unit, but did not discuss the impact on fuel production. Reformer feed hydrotreaters are used to remove sulfur from partially refined oil to help the finished gasoline meet clean-air rules. The units process feedstock to make high-octane gasoline -- if the impact is prolonged it could affect prices of premium gasoline.” Yesterday, we tweeted the WSJ update that included Exxon’s filing to the Texas Commission on Environmental Quality “The Baytown Refinery Hydro desulfurization Unit 1 (HDU1) experienced a fire ... The HDU1 unit was isolated and shutdown; the fire was extinguished as of approximately 07:20 on 12/23/2021 ... There is minimal impact to production. We expect to meet our contractual commitments.”

Exxon Baytown complex fire

Oil – US “net” oil imports up +0.489 mmb/d WoW at 3.315 mmb/d

US “NET” imports were up +0.489 mmb/d to 3.315 mmb/d for the Dec 17 week. US imports were down -0.277 mmb/d to 6.194 mmb/d. US exports were down -0.766 mmb/d to 2.879 mmb/d. The WoW decrease in US oil imports was driven by US’s Top 10 imports by country were down -0.792 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was down this week by -0.732 mmb/d to 3.147 mmb/d, which is now ~0.1 mmb/d above the average levels in Jan/Feb of 2020. (ii) Saudi Arabia was down 79,000 b/d to 0.384 mmb/d this week. (iii) Colombia was down -0.086 mmb/d to 0.146 mmb/d. (iv) Ecuador decreased imports this week, down 0.070 mmb/d to 0.195 mmb/d. (v) Iraq was up +330,000 b/d to 359,000 b/d. (vi) Venezuela remained at 0 due to US sanctions. (vii) Mexico was down by 66,000 b/d to 0.503 mmb/d.

US “net” oil up WoW

Figure 16: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d)	Oct 8/21	Oct 15/21	Oct 22/21	Oct 29/21	Nov 5/21	Nov 12/21	Nov 19/21	Nov 26/21	Dec 3/21	Dec 10/21	Dec 17/21	WoW
Canada	3,441	3,254	3,472	3,685	3,550	3,429	3,559	3,773	3,869	3,879	3,147	-732
Saudi Arabia	304	319	336	397	598	453	468	475	393	463	384	-79
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	316	462	631	439	365	499	460	657	625	569	503	-66
Colombia	382	211	141	71	121	302	141	214	71	232	146	-86
Iraq	188	239	155	187	51	42	131	221	248	29	359	330
Ecuador	208	0	222	92	117	103	149	112	0	265	195	-70
Nigeria	211	137	0	64	64	1	68	4	175	217	128	-89
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	5,050	4,622	4,957	4,935	4,866	4,829	4,976	5,456	5,381	5,654	4,862	-792
Others	944	1,203	1,297	1,237	1,242	1,362	1,460	1,148	1,118	817	1,332	515
Total US	5,994	5,825	6,254	6,172	6,108	6,191	6,436	6,604	6,499	6,471	6,194	-277

Source: EIA, SAF

Oil – Pemex oil production still stuck around 1.7 mmb/d, but partners now 60,000 b/d

On Thursday, Pemex released its November production for its interests was 1.691 mmb/d of oil, which is basically unchanged for all of 2021 and flat MoM. Pemex’s oil production in

Pemex oil still stuck ~1.7 mmb/d

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October was lower due a fire on a platform and we would have expected it to be higher in November. Pemex's interest YTD Nov 30 production is 1.681 mmb/d. Pemex has been unable to grow its own oil production. We haven't previously noted the non-Pemex oil production in Mexico, but it is now up to 60,000 b/d and has averaged 48,000 b/d for YTD Nov 30. As a result, total Mexico oil production (Pemex and non-Pemex) was 1.751 mmb/d for Nov and 1.729 mmb/d for YTD Nov 30. Oct. Below is our chart tracking Pemex oil production.

Figure 17: Pemex Mexico Oil Production

Oil Production (thousand b/d)	2016	2017	2018	2019	2020	20/19	2020	2021	21/20
Jan	2,259	2,020	1,909	1,623	1,724	6.2%	1,724	1,651	-4.2%
Feb	2,214	2,016	1,876	1,701	1,729	1.6%	1,726	1,669	-3.5%
Mar	2,217	2,018	1,846	1,691	1,745	3.2%	1,714	1,697	-2.8%
Apr	2,177	2,012	1,868	1,675	1,703	1.7%	1,711	1,693	-0.6%
May	2,174	2,020	1,850	1,663	1,633	-1.8%	1,695	1,688	3.4%
June	2,178	2,008	1,828	1,671	1,605	-3.9%	1,680	1,698	5.8%
July	2,157	1,986	1,823	1,671	1,595	-4.5%	1,668	1,701	6.6%
Aug	2,144	1,930	1,798	1,683	1,632	-3.0%	1,663	1,657	1.5%
Sept	2,113	1,730	1,808	1,705	1,643	-3.6%	1,667	1,709	4.0%
Oct	2,103	1,902	1,747	1,655	1,627	-1.7%	1,663	1,692	4.0%
Nov	2,072	1,867	1,697	1,696	1,633	-3.7%	1,660	1,691	3.6%
Dec	2,035	1,873	1,710	1,706	1,650	-3.3%	1,659		

Source: Pemex

Oil – Mexico November oil exports -12.5% YoY to 1.025 mmb/d

On Thursday, Pemex reported November oil exports were 1.025 mmb/d, which was higher MoM vs October of 0.935 mmb/d, but down 12.5% YoY vs November 2020 of 1.115 mmb/d. We would have expected higher MoM oil exports given the fire at the offshore E-Ku-A2 platform in October that impacted operations. Pemex oil exports to US were 0.568 mmb/d in November, which was in line with the average of the prior few months. Below is our table of the Pemex oil export data.

**Pemex
November oil
exports**

Figure 18: Pemex Mexico Oil Export

Oil Exports (thousand b/d)	2016	2017	2018	2019	2020	20/19	2020	2021	21/20
Jan	1,119	1,085	1,107	1,071	1,260	17.6%	1,260	979	-22.3%
Feb	1,241	1,217	1,451	1,475	1,093	-25.9%	1,179	1,006	-8.0%
Mar	1,062	1,001	1,176	1,150	1,144	-0.5%	1,167	925	-19.1%
Apr	1,081	1,017	1,266	1,023	1,179	15.2%	1,180	923	-21.7%
May	1,204	958	1,222	1,205	1,062	-11.9%	1,156	1,031	-2.9%
June	1,098	1,157	1,110	995	1,114	12.0%	1,149	1,106	-0.7%
July	1,146	1,255	1,156	1,079	1,051	-2.6%	1,135	1,173	11.6%
Aug	1,261	1,114	1,181	1,082	1,190	10.0%	1,142	1,099	-7.6%
Sept	1,425	1,159	1,206	995	1,023	2.8%	1,132	983	-3.9%
Oct	1,312	1,342	1,027	963	908	-5.7%	1,110	935	3.0%
Nov	1,273	1,388	1,135	1,114	1,171	5.1%	1,115	1,025	-12.5%
Dec	1,115	1,401	1,198	1,115	1,243	11.5%	1,126		

Source: Pemex

Oil – Ecuador force majeure on oil exports continues

As of 7am MT news cut off, it's still not clear when Ecuador will be able to restore their oil exports. Last week's (Dec 19, 2021) Energy Tidbits highlighted Ecuador being forced to declare force majeure on oil exports as heavy rains has forced them to cut crude production. Following the force majeure, Argus Media reported [\[LINK\]](#) that crude production was down to 12% of its normal levels and Ecuador's energy minister stated "If there is no more rain in the

**Ecuador force
majeure on oil
exports**

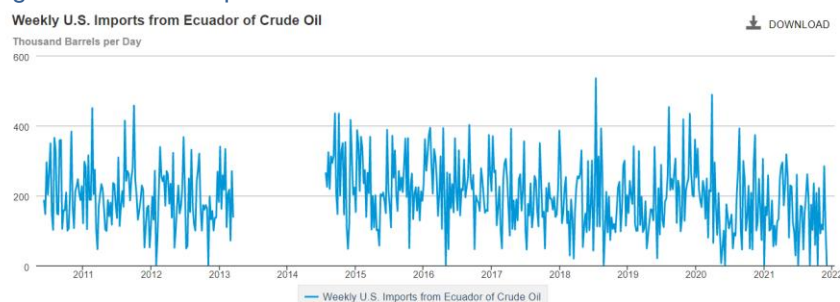
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area, and the work on the seventh SOTE bypass is done on schedule without any other mishaps, we pledge to restart crude pumping in 17 days” ie. sometime in early Jan. We have not seen any indication from Ecuador on a timing change. On Thursday, Bloomberg reported “Ecuador’s crude oil output fell to 59,036 b/d as of Dec. 22 due to the shutdown of pipelines that triggered a force majeure declaration, according to data from the government hydrocarbons regulator. * On Dec. 21, output fell to 84,209 b/d, compared with 455,847 b/d on Dec. 9, the day before the crisis broke.”

Ecuador loss of oil exports is a positive to Cdn heavy/medium crude

When we first saw the force majeure, we tweeted [\[LINK\]](#) “Timely restart of #TransMountain. Ecuador declares force majeure, exported ~345 kbd in Oct, @EIAgov est ~125 kbd to PADD 5 West Coast in Nov. CAN is #1 exporter to PADD 5 at ~20% of mkt or ~275 kbd. Positive for Cdn heavy/med #Oil. Thx @skueffner #OOTT.” Ecuador is a large exporter to the PADD 5, the US west coast, and Canada is the largest oil exporter to PADD 5 with about 20% of the total. Its why we said it was a timely return to some volumes on Trans Mountain

Figure 19: US oil imports from Ecuador of Crude Oil



Source: EIA

Oil – Norway November oil production of 1.729 mmb/d, down -5% MoM

The Norwegian Petroleum Directorate released its November production figures [\[LINK\]](#) of 1.729 mmb/d of oil, which is -0.2% YoY and -5% MoM from October of 1.821 mmb/d. November production was down slightly (-0.092 mmb/d) with the forecast amount of 1.818 mmb/d. The NPD does not provide any explanations for the MoM changes other than said the 5% decrease was attributed to undisclosed technical reasons. 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, and tax breaks from the government allowing increased capex in the energy sector. Our Supplemental Documents package includes the NPD November release.

Norway oil
production

Figure 20: Norway November 2021 production

		Oil	Sum liquid	Gas	Total
		mill bbl/d	mill bbl/d	MSm ³ /d	MSm ³ o.e/d
Production	November 2021	1,729	1,999	337,9	0,656
Forecast for	November 2021	1,821	2,142	330,7	0,671
Deviation from forecast	November 2021	-0,092	-0,143	7,2	-0,015
Deviation from forecast in %	November 2021	-5,1 %	-6,7 %	2,2 %	-2,2 %
Production	October 2021	1,818	2,061	338,1	0,666
Deviation from	October 2021	-0,089	-0,062	-0,2	-0,010
Deviation in % from	October 2021	-4,9 %	-3,0 %	-0,1 %	-1,5 %
Production	November 2020	1,732	2,031	320,5	0,643
Deviation from	November 2020	-0,003	-0,032	17,4	0,013
Deviation in % from	November 2020	-0,2 %	-1,6 %	5,4 %	2,0 %

Source: Norwegian Petroleum Directorate

Oil – Another force majeure in Nigeria

Nigeria continues to be the underperformer in OPEC+ relative to its quota and one of the key reasons is that they continue to get by short term force majeure. On Wednesday, Bloomberg reported “Shell declared force majeure on shipments of crude oil from Forcados, one of Nigeria’s largest export terminals, according to a notification from NNPC seen by Bloomberg. * Force majeure took effect on Dec. 21, after shipments of crude to the facility were halted. * Shell and NNPC weren’t immediately available for comment. * NOTE: Forcados loadings are regularly above 200k b/d, loading plans show.” It doesn’t sound like a long event. Rather the reason we note it is that it is the 4th short term force majeure in 2021.

Another Nigeria
force majeure

Oil – Russia back to pre-Covid oil production levels in April

It looks like Novak wanted to make sure there wasn’t any doubt in Russia’s near term oil production potential following the doubt raised last week by Lukoil management who said “I think, somewhere, if at the same rate of 400 thousand b / d, then by April we will reach almost pre-crisis levels,” he said, adding that by April the company will also use all free capacities.” In the TASS reporting of Novak’s interview with Russia-24 TV channel, TASS wrote “Russia can reach pre-pandemic levels of oil production in 2022 and increase it to 540-550 million tons. Russian Deputy Prime Minister Alexander Novak said this in an interview with the Russia-24 TV channel. “As for Russia, we expect to reach the levels that we produced before the cuts by May. Thus, next year our industry will produce more than in 2021, we expect somewhere around 540-550 million tons,” - he remarked.” TASS also reported that Novak sees oil demand by to pre-Covid levels by the end of 2022 (what he has said before) and his saying “The cost of oil in 2022 may remain at a high level, there are few risks of its decline”.

Novak: Russia
oil production
back up in April

Oil – Next OPEC+ ministerial meeting is Tuesday Jan 4

As a reminder the 23rd OPEC+ ministerial meeting from Thurs Dec 2 still “remains in session” so still hasn’t been terminated and can be resumed at any moment. However, no one really expects it to be resumed given that it less than two weeks until the next OPEC+ ministerial meeting that is scheduled for Tues Jan 4.

OPEC+ meeting
is Jan 4

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Oil – JCPOA, 8th round to start tomorrow, Dec 27

The 8th round JCPOA discussions are expected to start tomorrow in Vienna. Last week's (Dec 19, 2021) Energy Tidbits noted that, for once, there seemed to be a common view on the discussions – there was some progress, albeit minor. It was pretty quiet on the JCPOA front this week ahead of the 8th round. That is until earlier today with Iranian reports such as PressTV [\[LINK\]](#) *"An informed source has shed light on France's attempts to throw a wrench in the latest round of talks in Vienna between Iran and the P4+1 countries, saying Paris' two-day absence in the negotiations helped the negotiating sides make progress in preparing drafts. Speaking on condition of anonymity, the source told IRNA news agency that the French negotiating team did not play a "constructive" role in the negotiations and that it significantly slowed down the pace talks by throwing a wrench in the process. "The presence of French representatives at the G7 foreign ministers summit in Liverpool and their two-day absence at a time when delegations in Vienna were working on the drafts in the previous round of negotiations led to significant progress. However, after their return from Liverpool, a disruptive trend started again," he said."*

**JCPOA 8th round
starts tomorrow**

Oil – How will Saudi Arabia and Iran missiles impact JCPOA and Israel

We still think the increasing missile capability in the Middle East is a huge wildcard to the JCPOA, security in general and what Israel may do. Missile capability is growing and there are more threats, whether defensive or offensive. (i) A big under the radar wildcard was the CNN Thursday report *"CNN Exclusive: US intel and satellite images show Saudi Arabia is now building its own ballistic missiles with help of China"* [\[LINK\]](#). CNN reported *"US intelligence agencies have assessed that Saudi Arabia is now actively manufacturing its own ballistic missiles with the help of China, CNN has learned, a development that could have significant ripple effects across the Middle East and complicate the Biden administration's efforts to restrain the nuclear ambitions of Iran, the Saudis' top regional rival. Saudi Arabia is known to have purchased ballistic missiles from China in the past but has never been able to build its own -- until now, according to three sources familiar with the latest intelligence."* (ii) On Monday night, there were reports of explosions over Bushehr (Iran), the location of Iran's nuclear facilities. Iran media reported that Iran was just conducting anti-aircraft defense drills at night. Hmm! (iii) On Friday, Iran conducted a military exercise of its vast missile arsenal including missiles that can reach Israel. PressTV reported [\[LINK\]](#) *"The commander of the Islamic Revolution Guards Corps (IRGC) says the elite military force's large-scale military exercises in Iran's southern areas this week sent "very clear and obvious" messages to the Zionist regime, warning the Israeli authorities to watch their acts vis-à-vis the Islamic Republic.. "The message of this drills is a serious, real and field warning to the threats of the Zionist regime officials to be aware of their mistakes and blunders," Major General Hossein Salami said on Friday. "We will cut off their hands if they make a wrong move," he added."* (iv) Israel Public broadcaster tweeted on the Iran missile exercises [\[LINK\]](#) *"Iran is threatening to attack the Dimona nuclear reactor with missiles - if Israel attacks its nuclear facilities. At the end of the military exercise of the Revolutionary Guards, television in Tehran broadcast footage documenting missile strikes on a target similar to a reactor in the south".* The tweet included a video clip that included a couple of the below images. Our Supplemental Documents package includes the CNN report.

**More missile
threats**

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Figure 21: Iran missiles hitting target similar to Israel's Dimona nuclear reactor



Source: Kann News, Israel

Oil – Libya Dec 24 Presidential postponed, no dated yet set

It's hard to see Libya returning oil production returning now that Libya is in a limbo period with the Dec 24 election postponed to an indeterminate date. But as long as Libya is still planning to hold the elections, Libya is avoiding the return to chaos. However, it will be important to actually plan and hold the election in the near term. As of our 7am MT news cut off, we have not seen any formal reports on what exactly going to happen in the interim now that the Dec 24 presidential election was postponed until some undecided date. Its too bad the election didn't happen on Dec 24 as it was the 70th anniversary of Libya's independence. The reports point to trying to hold the presidential election on the same day as the scheduled parliament elections on Jan 24. The five western nations (US, UK, France, Germany and Italy) support the continuation of the interim government until the elections and want Libya to set a new election date and issue the final list of candidates for President.

**Libya Dec 24
Presidential
election
postponed**

Oil – India oil imports up MoM to 4.50 mmb/d in November

On Tuesday, India's Petroleum Planning and Analysis Cell released crude oil import data for November [\[LINK\]](#). Total crude oil imports increased 0.55% YoY in Nov to 4.55 mmb/d and increased from 4.05 mmb/d in October, 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 13.4% YoY. Petroleum products demand for November was -11.4% YoY to 4.18 mmb/d and increased slightly MoM from 4.04 mmb/d in October. Refinery throughput in November was +3.35% YoY to 5.25 mmb/d and a increase from 4.98 mmb/d in October.

**India oil imports
up in Nov**

Oil – South Korea to release 3.17 mmb in Jan/Mar in support of US request

On Wednesday, Bloomberg reported [\[LINK\]](#) that South Korea is planning to release 3.17 mmb of crude and other oil products from its stockpiles from January to March of 2022 for its announced support of the US release of strategic reserves. The nations energy ministry announced that 2.08 mmb of crude will be released to South Korean refiners, and 1.09 mmb of oil products will be released via auctions. Bloomberg noted "*South Korea, home to some of Asia's most sophisticated refineries, consumes about 2.6 million barrels of oil a day.*"

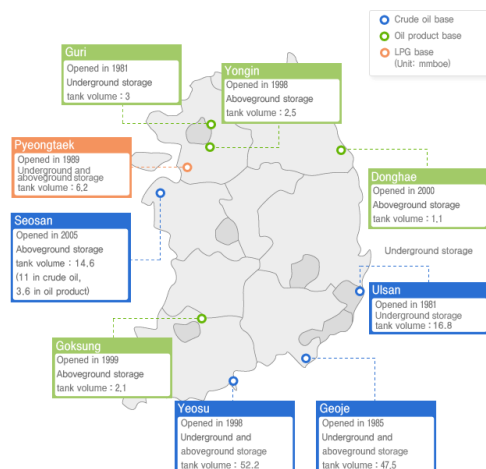
**South Korea oil
reserves release**

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South Korea had 91 mmb strategic stockpiles at Aug 31

We tweeted [\[LINK\]](#) “South Korea to deliver on #Oil release commitment to #Biden. @iamsharoncho reports KOR will release 2.08 mmb crude & 1.09 mmb petroleum products from Jan to Mar. Korea National Oil Corporation held 97 mmb in stockpiles at Aug 31, 2021, see #KNOC map below. #OOTT”. Our tweet included the below KNOC strategic reserves overview.

Figure 22: South Korea Stockpiling Facilities



Source: KNOC

Oil – Vortexa est 86.32 mmb at Dec 24, -6.98 mmb WoW vs revised up Dec 17

Note that we are referencing the Vortexa global crude oil floating storage data posted on the Bloomberg terminal as of 3pm MT yesterday and that these estimates often get revised over the weekend, and then again for the next week. Note we do not check daily for the revisions so our comments are compared to the Dec 17 and Dec 10 estimates that were posted on Sat Dec 18 at 4pm MT. Our takeaway is much the same as the last few weeks, there are weekly revisions so its hard to draw clear views based on this week's estimate but, if we look at the trends, global crude oil floating storage is roughly where it was when OPEC+ started its big production increases on July 1 ie. the extra OPEC+ oil has been absorbed by the market and there aren't a lot of extra barrels looking for homes at sea. As of 3pm MT Sat, Bloomberg has posted Vortexa crude oil floating storage as of Dec 24 at 86.32 mmb, which -6.98 mmb WoW from the upwardly revised Dec 17 estimate of 93.30 mmb. Dec 17 was originally estimated 7.41 mmb lower at 85.89 mmb as of Sat Dec 18 at 4pm MT. Last Sat at 4pm MT, Dec 10 was estimated at 89.18 mmb vs 87.99 mmb estimate today at 3pm MT. Dec 24 estimate of 86.32 mmb is down 137.65 mmb from the June 26, 2020 peak of 223.97 mmb. Dec 24 estimate of 86.32 mmb is +34.83 mmb vs the pre-Covid 51.49 mmb as of Dec 23, 2019. Below is the Bloomberg posted Vortexa crude oil floating storage data for the past two years as was posted yesterday at 3pm MT.

Vortexa floating storage

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Figure 23: Vortexa Floating Storage Dec 24, Posted on Bloomberg 3pm MT Sat



Source: Bloomberg, Vortexa

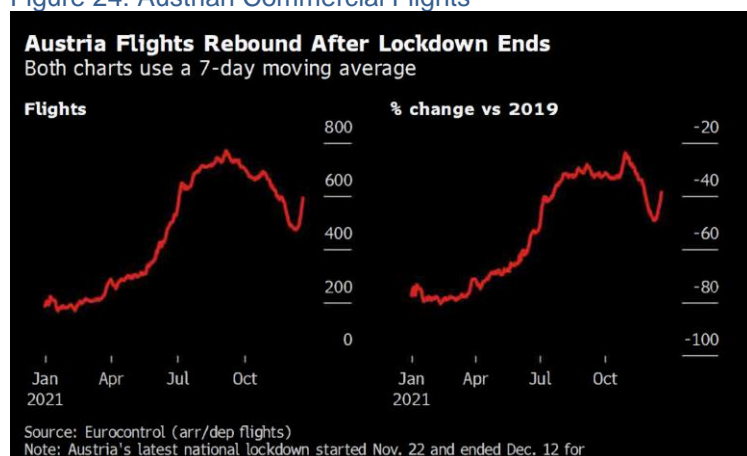
Oil – Bloomberg Oil Demand Monitor, US sets record amid Omicron surge

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. It appears the surge of Omicron around the world has yet to affect the demand for oil, as the United States set a record for petroleum products supplied and European air travel has begun to increase since the dip in the last two weeks of November. The latest data from the EIA showed the total amount of products leaving American refineries jumped to 23.2 mmb/d, the highest level on record since 1990. Distillate consumption was up 19% compared to pre-pandemic levels, while gasoline was slightly above. Austrian air traffic continued to pick up as the country further distances itself from the lock down that ended on Dec 12. Germany and Switzerland's departures and arrivals were 22% below the equivalent week from 2019, up from 36% below last week. Commuting times was down across all 13 monitored cities, the exception being Tokyo; New York and London commute times were down 37% and 67% respectively for the week ended Dec 20. A broader measure of urban traffic showed that congestion levels are at their highest levels versus 2019 in the last 15 weeks which suggests Omicron has not yet curbed road use. Toll roads data noted a sizeable decline in France, Italy and Spain over the past three weeks; France is now down 6.6% from the equivalent week in 2019. US passenger though put was 8.3% above 2019 levels for the week ended Dec 20, while seat capacity remains down 14% from 2019 levels. Singapore remains the furthest from pre-pandemic levels, down 71% from the equivalent week in 2019. Refinery utilization was down 0.8% this week, driven by GoM refineries that were down 1.8%, US East and Midwest refineries remain above pre-pandemic levels. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Bloomberg's Oil Demand Monitor

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Figure 24: Austrian Commercial Flights



Oil – November truck tonnage +1.3% MoM, up 2.5% YoY

Demand for truck haulage continues to grow, but supply shortages are still an obstacle for the industry. Truck tonnage was up during November for the fourth consecutive month, but it is worth noting that the index fell by 4.6% from April to July so not quite back to the levels observed in 2020. The American Trucking Association released its seasonally adjusted Truck Tonnage Index for November on Tuesday [\[LINK\]](#). November observed a 1.3% increase MoM from October, after increasing 0.4% last month. It was the largest gain since May but Chief Economist Bob Costello noted *“The recent streak is very good, but it should be noted that from April through July the index fell a total of 4.6%, so we are not quite back to where we were last spring. With that said, the index saw the largest gain from a year earlier since May. In November, strong factory output and housing starts helped push the index higher.”* The index is up 2.5% YoY from November 2020, with a consecutive YoY gain. 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. Our Supplemental Documents package includes the ATA release.

**Truck tonnage
index +2.5% YoY
in November**

Oil – Attention getting graph from White House on US gasoline price dropping

We would be including this graph if the Trump White House or any White House. And the reality is these types of victory laps are taken by both parties. But we have to give the Biden White House kudos for knowing how to provide a graph that gets your attention. When we saw this graph tweeted by Kate Berner, White House Deputy Communications Director [\[LINK\]](#), we didn't realize the massive drop in US gasoline prices. However, we then looked at the scale and saw it was in pennies. That's legitimate as the US still has their penny for another 18 months. We were just surprised that they are graphing the change in gasoline prices in pennies. So even though it got our attention due to the size of the bars, it only got a chuckle when we saw the scale.

**White House
gasoline price
graph**

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Figure 25: White House Price per Gallon of Regular Gasoline



Source: White House

Oil & Natural Gas – TIPRO Texas oil natural and gas jobs up for 7th consecutive month

No one should be surprised that high oil and natural gas prices continues to drive increasing Texas oil and gas employment. The Texas Independent Producers and Royalty Owners Association (TIPRO) updated their employment figures for the Texas upstream sector for November [\[LINK\]](#). The release noted that employment for October totalled 185,800, marking an increase of 2,400 jobs from October. It was the 7th consecutive month of job growth in the industry since April. The release stated, “At 185,800 upstream jobs, November 2021 jobs are up by 24,800, or 15.4%, from November of 2020. Since the low point in September of 2020, growth months have outnumbered decline months 12-to-2, with industry adding 28,300 Texas upstream jobs.” There has been strong job posting data for November in upstream, midstream, and downstream sectors, showing a continued demand for talent in the Texas oil and natural gas industry. From the release “The Texas economy continues to rebound and the upstream sector’s addition of two thousand-plus jobs every month for the past six months is a prime example of how critical this industry is to the state’s recovery,” said Todd Staples, president of the Texas Oil and Gas Association. “These jobs pay among the highest wages in Texas and the activity of this industry supports communities across the state, whether you live in the oil patch or not. These positive job numbers are good news for all Texans and Americans.” Our Supplemental Documents package includes the TIPRO release.

TIPRO November jobs update

Energy Transition – Norway’s wealth fund is another that isn’t selling oil & gas

We believe there is the case for multiple expansion for oil and gas stocks in 2022 as investors realize more significant institutional investors, especially pension funds, won’t be selling down oil and gas stocks. The predictable is happening – more long term investors realize that the demise of oil and gas is many years further away than the Net Zero aspirations and that they will need oil and gas stocks for their returns. We expect to see more of these types of announcements/news over the next couple weeks. History has shown that the Xmas period is the time for announcements to be made to get the minimum attention. On Tuesday, we tweeted [\[LINK\]](#) “Multiple expansion for #Oil #NatGas stocks? Norway wealth fund has #MacronMoment & follows @cppib to slow play #EnergyTransition, won’t sell, rather be a driving force for their equity investments to “adjust to #NetZero emissions over time”. Less sellers is always good. #OOTT.” Norway’s sovereign wealth fund may be saying it a little differently but has come to a similar conclusion as CPPIB last week – they aren’t selling oil and gas. They don’t say it specifically but we also believe they won’t be hesitating to buy. On Tuesday, Norway outlined its view on capital allocation [\[LINK\]](#) that had

Norway not selling oil and gas stocks

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a number of key items. (i) High emissions sectors including oil and gas make up 14% of Norway's equity portfolio. These are companies that Norway believes must be restructured significantly to manage transition risk. (ii) *"But that is not our approach, nor is it the expert group's proposal. Instead of selling ourselves out, we will through active ownership be a driving force for the companies to adapt. In order to influence, we must actually be owners."* (iii) They want to be invested in all sectors. *"If we are to achieve the best balance between expected return and risk, we must spread the investments widely and own a little of everything in the market. There is a solid professional basis for this approach."* (iv) Priority to those that have the largest emissions ie. where they can effect change. *"Going forward, we will increase ownership activity on climate, both in scope and depth. We will give particular priority to ownership activity towards the companies that have the largest emissions, towards those that have not published their own climate plans or have inadequate climate reporting."* Our Supplemental Documents package includes the speech.

CPPIB's "new" investment approach calls oil & gas a strategic sector

Last week's (Dec 19, 2021) Energy Tidbits highlighted CPPIB's Dec 15 "new" investment approach. In that memo, we wrote *"There was a significant positive to oil and gas investing this week and one that we expect others to follow, and this will lead to more long term investor capital allocation to oil and gas. On Wednesday, CPPIB announced its "new" investment approach in its release "CPP Investments highlights importance of decarbonizing hard-to-abate sectors in addressing climate change".* [\[LINK\]](#) *This is a significant change for a couple of reasons and one that we have been expecting based on the feedback we hear from long term investors. CPPIB calls it a "new investment approach" including on oil and gas. (i) CPPIB is a leader and is providing the messaging framework that we expect others to follow. Big long term investors like CPPIB have mostly all come out plans on how they taking their investment strategy to Net Zero. But, in discussions, more are realizing the Energy Transition isn't happening as fast as expected so their challenge is how to slow play their capital allocation to Net Zero. CPPIB provide the messaging on how they will do so. (ii) CPPIB now calls oil and gas a "strategic sector" and one for capital allocation. CPPIB said "helping businesses decarbonize is critical to addressing climate change, according to a recent perspective published by Canada Pension Plan Investment Board (CPP Investments). The perspective, "Investing to enable an economy-wide evolution to a low-carbon future," highlights the opportunity decarbonization presents for long-term investors, noting the need to address a particularly serious obstacle to decarbonization: strategic sectors that are essential, high-emitting and hard-to-abate. The perspective also outlines CPP Investments' new investment approach which aims to identify, fund and support companies that are committed to creating value by lowering their emissions over time, consistent with CPP Investments' time horizon advantage. "High-emitting companies that successfully navigate the economy-wide evolution to a low-carbon future will preserve and deliver embedded value for patient long-term investors like CPP Investments," said Deb Orida, Global Head of Real Assets & Chief Sustainability Officer. "This new investment approach complements the Fund's ongoing commitment to investing in companies that have the potential to develop innovative climate technologies around the world and furthers our existing capabilities in technologies that enable the energy evolution." Strategic sectors that are essential,*

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high emitting and hard-to-abate within this investment approach include agriculture, chemicals, cement, conventional power, oil and gas, steel and heavy transportation. The successful decarbonization of these sectors is not only essential to meet wider net-zero ambitions, but also to sustain economic growth, stability and a responsible transition.” Our Supplemental Documents package includes the CPPIB announcement.

Our #1 2022 Prediction – leaders like CPPIB/Norway have a #MacronMoment

Our Dec 12, 2021 Energy Tidbits highlighted our #1 2022 prediction that more Energy Transition leaders (politicians and capital providers) will come out of the closet and admit (most indirectly) that they need to change their energy transition plans as the energy transition is taking longer, be bumpy and will cost more. On Dec 9, we tweeted [\[LINK\]](#) “Time for #2022Predictions. My #1 is more #EnergyTransition #NetZero leaders come out of closet, have a #MacronMoment ie. have “transition” not self inflicted shortage so 2021 energy crisis isn’t every year. A return to #EnergySecurity = #Oil #NatGas #LNG strong thru 2030. #OOTT.” A #MacronMoment can take three forms. (i) A direct #MacronMoment clearly saying it isn’t working as planned. We aren’t picking on Macron, but he recently said it the clearest when he warned the energy transition aspiration has to be modified/reduced or else there will be years of an energy crisis. The day before COP26 started, we tweeted [\[LINK\]](#) on Macron’s comments to the FT [\[LINK\]](#) that was a clear view on higher fossil fuel prices for the foreseeable future. Macron said “on demand for fossil fuels isn’t going away for the foreseeable future. Macron said “What is happening now is ironic, because we are building a system where in the medium and long term fossil energy will cost more and more, that’s what we want [to fight climate change].” he said.” Japan is another calling for a pragmatic time frame ie a change in the plan. (ii) Japan now says must have a “pragmatic time frame” for decarbonization. No one should be surprised to see how Japan says their #MacronMoment. They use Japan-speak for the energy transition aspirations plan isn’t working and needs to be changed. On Nov 9, we tweeted [\[LINK\]](#) on Japan’s release [\[LINK\]](#) on its conference with IEA Executive Director Faith Birol. Japan wrote “The two sides also exchanged views on acceleration of decarbonization efforts following COP26, and shared the importance on measures with pragmatic time frame based on individual circumstances that each countries face including its renewable energy potentials”. A pragmatic time frame or a go slow process, whatever you want to call it, it means the same thing – Japan doesn’t want to get rid of fossil fuels too quickly. (iii) The US doesn’t say its isn’t work, just that there will be higher energy costs for years to come. US Energy Secretary Granholm has shown the third way of admitting the energy transition plan isn’t working. She avoids saying the plan isn’t working or needs to be changed, just that she puts on the record that high energy costs are here for years. We tweeted on her comments on MSNBC Morning Joe and created a transcript of her saying “So the long term strategy is that. and yes we have a short term cost issue because the economy is still coming back on. we have a supply, demand that does not, the supply doesn’t meet the demand. that is an issue we are going through. The president is all over this both in the short term and in the long term.”

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Energy Transition – SUVs electrifying faster in 2021 than in previous years

There was a good reminder from the International Energy Agency this week on how SUV sales continue to be strong and the incremental emissions from higher emissions SUVs more or less offsets the benefit of the increasing EV sales. The IEA released an article on Tuesday [\[LINK\]](#), that summarized the resiliency of electric vehicles in a wider car market. Electric car sales have made up 34% of sales in Germany, 28% in the UK and 23% in France, reaching record levels at the end of November. Global SUV sales have also remained resilient throughout the pandemic, growing by 10% in 2021 and accounting for 45% of all new car sales. With 35 million new SUV's on the road, global emissions have also increased by 120 mm tons in 2021. To put in perspective, if SUV's were a sovereign nation, they would rank 6th in absolute emissions with over 900 mm tons of CO2. There has been an increase in the number of electric EV models released in 2021, with approximately 55% of electric car models now SUVs, up from 45% in 2019. The article noted *"To offset the growth in global emissions since 2010 due to the increase in the number of SUVs, the world's electric car fleet would need to have expanded to become twice as large as it is today. The good news is that skyrocketing electric car sales in 2021 are expected to be just about sufficient to cancel out the additional emissions stemming from the 35 million SUVs that were purchased instead of average-sized cars."*

Electrification of SUVs to offset higher emissions

Energy Transition – Reminder Tesla's batteries aren't cheap to replace if no warranty

We expect most saw the reports of the Finnish Tesla S owner who blows up and incinerates his Tesla for protesting the cost of replacing his Tesla battery, reported at \$22,000. The owner had a Tesla S Model 2012 and apparently his battery failed causing the need for a replacement batter. In the initial years, Tesla offered 8-yr unlimited mileage powertrain warranties for Model S and Model X. It sounds like he just missed the warranty window. But it is also a reminder that Teslas have been in service for several years and the battery replacement cycle is approaching where batteries will need to be replaced.

Tesla battery replacements aren't cheap

Capital Markets – IFIC: Mutual funds and ETF assets +0.2% in November

On Monday, the IFIC (Investment Funds Institute of Canada) reported [\[LINK\]](#) mutual funds and ETF sales for November. IFIC does not provide any commentary on the numbers but there should be no surprise that the assets are up. Market price increases accounted for majority of the overall increase in net assets. For November, the IFIC reported *"Mutual fund assets totalled \$2.034 trillion at the end of November 2021. Assets increased by \$3.3 billion or 0.2% compared to October 2021. Mutual funds recorded net sales of \$7.5 billion in November 2021. ETF assets totalled \$335.9 billion at the end of November 2021. Assets increased by \$4.0 billion or 1.2% compared to October 2021. ETFs recorded net sales of \$5.1 billion in November 2021."* Our Supplemental Documents package includes the IFIC release.

Mutual Fund & ETF assets increase MoM

Capital Markets – USDA consumer price index for food +6.1% YoY

Whenever we see the US government food price data, we take the opportunity to ask a handful of friends that live in the US if they believe their food bills are up ~5% YoY. The common response was laughter and that they believe their grocery bills are up 15 to 20% YoY. The reason for the question was because the USDA released its monthly food price index data for Nov on Tuesday [\[LINK\]](#), and we wanted to hear their reaction to the USDA numbers. The USDA posted its consumer price index for food data for Nov, which is +0.6%

USDA consumer price index for food

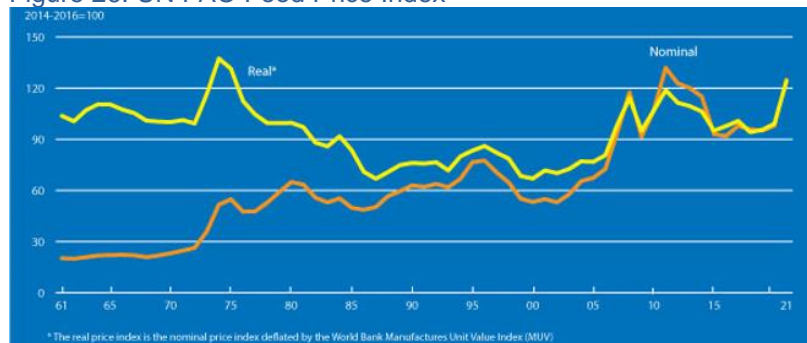
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MoM and +5.8% YoY. This is for the overall food price index, which weights various changes like beef/veal +20.9% YoY, pork +16.8%, eggs +8% with changes like fresh vegetables +2.2% YoY, dairy products +1.6% YoY and cereals & bakery products +4.6% YoY.

Recall UN FAO Food Price Index for Nov was +27.3% YoY

Our Dec 5, 2021 Energy Tidbits highlighted the Dec 2 release of the UN FAO Food Price Index [\[LINK\]](#) titled “*The FAO Food Price Index at its highest since July 2011.*” Note this is on a Real price basis. The FFPI averaged 134.4 points for Nov 2021, which was +1.2% MoM and +27.3% YoY. All food categories are up big YoY, but led by Cereal Price Index that was +3.1% MoM and +23.2% YoY and Dairy Price Index that was +3.4% MoM and +19% YoY. The Vegetable oil Index was down marginally after a record high register last month. Below is the all time FFPI graph.

Figure 26: UN FAO Food Price Index



Source: UN

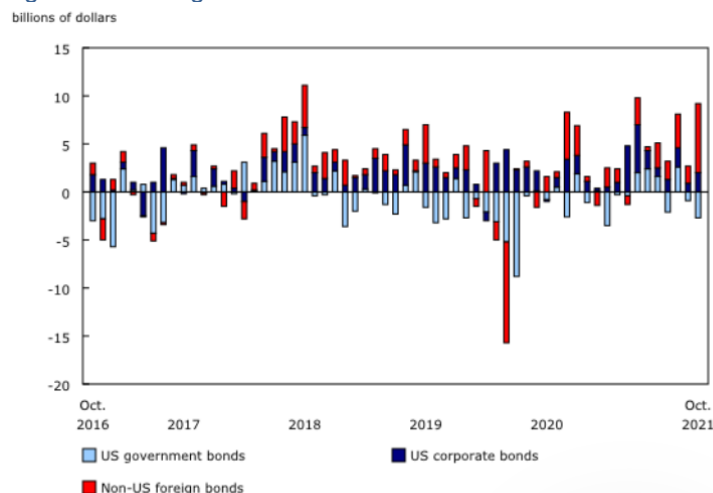
Capital Markets – Canadian investors acquire \$5.4 bn in foreign securities

Statistics Canada released Canada's international transactions in securities for October 2021 on Dec 17 [\[LINK\]](#). Foreign investors acquired \$23.9 bn of Canadian securities in October with corporate debt securities and government bonds leading purchases. This marks the largest investment since April 2020 when a record investment was incurred at the outset of Covid. Non-residents added \$19.4 bn of Canadian debt securities to their portfolios in October. Non-resident investors acquired 8.4 billion of Canadian government debt securities in October, a seventh consecutive month. Over the month, foreign investors purchased \$3.5 bn of Canadian equity securities following a \$3.2 bn investment in September. Long term interest rates continued their upward trend this month. Canadian investors acquired \$5.4 bn of foreign securities in October, down from \$16.6 bn in September. Investment activity was led by acquisitions of non-US foreign bonds and a divestment in non-US foreign shares.. The report stated, “*Canadian investors reduced their exposure to foreign shares by \$1.8 billion in October, after investing \$16.6 billion in September and \$8.0 billion in August. Investors sold \$2.5 billion of non-US shares in October, mainly Asian shares. This activity was moderated by a \$652 million investment in US shares. US stock prices, as measured by the Standard and Poor's 500 composite index, were up by 6.0% in October to reach a record-high level..*” Below is a graph illustrating foreign investment in Canadian debt securities.

International
transactions in
Cdn securities

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Figure 27: Foreign Investment in Canadian debt securities



Source: Statistics Canada

Demographics – US population grows by 0.1% in 2021, slowest rate in history

Domestic migration out of the northeast and west saw the southern US have the largest population growth in 2021. The US Census Bureau released their 2021 Vintage National and State Population Estimates on Tuesday [\[LINK\]](#). According to the study, the United States population grew by 392,665 or 0.1% in 2021; this marks the lowest rate since the nation's founding. The slow rate of growth is attributed to the decrease in net international migration, decreased fertility and an increased mortality rate partly due to the COVID-19 pandemic. Between July 2020 and July 2021, the US's growth was due to natural increase in births, and net international migration. The South was the most populated region, encompassing 38.3% of the US population. It was the only region that had net positive domestic migration. The northeast saw a decline in population, mostly attributed to a natural decrease. The west saw an increase in population, despite having negative net migration, which was attributed to natural increases in births. Texas, Florida and Arizona saw the largest positive net domestic migration amongst all states. California and New York had the largest net migration declines with -367,299 and -352,185 residents leaving the respective states.

**US Population
growth rate
slows**

Demographics – Big drop in US life expectancy from 78.8 to 77.0 yrs

The US National Center of Health Statistics released a study this week with its final life expectancy estimates based on data from January to December 2020 [\[LINK\]](#). It's a much bigger drop in life expectancy than their provisional report in Feb. We noted the provisional report in our February 21 Energy Tidbits: "The average life expectancy for the total US population was 77.8 years, a drop of 1 year from 78.8 in 2019. Life expectancy for H1/20 was the lowest since 2006 for total population. And the drop was the largest since WW2 when life expectancy fell 2.9 years from 66.2 to 63.3. The gap between male and female life expectancy widened to 5.4 years from 5.1 years previously. The drop in life expectancy may increase once full year data is taken into consideration. The 2020 final report noted that the average life expectancy was 77.0 years, a drop of 1.8 from 2019 data and a 0.8 drop from

**Life expectancy
falls 1.8 year to
77.0**

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the provisional release. For males, life expectancy decreased 2.1 years from 76.3 in 2019 to 74.2 in 2020. For females, life expectancy decreased 1.5 years from 81.4 in 2019 to 79.9 in 2020; the gap between male and female life expectancy has widened to 5.7 years from 5.4 years previously. The NCHS wrote *“The decrease in life expectancy for the total population of 1.8 years from 2019 to 2020 is the largest single-year decrease in more than 75 years (3). Age-specific death rates from 2019 to 2020 increased for each age group 15 years and over. Age-adjusted death rates increased in 2020 from 2019 for each race and ethnicity group for both males and females.”* Our Supplemental Documents package includes the NCHS report.

Demographics – Putin’s greatest concern is Russia’s shrinking population

Putin’s big press conference comments on Russia’s population reminded us of an item we forgot to include in our Dec 5, 2021 Energy Tidbits – Putin’s greatest concern is the shrinking Russia population. This week, Putin noted *“There are issues that cannot but cause concern, including life expectancy, which has slightly decreased from 71.5 to 70.1 years.”* The item we forgot to include was Putin’s comments at the *“Russia Calling! Investment Forum”* on Nov 30. [\[LINK\]](#). Putin was asked *“What keeps you awake at night?”* In the sense, *“What is your greatest concern?”*. Putin responds *“We have domestic issues typical of Russia, primarily demographic problems. We had two natural declines in our demographic development: during World War II or the Great Patriotic War, as we call it, in 1943–1944, and in the early and middle 1990s after the collapse of the Soviet Union. There was an equal drop in the birth rate. It was the lowest in 1999 – I believe a little over 1,200,000. In 2006, we already had almost two million births – more than 1,900,000. This problem has acquired a systemic and economic character due to the shortage of workforce in the labour market. We have a little over 80 million there and our losses amount to 1.1–1.2 percent a year. In this context, demographics is one of our main problems both for humanitarian and economic considerations, and because we need to strengthen our statehood as well. I will not enumerate all the measures and instruments we are using and intend to continue using in the future in order to tackle this problem. In general, we managed to get things moving in the recent past. Overall, we understand what we can do and know how to do it.”*

Russia’s
shrinking
population

Demographics – No surprise, the exodus continues from California

We don’t think anyone is surprised to see that California continues to see a net exodus. Its not just for the high state taxes, its also the high cost of living, especially in the Bay area. The California Policy Lab released its *“Pandemic Patterns: California is Seeing Few Entrances and More Exits”* [\[LINK\]](#) that noted there have been far fewer entrances into California, and more exits since the onset of the pandemic. The CPL doesn’t give any reasons for the exodus, just provides the numbers. But we believe that everyone believes two of the key reasons are higher state taxes and higher cost of living. The CPL says *“there is still no evidence of a pronounced exodus”* and *“At the end of September 2021, entrances to California were 38% lower than at the end of March 2020 Exits, following a dip in the first half of 2020, stood 12% higher at the end of September 2021 than at the end of March 2020 — representing a return to a steady pre-pandemic rate of increase of approximately 4% per year since 2016. These two trends have combined to more than double net domestic migration away from California, defined as entrances from other US states minus exits to other US states. This brief updates our spring 2021 analysis that used data through December 2020.”* And the CPL highlights the Bay Area *“Today, all California counties lose population to domestic migration. In addition, whereas in every other economic region the*

People leaving
California

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move rate fell since the pandemic began, Bay Area residents moved (to any destination) at higher levels (up 8%, to 4.2%), driving a 21% increase in Bay Area exits.” Our Supplemental Documents package includes excerpts from the CPL report.

Demographics – Canmore Alberta’s living wage is very high

We realize that most readers won’t know about Canmore, Alberta. It is a popular weekend destination as it’s in the Cdn Rockies and only 1 hour from Calgary on the Trans Canada highway so well plowed roads on a divided highway with two lanes each direction. Canmore’s rapidly increasing problem is not going to be much different than other similar towns in other provinces. We suspect Canmore Alberta isn’t alone in the increasing cost of living crisis for normal income people. We say normal as it isn’t a lower income only problem. But Canmore is hurt because it is a desirable weekend place for Calgary and that drives up real estate and other prices. And that means locals suffer, especially those in the service industry. It also means that Canmore has a labour problem that is only to get escalate. The town of Canmore posted its “Canmore’s 2021 Living Wage Report” [\[LINK\]](#) on “The Living Wage is a community-specific indicator that represents the income that an individual needs to earn in order to grow, thrive, and actively participate in their community”. Canmore’s Living Wage is \$37.40 for each parent in an household with 2 children, which is up 20% YoY from the 2020 Living Wage of \$30.97. This compares to Living Wages of \$18.60 in Calgary, \$22.60 in Cochrane (~35 min from Canmore & just NW of Calgary), and even more than \$27.35 in Fort McMurray. The report also estimates Canmore’s Single Adult Living Wage is \$23.70. Our Supplemental Documents package includes excerpts from the Living Wage report.

Canmore’s very high living wage

Energy Tidbits – Thanks for support of Energy Tidbits

We were able write Energy Tidbits memos every weekend this year, but that isn’t the norm. Rather, our target is to post Energy Tidbits memos on Sundays for at least 48 to 50 weekends per year. As I put on the cover page, I started Energy Tidbits in 1999 to help institutional investors with their perspective to oil and gas. I knew a number of PMs from my then prior role as an Cdn E&P executive and asked several experienced PMS what were they missing from the sellside research. The common answer was that they didn’t need another supposed expert for an oil call or a natural gas call and that sellside analysts forget that the big picture is what sets up the investment thesis for markets and the sector and what they were missing was help in putting their big picture together for oil and natural gas. That was the objective then and still today. Its why I want to thank readers for suggestions on items to include in Energy Tidbits, blogs and tweets – those suggestions help me improve the quality of the work. I really want to thank everyone for their support for the Energy Tidbits for the past 22 years. Thank you! Please send us an email for our index of all items included in the Energy Tidbits memos in 2021 that can be searched to quickly look up memos for specific subjects.

Over 20 years of Energy Tidbits

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

@Energy_Tidbits on Twitter

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just retweeting other tweets. Rather we are trying to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

LinkedIn – Look for quick energy items from me on LinkedIn

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.

An oilpatch “Christmas Tree”

We were a little surprised that we didn't see any pictures of Our only tweet yesterday was [\[LINK\]](#) “For those who have never seen an oilfield Christmas Tree - all the equipment on top of the wellhead that are used for controlling production, safety, etc for producing wells. Merry Christmas!” Thomas [\[LINK\]](#) describes it as “Christmas tree valves are a system of valves, chokes, spools, and gauges which, unsurprisingly, resemble a Christmas tree. It is important to note that Christmas tree valves are separate from wellheads and are the bridge between what is happening under the well and what happens above it. They are placed on top of wellheads after production has started to direct and control product from the well. These valves also serve many other purposes such as to relieve pressure, inject chemicals, monitor safety equipment, provide electrical interfaces for control systems, and much more.”

Figure 28: An Oilfield Christmas Tree



Source: Thomas, a Xometry Company

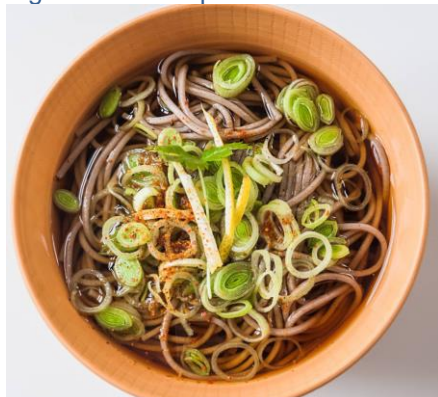
New Year's Eve is the night for Toshikoshi Soba in Japan.

Anyone who has been to Japan has seen one of the thousands of soba restaurants in Japan, any of which are small on the street soba bars that might seat 6 people. Soba restaurants are everywhere. I have had the opportunity to travel to Japan many times going back to the 70s but never been there on New Year's Eve so I could have the tradition bowl of Toshikoshi soba. This is the bowl of soba to end the year.

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Japan Times [\[LINK\]](#) describes it *“Eating a bowl of soba noodles to mark the end of the old year and pass into the new is a tradition that became widely established in the early 19th century, although its roots may be even older than that. There are several theories as to why soba was chosen as the noodle of choice for the season. One is that buckwheat is a symbol of strength, since the grain is very resilient to cold and bad weather; another is that the long, thin noodles signify a long — yet quiet and uneventful — life. But today, the best symbolic reason to eat soba noodles is that they can be easily bitten, representing a clean, no-regrets break with the ending year. Other names for the year-end bowl of soba include nengiri (“cut off the year”) soba and engiri (“cut off relationships”) soba, both of which seem apropos, too. There are really no rules for what goes into a bowl of toshikoshi soba. It can be very simple, topped with chopped leek and yuzu citrus peel.”* I have bowls of soba in Japan but I have to believe the bowl of soba would be special on New Year’s Eve, kind of like having a Caesar at the Westin Hotel in Calgary (was the Calgary Inn when it was invented) or ginger beef at the Silver Inn in Calgary where it was invented. Below is the simple bowl of Toshikoshi soba, the only difference I remember is that we also a few slides of barbecue pork.

Figure 29: A simple Toshikoshi soba



Source: Japan Times

Don't think all tough college coaches were like Urban Meyer

I recognize US college football is a different environment from any other college sports as it is “The” big time revenue source for the major colleges. But I couldn't help think the commentators on Urban Meyer's shortcoming were lumping too many college coaches in his basket. Rather I think that US college coaches are tough, but the good ones are no different than great leaders in business, they care about their people and people follow them because they believe in them, not because they are afraid of them. Here is how NBC Profootball Talk (PFT) described him [\[LINK\]](#) *“Putting it another way (a more accurate way), everyone else has changed, grown, and evolved while Meyer hasn't. Dressing down players and assistants, arguing loudly with others, allegedly kicking kickers. Those things don't work anymore, if they ever even did. Apparently, they did. Not all that long ago. At Ohio State and at Florida before that, along with every other step on Meyer's coaching ladder. That's the most*

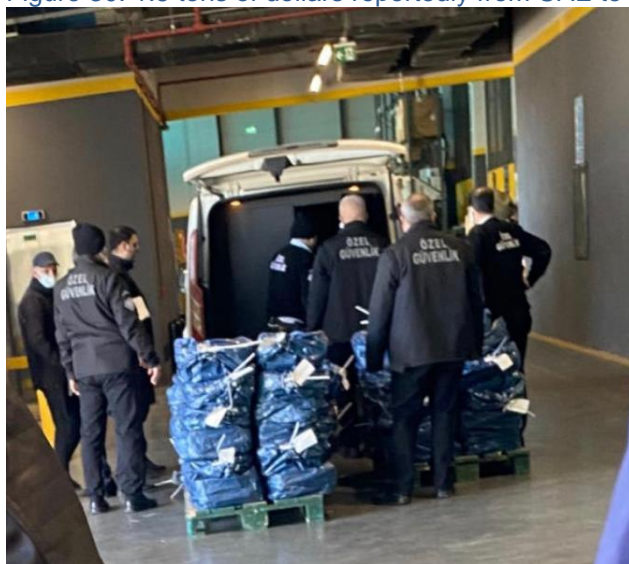
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significant unwitting admission embedded in his comments. To the extent that being an over-the-top asshole brought him down, well, he's always been one."

1.5 tons of US cash is ~\$136 million if in \$100s.

We couldn't help do the math or at least try to do the math after seeing the Tweet from Taz-ArtıTV NEWS [\[LINK\]](#) that had the below picture with the caption "*Istanbul New Airport, Çelebi Cargo building, Import bonded area... Sacks weighing 1.5 tons. Gözen Security took delivery. They are full of dollars. Central Bank is written on the bags. Allegedly, the plane arrived from the UAE yesterday afternoon. The country is sold, continue the dance.*" The question is how US dollars are 1.5 tons or 3,000 lbs of cash. We don't know the denominations. But \$1 million in \$100 bills weigh ~22 lbs, so 1.5 tons would be about \$136 million if all \$100 bills. All US dollar bill denominations weight about the same so 1.5 mm tones in \$20s would be about \$27 million. And a 50/50 mix of \$100s and \$20s would be ~\$77 million. If we had to guess, we would assume closer to the \$136 million as we think there are a lot more \$100s around than most realize.

Figure 30: 1.5 tons of dollars reportedly from UAE to Turkey Central Bank



Source: Taz-ArtıTV NEWS

Only solution if you don't want to be tracked, lose the mobile

It's hard to believe that people were surprised to see the reports that that Canada's Public Health Agency of Canada admit it tracked 33 million mobile devices during the lockdown to track people movement. The National Post reported [\[LINK\]](#) "*Due to the urgency of the pandemic, (PHAC) collected and used mobility data, such as cell-tower location data, throughout the COVID-19 response,*" a spokesperson told *National Post*. The program's existence was first brought to wider attention by *Blacklock's Reporter*. PHAC used the location data to evaluate the effectiveness of

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public lockdown measures and allow the Agency to “understand possible links between movement of populations within Canada and spread of COVID-19,” the spokesperson said. In March, the Agency awarded a contract to the Telus Data For Good program to provide “de-identified and aggregated data” of movement trends in Canada. The contract expired in October, and PHAC no longer has access to the location data, the spokesperson said.” Its Xmas break for the politicians and House of Commons debates, so we didn't see much questioning to the government overall if other agencies or departments have separate contracts with Telus and we have to believe PHAC or any department/agency could have a new contract for the same data. The reality is that if people don't want to be tracked, they have drop the mobile. And then avoid CCTV.

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