Energy Tidbits

Jan 30, 2022

Produced by: Dan Tsubouchi

Biden's Commitment Now Also Includes "Carefully Managing the Transition from Fossil Fuels to Clean Energy"

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. Biden/von der Leyen joint statement included their "*commitment to accelerating and carefully managing the transition from fossil fuels to clean energy*". (Click Here)

2. Biden official on JCPOA "*We're in the ballpark of a possible deal. But again, I'm not going to put odds on this*". (Click Here)

3. Peak US Gulf of Mexico oil and natural gas production looks assured with Biden's need "*to take the time to make significant & long overdue programmatic reforms*" (Click Here)

4. BloombergNEF estimates global oil stockpiles deficit widened from 85.0 to 95.3 mmb vs 2017-2019 average. (Click Here)

5. Norway's wealth fund announced "*very good results in 2021*" but forgot to note its top performing sector was energy. (Click Here)

6. Please follow us on Twitter at [LINK] for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.

7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK].

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Natural Gas – Natural gas draw of 219 bcf, storage now -309 bcf YoY deficit

Gas draws increased this week after record December temperatures have subsided across the US. The reality is that if we didn't have increasing US LNG exports, US gas storage would be a lot worse. The EIA reported a 219 bcf draw (vs 216 bcf draw expectations) for the Jan 21 week, which was above the 5-yr average draw of 161 bcf, and last year's draw of 116 bcf. Storage is 2.2591 tcf as of Jan 21, decreasing the YoY deficit to -309 bcf, from 209 bcf last week and storage is 15 bcf below the 5-year average vs 33 bcf above last week. Below is the EIA's storage table from its Weekly Natural Gas Storage Report [LINK].

YoY storage at -309 bcf YoY deficit

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (01/21/21)		Historical Comparisons: 5-year average (2017-21)	
Region	01/21/22	01/14/22	net change	implied flow	Bcf	% change	Bcf	% change
East	609	669	-60	-60	646	-5.7	599	1.7
Midwest	701	770	-69	-69	787	-10.9	718	-2.4
Mountain	143	151	-8	-8	171	-16.4	150	-4.7
Pacific	201	201	0	0	275	-26.9	227	-11.5
South Central	938	1,019	-81	-81	1,019	-7.9	921	1.8
Salt	279	308	-29	-29	289	-3.5	274	1.8
Nonsalt	658	711	-53	-53	730	-9.9	647	1.7
Total	**2,591**	**2,810**	**-219**	**-219**	**2,899**	**-10.6**	**2,616**	**-1.0**

Source: EIA

Natural Gas – BloombergNEF forecasts higher 2022 gas storage levels

Last week, BloombergNEF posted its U.S. Gas Monthly, which is one of our favorite BNEF reports. The updated BNEF outlook is negative to natural gas with forecast significantly higher gas storage in all periods. The key reasons for the increased storage are the record Dec hot temp (BNEF calls it the 2nd warmest on record vs NOAA calls it the 1st) more than offsetting the demand impact of a colder Jan. And BNEF increases its forecast US gas supply growth by over 1 bcf/d in the early months of 2022. As a results, the BNEF increased its US gas storage forecasts. "Winter 2021-22: BNEF's 1,778Bcf end-of-winter inventory view is 234Bcf higher than last month's forecast. The difference is driven mainly by mild weather throughout the season. Summer 2022: The summer-end estimate rises to 3,821 Bcf, some 399Bcf above our previous estimate. The increase is driven by growing lower-48 production. [Note at 3,821 bcf, Oct 31/2022 would be +299 bcf YoY.] Winter 2022-23: Next winter ends at 1,685Bcf, which is 442Bcf higher than last month's report. During this period, lower-48 production slows down but rising winter gas prices result in lower power burn." Our Supplemental Documents package includes excerpts from the BNEF U.S. Gas Monthly.

BNEF increases gas storage forecasts

Figure 2: US natural gas supply and demand

Seasonal balances outlook update

Gas production boosts balances

U.S. L48 gas market supply-and-demand balance sheet

Bcf/d	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23
Dry production	95.9	97.1	95.4	96.9	97.0	97.1	97.1	97.1	97.1	97.2	97.2	97.2	97.5	97.6	97.7	97.9	98.0
Net imports from Canada	5.3	4.8	5.8	6.2	5.5	5.3	5.5	5.6	5.7	5.6	5.2	5.5	5.3	5.8	6.5	6.2	5.6
Total supply	**101.2**	**101.9**	**101.2**	**103.1**	**102.5**	**102.4**	**102.6**	**102.7**	**102.8**	**102.8**	**102.4**	**102.7**	**102.8**	**103.4**	**104.2**	**104.1**	**103.6**
Power consumption	28.8	28.4	29.4	26.0	24.6	23.5	26.9	34.6	40.3	40.3	34.7	29.3	27.2	28.9	28.3	24.8	24.3
Industrial consumption	22.4	23.3	25.6	23.6	22.6	22.0	21.6	21.8	22.1	21.9	21.6	22.5	23.8	25.1	24.9	24.3	23.0
Rescom consumption	29.4	34.5	47.3	42.6	31.1	20.3	12.2	8.7	7.9	7.8	8.9	15.8	28.1	40.8	46.9	42.6	31.1
Plant fuel	5.2	5.3	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6
Pipe losses	3.1	3.1	3.7	3.6	3.0	2.5	2.2	2.3	2.5	2.5	2.3	2.3	2.8	3.2	3.8	3.6	3.0
Exports to Mexico	5.9	6.0	6.0	6.3	6.7	6.8	6.8	7.1	7.0	6.9	6.8	6.8	6.5	6.5	6.6	6.7	6.9
LNG exports	11.0	11.8	11.9	11.9	11.6	11.1	11.5	12.2	12.8	12.9	11.3	11.9	13.0	13.7	13.6	13.7	13.3
Total demand	**105.8**	**112.3**	**129.3**	**119.6**	**105.2**	**91.7**	**86.7**	**92.2**	**98.0**	**97.8**	**91.1**	**94.1**	**107.0**	**123.7**	**129.6**	**121.3**	**107.1**
Balancing item	**-1.6**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Average daily storage change last year	-1.1	-18.0	-23.0	-28.3	-1.3	6.2	12.9	6.8	5.5	5.4	12.7	10.5	-3.1	-10.6	-28.1	-16.5	-2.6
Average daily storage change	-3.1	-10.6	-28.1	-16.5	-2.6	10.7	15.9	10.5	4.9	5.0	11.4	8.6	-4.2	-20.4	-25.4	-17.2	-3.6
Total monthly storage change (Bcf)	-92	-329	-870	-462	-82	322	493	315	151	154	341	268	-127	-631	-786	-481	-111
Storage level (Bcf)	**3,522**	**3,192**	**2,322**	**1,860**	**1,778**	**2,100**	**2,593**	**2,908**	**3,059**	**3,213**	**3,553**	**3,821**	**3,694**	**3,063**	**2,277**	**1,796**	**1,685**

Source: BloombergNEF. Note: Based on forward curve as of January 11, 2022. Green indicates tightness, the market is either withdrawing more or injecting less than for the same month a year prior.

14 January 2022 BloombergNEF

Source: BloombergNEF

Natural Gas – Coastal GasLink begins 2022 at ~60% of construction completed

Coastal GasLink reported a construction update on the pipeline on Thursday [LINK]. The project had begun the year with ~60% of construction completed, with construction continuing to ramp up after the holiday season, there is a positive outlook that the project will enter the final stages of production by the end of the year. Sections 1 and 4 are near 100% completion. The Salmon River DPI water completion was safely completed with no safety incidents. The west side of the project in Section 8 East has completed the clearing of the project route as clearing nears completion across all sections. The pipeline looks on track to deliver natural gas at LNG Canada Phase 1 well in advance of the first LNG expected to occur mid decade. Our own expectation is that Coastal GasLink will be fully operational by early 2024. The 670 kilometre long Coastal GasLink Pipeline will transport natural gas to the approved LNG Canada facility near Kitimat. The pipeline route was determined by considering Indigenous, landowner and stakeholder input, the environment, archaeological and cultural values, land use compatibility, safety, constructability, and economics. Below is a graphic depicting Coastal Gaslink's route.

Coastal GasLink 60% complete

Figure 3: Coastal GasLink project route

Source: Coastal GasLink

Natural Gas – Canadian LNG can't help Biden if Russia gas is cut off from Europe

No Cdn LNG to help Europe

We had the opportunity to speak with Brent Jang for his Globe and Mail report "*Canada has the natural gas but can't get LNG to Europe*'. [LINK] We have spoken with Brent a number of times over the years so was easy to be direct in our comments starting with our response when he said his editors were looking to see if there was any way Canadian LNG could potentially help in Biden's efforts to band together a global coalition of LNG that can replace Russia natural gas to Europe in the event of a Russian invasion of Ukraine. Brent quickly noted his article was going to be on Canada can't help Biden. Our response was that they might want to change the article because there is no way that Canada can help with LNG in 2022, 2023 or likely 2024 or whenever LNG Canada Phase 1 starts up. And that would be a potential as we don't know what LNG Canada Phase 1 partners have committed, if any, to customers for their LNG supply. We said that the only possible way Canada could help Biden in 2022 was if we can get more natural gas down to the Gulf Coast LNG export projects. Our Supplemental Documents package includes the Globe and Mail report.

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

Mexico natural gas still stuck below 5 bcf/d

On Thursday, Pemex reported its oil and gas data for December. Pemex reported natural gas production of 4.690 bcf/d, which was down -3.2% YoY and down slightly -0.042% MoM, from November. 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.

Figure 4: 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%	4.710	-1.2%
Dec	6.236	5.380	4.811	4.881	5.024	4.846	-3.5%	4.690	-3.2%

Source: Pemex

Natural Gas – Petronas to reduce offtake LNG cargoes in March/April 2022

Continued Malaysia LNG supply problems

One of the big LNG stories in 2021 was unplanned LNG supply interruptions. No surprise, it seems to happen to older LNG supply projects. These are temporary so only impact the near term LNG supply/demand balance, but it also reminds that most older LNG supply projects export well below capacity. One of the unplanned LNG supply interruptions was at Petronas Bintulu LNG plant. The impact is continuing in 2022. On Wednesday, Argus reported [LINK] "*Malaysia's Petronas halts more March-April LNG cargoes. Malaysia's state-owned Petronas has again delayed the installation of an interim mercury removal unit (MRU) at the Pegaga gas field offshore Sarawak supplying the 30mn t/yr Bintulu LNG plant, resulting in additional cancellations to cargo deliveries in March and April. Petronas this week informed some term buyers from Bintulu that it has delayed the installation of the MRU from late February, without specifying the new installation date. "Petronas told us this week that they are short in April," a term offtaker said. Petronas did not immediately respond to Argus' request for comment. The number of cargoes that have been cancelled as a result of the delay is unclear. But it has prompted at least three term offtakers to enter the spot market to seek replacement cargoes.*" This should not surprise anyone. Our Nov 14, 2021 Energy Tidbits wrote "*We have more confirming reports that Petronas is reducing LNG cargoes from its Bintulu LNG export facility. On Tuesday, Bloomberg reported Petronas provided some colour to the Malaysian LNG Bintulu export facility. The company noted that it will reduce exports between January and March of 2022. It is expected to cut at least 4 cargoes per month from their long term offtakers. Last week's (November 7) Energy Tidbits noted that the potential cuts have boosted buying interest in the spot market. It stated "Japanese buyers with offtake from the 3.95 bcf/d Bintulu LNG export facility in Malaysia are interested in winter deliveries from the spot market following requests by Petronas to reduce contractual deliveries. Petronas is requesting the cancellations be through the downward quantity tolerance clause in its contracts which when exercised, gives the suppliers the right to decrease annual contracted quantities. The updated number of February and March cargoes that will be impacted is unclear.*" Our Supplemental Documents package includes the Argus report.

Natural Gas – India Dec natural gas production +19.46% YoY to 3.30 bcf/d

India natural gas production +19.46% YoY

India continues its 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 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 Monday, India's Petroleum Planning and Analysis Cell released their monthly report for December natural gas and oil statistics [LINK]. India's domestic natural gas production was up 19.46% YoY from 2.74 bcf/d in December 2020 to 3.30 bcf/d, down from 3.38 bcf/d in November. 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 Dec LNG imports down 4.88% YoY to 2.98 bcf/d, up 17.43% MoM

India LNG imports +17.43% MoM

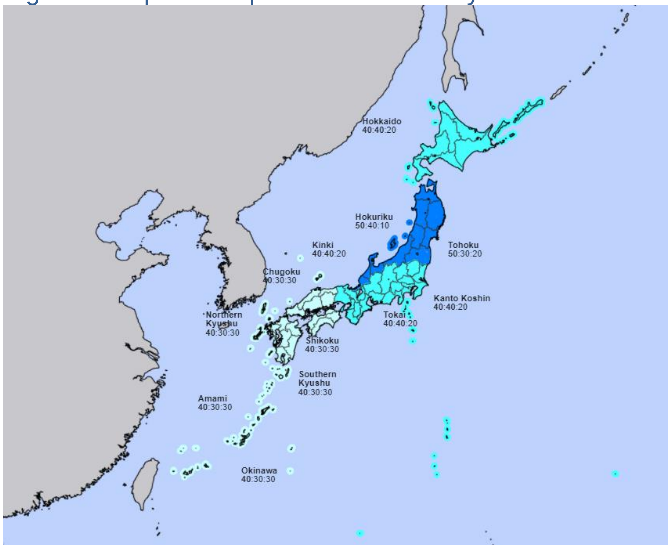
The other benefit of the above noted modestly increasing India domestic natural gas production is that it reduces the need for LNG imports. India is always viewed as an extremely price sensitive buyer in terms of its LNG imports, which was exemplified in their 2020-2021 import data. India had ramped 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 December of 2.98 bcf/d, down 4.88% YoY due to abnormally high spot prices. India has been trying to avoid high spot lng prices. Note, imports in December were up by 17.43% MoM due to the slight MoM decrease in production.

Natural Gas – Japan expects continued cold for February

Japan below average temp next four weeks

It was a warm December in Japan, but the weather turned colder in Jan and looks to be staying cold in February. The Japan Meteorological Agency posts its weekly temperature probability forecast for the next 4 weeks on Thursday mornings. [LINK]. JMA forecasts that Japan will experience well below normal temperatures for the first two weeks of Feb. The northern regions of Japan are expected to have colder temperatures while the southern regions are expected to be slightly warmer but still below average temperatures. Below is the JMA forecast for the next four weeks of the forecast period (Jan 29 – Feb 28), which expects below normal temperatures for the month of February.

Figure 5: Japan Temperature Probability Forecast Jan 29 – Feb 28



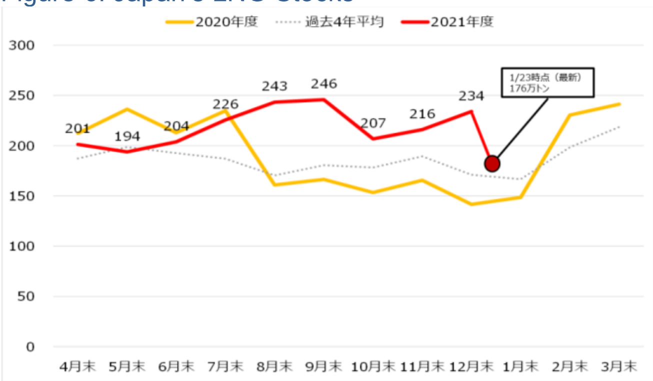
Source: Japan Meteorological Agency

Natural Gas – Japan's LNG stocks decline sharply, down to 1.765 mm tons

Japan LNG stocks at 1-year low

Its been cooler throughout January, which has seen draws to Japan's LNG stocks which have plunged to their lowest levels in nearly a year. Japan METI data was released on Wednesday [LINK] and gave us insight into Japan's LNG stocks. LNG stocks declined for the week ended Jan 23, from 2.01 mm tons the previous week, and are now at 1.76 mm tons (bcf); this is above last year's levels of 1.49 mm tons and 36% above the 5-year average of 1.66 mm tons. The decline is likely to incentivize Japan LNG buyers to return to the spot market after weeks of absence. This sharp decline moving forward will be an item to monitor especially with the cold weather expected to continue into Feb. Below is a chart depicting Japan's LNG stocks.

Figure 6: Japan's LNG Stocks



Source: METI

Natural Gas – Two more Asian (Chinese) LT LNG deals in 2021: Foran and Shenzhen

Two more Asian long term LNG deals

Since July 1, 2021, there have now been 19 deals of Asian LNG buyers locking up long term LNG supply past 2030. Last week, BloombergNEF posted its China Gas Quarterly and they noted 2 smaller Chinese long term LNG deals in Q4/21 that were not on our spreadsheet. Both Shenzhen and Foran are Chinese companies and inked 10-year deals with BP. (i) On Oct 7 Shenzhen and BP announced a long-term LNG offtake deal with BP that is expected to deliver 0.04 bcf/d over the 10-year term of the agreement, beginning in 2023. Shenzhen did not disclose the value of the deal but indicated they would pay market price plus a service fee. (ii) On Dec 30 Foran and BP announced their agreement to purchase 0.01 bcf/d of LNG from BP over the 10-year life of the contract beginning in 2023. The value of the contract, pricing and method of delivery were not disclosed in the release. Since July 2021, the total amount of LNG purchased by Asian buyers is now 3.55 bcf/d.

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. Our Supplemental Documents package includes our July blog.

Updated list of new LNG buyer long term contracts

We have now seen 19 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 first posted in our July 14 blog. We have changed our table to also include long term LNG supply deals to Europe since June 30. Previously, these European LNG deals were notes to the table.

Figure 7: Long Term LNG Supply Deals since July 1, 2021

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country Buyer / Seller	Volume (bcf/d)	Duration Years	Start	End
Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
Jul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037
Jul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034
Jul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045
Sept 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037
Oct 7, 2021	Shenzhen	BP	China / US	0.04	10.0	2023	2032
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035
Nov 4, 2021	Unipec	Venture Global LNG	China / US	0.46	20.0	2023	2043
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5	2022	2040
Nov 22, 2021	Foran	Cheniere	China / US	0.04	20.0	2023	2043
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0	2024	2034
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0	2023	2033
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2023	2043
Dec 29, 2021	Foran	BP	China / US	0.01	10.0	2023	2032
Jan 11, 2022	ENN	Novatek	China / Russia	0.08	11.0	2024	2035
Jan 11, 2022	Zhejiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**3.55**			
Non-Asian LNG Deals							
Jul 28, 2021	PGNiG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Nov 12, 2021	Engie	Cheniere	France / US	0.16	11.0	2021	2032
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**0.42**			
Total New Long Term LNG Contracts since Jul/21				**3.97**			
*Excludes Asian short term/spot deals							
*on Dec 20, CNOOC also agreed to buy an additional 0.13 bcf/d from Venture Global for an undisclosed shorter period							

Source: Bloomberg.

Natural Gas – Will US maximum pressure on Russia work better than it did with Iran

EU depends on Russia for much more than gas

We couldn't help think of Biden's current maximum pressure campaign on Russia after seeing the State Dept press conference on Tuesday with Ned Price's comments on Iran. The headline focus on Biden's campaign is on Nord Stream 2, but Europe depends on Russia for much more than natural gas. Price said "*The maximum pressure campaign was an abject failure. Everything that it promised, the opposite ended up coming true, whether it was promises of a better deal; whether it was promises of a subdued Iran, a cowed set of proxies and terrorist affiliates; whether it was putting the brakes on Iran's nuclear program; whether it was bringing together the world to bring about maximalist demands on Iran. Across all of those areas, the opposite came true.*" We tweeted [LINK] "*listening to this, can't help wonder on 2023/24 post mortem on #Biden maximum pressure on RUS. will there be less EU dependence on RUS for #NatGas #Oil #Metals #Steel #Chemicals #Agriculture and just higher replacement supply costs? or supply shortage? #OOTT*". Our tweet included the EU data on its imports from Russia and percentage Russian imports are of total EU imports.

EU's imports from Russia on fuel and mining products is 70.9% of total EU imports, agriculture is 4.5% of total EU imports, Chemicals 4.3%, Iron/Steel 4.2%. etc. Our Supplemental Documents package includes the EU imports from Russia table.

Natural Gas – Nord Stream 2 sets up subsidiary to own German section of pipeline

Nord Stream 2 establishes a subsidiary

On Wednesday, Nord Stream 2 released an update [LINK] indicating that Nord Stream 2 has founded a German Subsidiary. The new Company has been named "Gas for Europe GmbH". The new company will become the operator of the 54-kilometre section of the Nord stream 2 pipeline that is in the German territorial waters and the landfall facility in Lubmin. The approval process for the Nord Stream 2 pipeline had been delayed since November while undergoing a German regulator review process. In November the German Federal Network Agency had issued a statement that the founding of a subsidiary would be a precondition to certification according to the German Industry Act. Our November 21 Energy Tidbits noted "*The certification process remains suspended until the transfer of the essential assets and human resources to the subsidiary has been completed and the Federal Network Agency will be able to check the newly submitted documents of the subsidiary as the new applicant for completeness."* The easy part of the approval process has now been completed, there will still be delays associated with the transfer of assets and people to the region. Our Supplemental Documents package includes the Nord Stream 2 update.

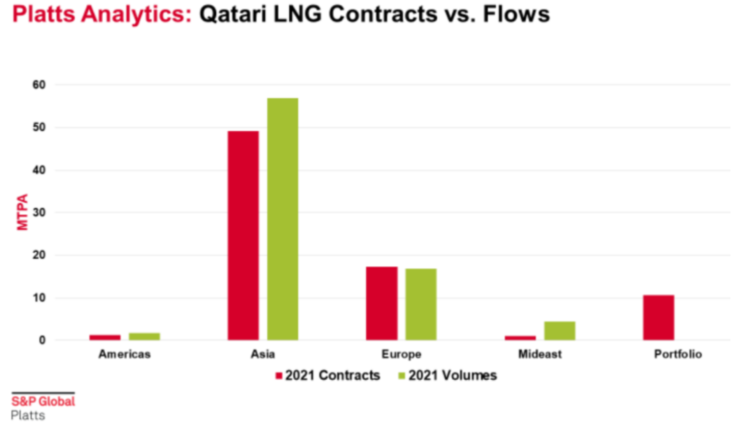
Natural Gas – Can Qatar surge LNG to help Europe LNG if Russia gas is cut off?

Can Qatar get more LNG to EU?

Sometimes, we have to shake our head when we hear the Biden administration speak on oil and gas operations. (i) This phrase of the week was Blinken asking major LNG and natural gas producers to surge their production for Europe. On Wednesday, Secretary of State Blinken outlined the US strategy on how Europe could deal "*with the secondary negative consequences of Russia's destabilizing acts*." Including "*As we're taking steps to ensure that the global energy supply isn't disrupted, that, too, is an important focus, should Russia choose to weaponize its natural gas by cutting supply to Europe even more than it's already done. We're in discussions with governments and major producers around the world about surging their capacity. We're engaged in detailed conversations with our allies and partners about coordinating our response, including how best to deploy their existing energy stockpiles. All of this effort is aimed at mitigating price shocks and ensuring that people in the United States, Europe and around the world have the energy they need, no matter what Russia decides to do."* (ii) Doesn't Blinken realize LNG prices have been huge and producers haven't been holding LNG in reserve waiting for a better price or day? Similarly, does he not realize Europe natural gas prices have been huge so any non-Russia pipeline players like Algeria would be shipping any spot volumes? (iii) The focus came firstly on Qatar. And Qatar has been pretty clear that it has been selling all the LNG it can, and that buyers have been lining up to get Qatar LNG in Q4/21. See below prior Qatar comments. (iv) We don't know the specific Qatar LNG contracts so don't know if there are minimum volumes that must be delivered each month and how long Qatar would have to replace any below contract volumes that are over the minimum. (v) Having said that, absent Qatar being able to break contracts, there would be some flexibility depending upon the commitments made to date on their "portfolio" volumes. Portfolio volumes are LNG volumes that aren't part of any contracted volumes. But Qatar may very well have committed some of these portfolio volumes for more than a tanker or month. On Thursday, we tweeted [LINK] "*Excellent breakdown of Qatar #LNG contracts incl how much portfolio LNG might be available to help*

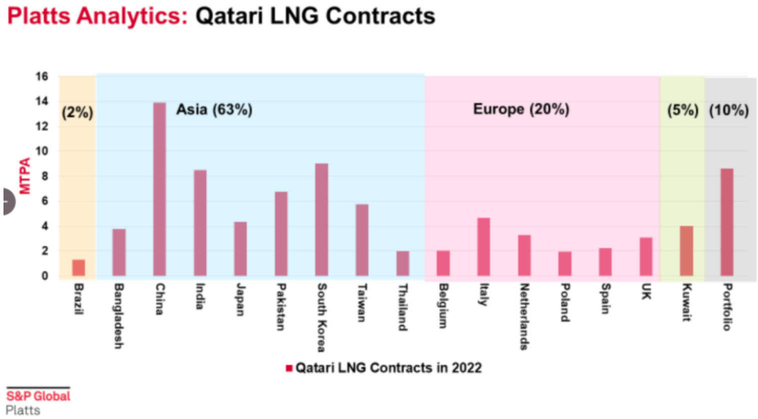
Europe. Thx @ira_joseph #OOTT." Platts tweeted [LINK] the two below graphs and noted "*A couple of charts in support. Qatar largely sends #LNG where it's contracted & portfolios provide swing. In 2021, portfolions swung largely to Asia. In 2022, the contract structure is similar, so buyers & sellers will have to agree (read benefit) from wholesale swings in flows*."

Figure 8: Qatari LNG Contracts vs. Flows



Source: Platts

Figure 9: Qatari LNG Contracts



Source: Platts

In Oct, Qatar said it was maxed out on LNG volumes for short term deliveries

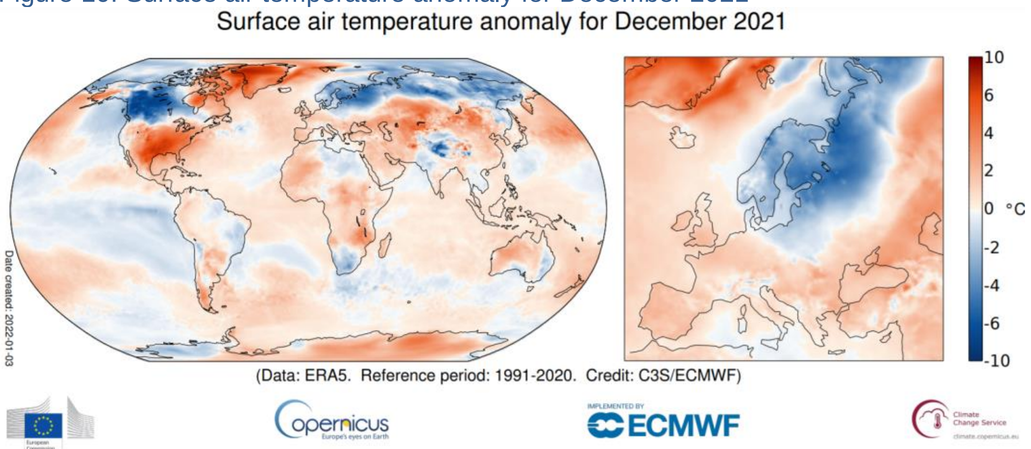
Our Oct 10, 2021 Energy Tidbits highlighted Qatar Energy Minister Saad Al-Kaabi saying *"they are queuing up for LNG. We have huge demand from all our customers and unfortunately we can't cater for everyone."* Then our Oct 17, 2021 Energy Tidbits wrote "*LNG buyers have been locking up more long term LNG deals with Qatar, but also been asking for short term deliveries. However, Qatar is saying they can't do any more right now and are maxed out on LNG supply. There just isn't surplus LNG around the world. On Monday, Bloomberg reported "Qatar, the world's* *biggest exporter of liquefied natural gas, said it's "unhappy" prices are so high but is producing at maximum capacity. The comments from Energy Minister Saad Al-Kaabi on Monday come amid a crisis in gas markets, with prices rocketing as supply fails to keep up with soaring demand. Although Qatar is spending billions of dollars to increase output, it has said it will struggle to boost production in the near term. "We are maxed out," Al-Kaabi said at an event in Doha, adding that volumes are currently around 80 million tons a year. "We're just consistent, we're producing what we can."*

Natural Gas – Europe's natural gas crisis could have been way worse if was cold

Europe was lucky it was warm

As tight as Europe's natural gas situation is, they were lucky that it was warm around the world in December so natural gas consumption was less. On Wednesday, Platts tweeted [LINK] "*European gas stocks remain at record lows for time of year, in spite of the recent LNG influx. This leaves little buffer to cover any other demand spikes (below normal temps..) or supply disruptions over the coming months.*" We then tweeted [LINK] "*imagine how low EU storage would be if Dec hadn't been hot in EU & Asia to reduce #NatGas consumption. With less needed in Asia, #LNG cargos could be redirected to EU. Warm Dec saved EU from gas shortage, but not expensive ~$25/mcf gas price. Thx @JHuckstepp* for graph. #OOTT". It was hot not just in Europe so there was less consumption, but also in Asia, which meant that it freed up LNG cargos that could be redirected to Europe. Our tweet included the below Copernicus temperature anomaly map. [LINK]

Figure 10: Surface air temperature anomaly for December 2021



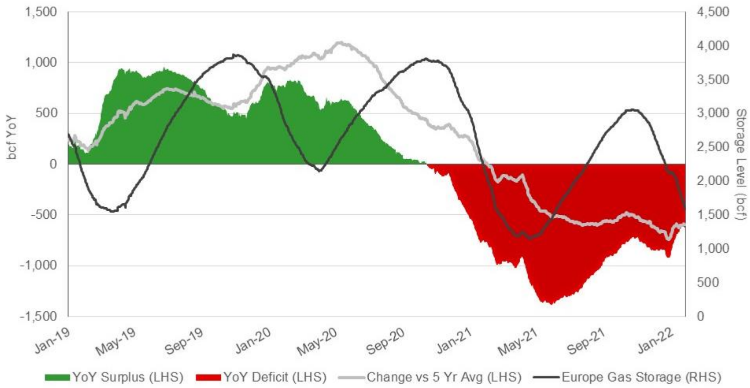
Source: Copernicus

Natural Gas – Europe storage only 40.22% full vs last year of 54.70%

Europe storage down to 40.22% full

Europe has been lucky that it hasn't been cold because the combination of a warm December, the massive increase in US LNG to Europe, and higher winds in January is having an impact on Europe gas storage. The YoY Europe storage gap has narrowed this week since the start of the winter natural gas season. Europe gas storage started down 18.52% YoY and is now down 14.48% as Europe has been experiencing warmer than normal temperatures recently. Draws to European gas storage units continued this week. It was a smaller draw due to the warmer weather. 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 tightened since Nov 1. Despite the warm weather and US LNG, storage as of Jan 26 is still only at 40.22%, which is -14.48% less than last year levels of 54.7% and are -15.75% below the 5-year average of 55.97%. 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.

Figure 11: Europe Gas Storage Level



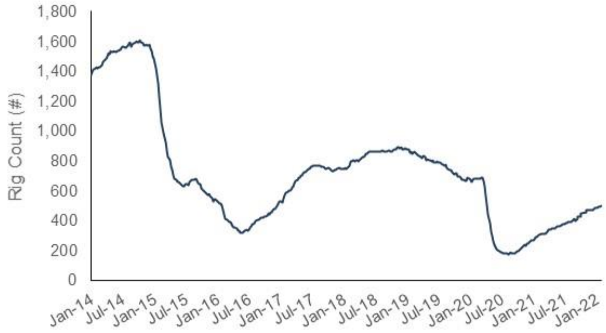
Source: Bloomberg

Oil – US oil rigs +5 WoW at 495 oil rigs at Jan 28

Baker Hughes released its weekly North American drilling activity data on Friday. There has been some very cold weather in the US that we expect affected rig moves this week. It was very cold in all of the key oil and gas regions, including below snow and ice in parts of the Permian so no surprise that there has been no significant change this week. There is still strong oil, NGLs and natural gas prices and industry has fresh 2022 capex budgets and is still just catching up in 2021 from an extremely low 2020 activity level. This week US oil rigs were up +4 WoW at 495 oil rigs. Oil rigs are +323 off the bottom of 172 in Aug14/2020 week. There were marginal basin changes this week; Permian was up +1 at 293 rigs this week while Bakken was flat at 27 rigs for the eighth consecutive week. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 188 to 491 oil rigs (-26%). US Gas rigs were +2 WoW reflecting the heightened $4 HH. Below is our graph of US oil rigs since January 1, 2014.

US oil rigs +1 WoW

Figure 12: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – US frac spreads +4 to 261 for week ended Jan 28

Frac spreads +4 to 261

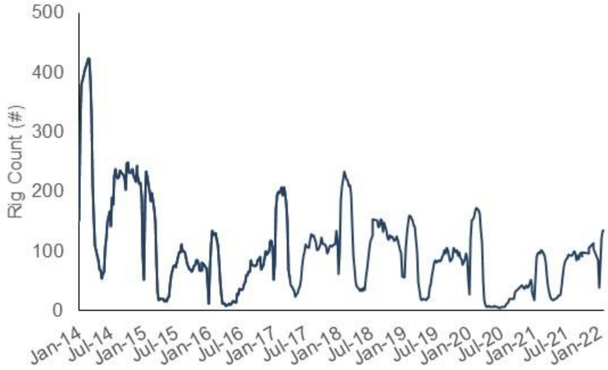
Mark Rossano (C6 Capital Holdings) held his weekly US frac spread recap for week ended Jan 28 on the Primary Vision network. YouTube video is at [LINK]. For the week ended Jan 28, US frac spreads were +4 to 261. darko had a "big pop" and there were increases in some of the smaller basins and also an addition in the Permian. Rossano did not mention any snow/ice impact on frac spreads. He still sees frac spreads continuing to climb to 275, but the moved has been very gradual. Still thinks US frac spreads get to 275 and then a pause there. He still expects rigs and spreads to support his call for 2022 exit rate for US oil production to be 12.2 to 12.3 mmb/d.

Oil – Total Cdn rigs +5 to 217 total rigs, +43 rigs YoY

Cdn rigs +5 WoW

Cdn rigs have ramped up quickly after Xmas/New Year's, which is the normal big quick ramp in Canada, but the big weekly rig increases look to have ended this week. Total Cdn rigs were up +5 this week to 217 total rigs. Cdn oil rigs were +1 at 135 rigs. Cdn gas rigs were up +4 to 82 gas rigs. Total rigs are now +203 since the June 26, 2020 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 98 and Cdn gas rigs were 76 for a total Cdn rigs of 174, meaning total Cdn rigs are +43 YoY and total rigs are -15 vs 2019.

Figure 13: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production down -0.100 mmb/d at 11.6 mmb/d

As expected, it looks like cold and snow likely had an impact on US oil production. Weekly production in the US was down -0.100 mmb/d this week at 11.6 mmb/d for the week ended Jan 21. Lower 48 production drove total production and was flat from last weeks level at 11.2 this week; US oil production is up YoY at +0.700 mmb/d and is still down significantly at -1.4 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. There is no explanation for the decline in oil production, but last week's (Jan 23, 2022) Energy Tidbits warned that cold and snow likely impacted production and not just in the Bakken. Absent weather impacts, we would expect US oil production to remain relatively flat if not inch up a little higher in Q1/22.

US oil production down WoW

Figure 14: 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	12/17	11,600	12/24	11,800	12/31	11,800
2022-Jan	01/07	11,700	01/14	11,700	01/21	11,600				

Source: EIA

Figure 15: US Weekly Oil Production

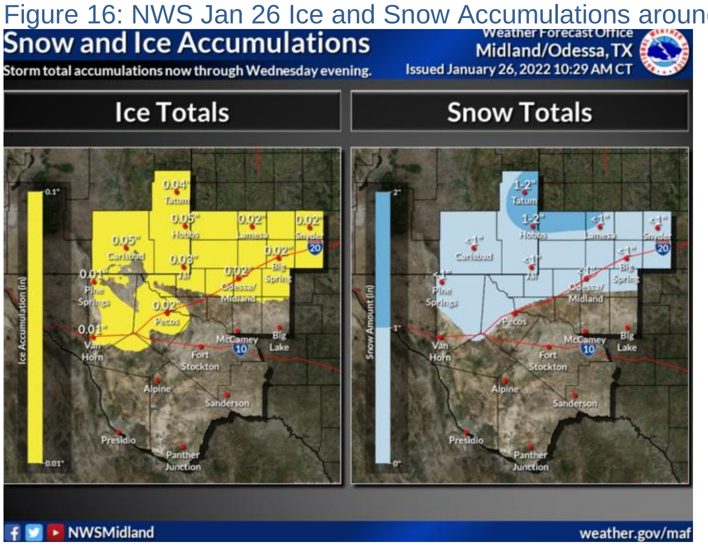
Source: EIA, SAF

Oil – Likely some weather production impacts in next EIA weekly oil production data

Some cold/snow in oil and gas basins

This week, it wasn't as cold as last week, but it was still colder than normal in key operating basins like Permian and Oklahoma. And there was snow and ice in these regions, where the oil and gas service sector doesn't set up for Canada winter like operating conditions. As a result, we tweeted [LINK] "*Probably should expect some operational delays, rig/frac spread moves delays, some freeze offs with below freezing overnight and snow in parts of the Permian. #OOTT.*" Our tweet attached the below National Weather Service (Midland) Jan 26 warning.

Figure 16: NWS Jan 26 Ice and Snow Accumulations around Midland



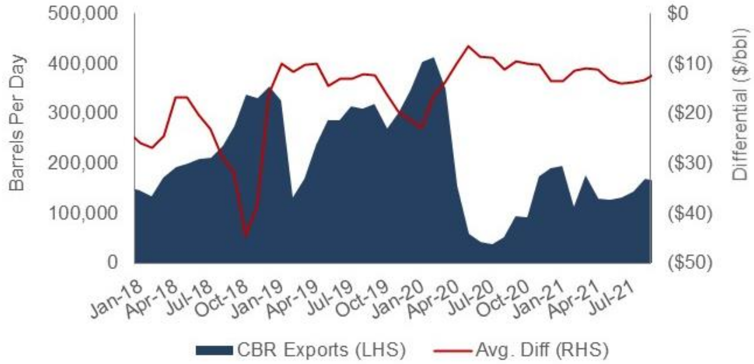
Source National Weather Service Midland

Oil – Cdn crude by rail exports basically flat MoM at 132,296 b/d in Nov, up 24% YoY

Cdn crude by rail exports

The Canadian Energy Regulator (successor to NEB) reported Canadian crude by rail exports were -4,479 b/d MoM in December to 132,296 b/d vs 132,587 b/d in October [LINK]. This puts Dec export volumes at -40,799 b/d YoY (-24%) vs Dec 2020 of 173,095 b/d. CBR volumes are +93,429 since the July 2020 bottom of 38,867 b/d, when COVID-19-fueled capital spending reductions and lower drilling activity in Western Canada were in full effect. September WCS-WTI differentials increased to -$18.75 after the spike in the second half of the month. The start up of Enbridge Line 3 additional export volumes is likely the key reason for the decline in exports by rail. Below is our graph of Cdn crude by rail exports compared to the WCS – WTI differential.

Figure 17: Cdn Crude by Rail Exports vs WCS Differential



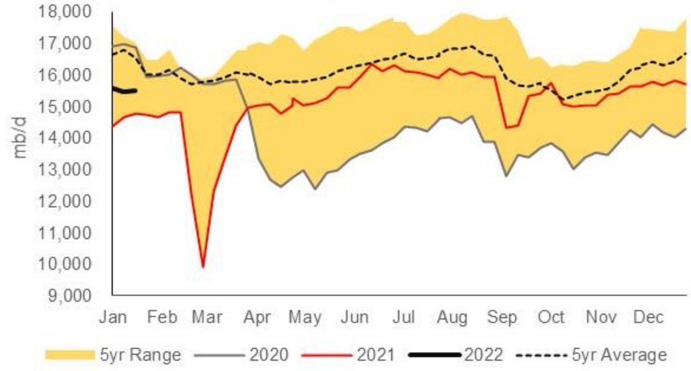
Source: Canadian Energy Regulator, Bloomberg

Oil – Refinery inputs +0.044 mmb/d WoW at 15.497 mmb/d

Refinery inputs up WoW

The EIA crude oil input to refinery data is for the week ended Jan 21. Refineries normally ramp up oil processing to year end and then decline in the new year. The decline appears to be held off as the EIA noted a small WoW increase in crude inputs to refineries, up +0.044 mmb/d this week to 15.497 mmb/d and are +0.776 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 87.1%, which is still +5.4% YoY though is still below 5-year average utilization levels. Total products supplied (i.e., demand) increased WoW, up 0.502 mmb/d to 22.417 mmb/d. Motor gasoline was up +0.281 at 8.505 mmb/d from 8.224 mmb/d last week. Gasoline supplied, a proxy for demand, was up 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 8.202 mmb/d, up from last year.

Figure 18: US Refinery Crude Oil Inputs (thousands b/d)



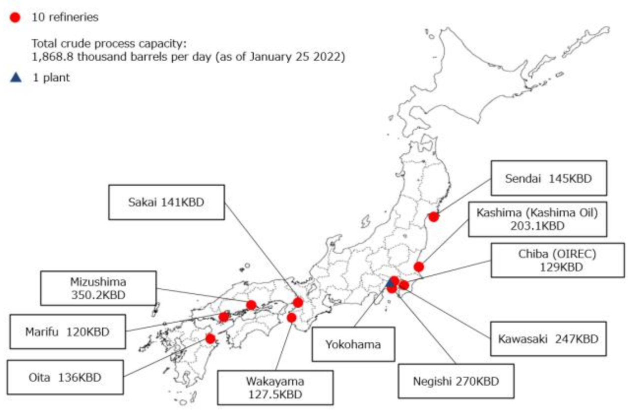
Source: EIA

Oil – Japan's ENEOS to close down Wakayama refinery due declining demand

Japan to close 128,000 b/d refinery

Japan's ENEOS announced it was shutting down the all refinery operations at its Wakayama 128,000 b/d refinery as it looks ahead to declining oil demand. We suspect that the Wakayama site will be repurposed by ENEOS or someone else. The termination is expected to take place in October 2023. The refinery was originally founded in 1941 and had a crude process capacity of 128,000 b/d. ENEOS is striving to strengthen the competitiveness of the entire supply chain in petroleum refining and marketing as one of its base businesses, with safe operations and a stable supply of energy as the major premises. The release stated *"The various circumstances in the environment surrounding the petroleum refining and marketing businesses—which include the rapid reduction in demand due to the recent spread of COVID-19 besides structural domestic demand decline for petroleum products and severe international competition mainly in Asia—were considered comprehensively. As a result, it was determined that there was a pressing need to optimize the manufacturing of refineries and plants as well as the supply network for petroleum products. ENEOS therefore decided to terminate all functions of the Wakayama refinery."* The refinery will continue to operate and supply a stable supply of energy to Japan until its termination in October 2023. Below is a graphic depicting ENEOS's refinery network. Our Supplemental Documents package includes a copy of the release.

Figure 19: ENEOS Refinery Network



Source: ENEOS

Oil – US "net" oil imports down -0.695 mmb/d WoW at 3.440 mmb/d

US "NET" imports were down -0.695 mmb/d to 3.440 mmb/d for the Jan 21 week. US imports were down -0.509 mmb/d to 6.236 mmb/d. US exports were up +0.186 mmb/d to 2.796 mmb/d. The WoW decrease in US oil imports was driven by US's Top 10 imports by country were down 0.478 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was up this week by +0.1.96 mmb/d to 3.752 mmb/d, which is now ~0.1 mmb/d above the average levels in Jan/Feb of 2020. (ii) Saudi Arabia was up 215,000 b/d to 0.596 mmb/d this week. (iii) Colombia was down -0.05 mmb/d to 0.143 mmb/d. (iv) Ecuador delivered no imports this week, flat at 0 mmb/d. (v) Iraq was down -301,000 b/d to 133,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico was down by 581,000 b/d to 0.321 mmb/d.

US "net" oil down WoW

Figure 20: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d)	Nov 12/21	Nov 19/21	Nov 26/21	Dec 3/21	Dec 10/21	Dec 17/21	Dec 24/21	Dec 31/21	Jan 7/22	Jan 14/22	Jan 21/22	WoW
Canada	3,429	3,559	3,773	3,869	3,879	3,147	4,032	3,803	3,340	3,556	3,752	196
Saudi Arabia	453	468	475	393	463	384	609	418	294	381	596	215
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	499	460	657	625	569	503	648	226	584	902	321	-581
Colombia	302	141	214	71	232	146	184	64	241	193	143	-50
Iraq	42	131	221	248	29	359	268	226	317	434	133	-301
Ecuador	103	149	112	0	265	195	308	95	58	0	0	0
Nigeria	1	68	4	175	217	128	58	53	0	0	43	43
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	4,829	4,976	5,456	5,381	5,654	4,862	6,107	4,885	4,834	5,466	4,988	-478
Others	1,362	1,460	1,148	1,118	817	1,332	652	779	1,235	1,279	1,248	-31
Total US	6,191	6,436	6,604	6,499	6,471	6,194	6,759	5,664	6,069	6,745	6,236	-509

Source: EIA, SAF

Oil – Pemex oil production still stuck around 1.7 mmb/d, but partners now 58,000 b/d

On Thursday, Pemex released its December production for its interests was 1.694 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

October was lower due a fire on a platform and we would have expected it to be higher in November and December. Pemex's interest YTD Dec 31 production is 1.690 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 58,000 b/d and has averaged 49,000 b/d for YTD Dec 30. As a result, total Mexico oil production (Pemex and non-Pemex) was 1.752 mmb/d for Dec and 1.730 mmb/d for YTD Dec 31. Oct. Below is our chart tracking Pemex oil production.

Figure 21: 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%	1,651	1,651	-4.2%
Feb	2,214	2,016	1,876	1,701	1,729	1.6%	1,632	1,669	-3.5%
Mar	2,217	2,018	1,846	1,691	1,745	3.2%	1,654	1,697	-2.8%
Apr	2,177	2,012	1,868	1,675	1,703	1.7%	1,664	1,693	-0.6%
May	2,174	2,020	1,850	1,663	1,633	-1.8%	1,669	1,688	3.4%
June	2,178	2,008	1,828	1,671	1,605	-3.9%	1,674	1,698	5.8%
July	2,157	1,986	1,823	1,671	1,595	-4.5%	1,678	1,701	6.6%
Aug	2,144	1,930	1,798	1,683	1,632	-3.0%	1,675	1,657	1.5%
Sept	2,113	1,730	1,808	1,705	1,643	-3.6%	1,679	1,709	4.0%
Oct	2,103	1,902	1,747	1,655	1,627	-1.7%	1,680	1,692	4.0%
Nov	2,072	1,867	1,697	1,696	1,633	-3.7%	1,681	1,691	3.6%
Dec	2,035	1,873	1,710	1,706	1,650	-3.3%	1,539	1,694	2.7%

Source: Pemex

Oil – Mexico December oil exports -16.6% YoY to 1.037 mmb/d

Pemex December oil exports

On Thursday, Pemex reported December oil exports were 1.037 mmb/d, which was marginally higher MoM vs November of 1.025 mmb/d, but down 16.6% YoY vs December 2020 of 1.126 mmb/d. Pemex oil exports to US were 0.512 mmb/d in December, which was in line with the average of the prior few months. Below is our table of the Pemex oil export data.

Figure 22: 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	1,037	-16.6%

Source: Pemex

Oil – Referendum for potential Maduro recall only gets 1.5% in favor

Maduro recall vote only gets 1.5%

It looks like Maduro is safe as Venezuela President until the 2024 election. Bloomberg reported "*A push to call a referendum aimed at ousting Venezuelan President Nicolas Maduro failed to reach a threshold to move forward, securing the socialist leader's job until at* *least elections in 2024. Fewer than 1.5% of voters signed on to a measure to start the process for a recall referendum, well short of the 20% needed in all 23 states plus the capital, the National Electoral Council said Thursday. Under the constitution, the opposition cannot request another referendum, the council said."*

Oil – Reduced loadings at Angola and Nigeria

OPEC+ members decrease exports

There was a good reminder why there is still an oil upside still on the horizon for OECD member countries. Bloomberg reported on Friday, that both Nigeria and Angola have reduced their near-term loadings. We tweeted [LINK] *"#OPEC members Angola & Nigeria near term loadings are declining, not increasing to try to get to their quota. How much OPEC+ spare capacity will be left as demand returns to pre-Covid? Thx @Bill_Lehane. #OOTT".* Nigeria announced it will lower its Forcados crude loadings to 0.155 mmb/d in March from 0.204 mmb/d in February, the lowest for any month since September of 2020. The five shipments in March will carry 4.8 mmb which is down from the 6 scheduled cargoes bring 5.8 mmb in February. Similarly, Angola plans to reduce their oil exports to 1.05 mmb/d in March, their lowest level since November. This is a 0.5 mmb/d drop from November's export volume of 1.1 mmb/d. Both Angola and Nigeria are subject to the planned production quotas implemented by OPEC+ in July. Our Supplemental Documents include the Bloomberg reports.

Oil – Nigeria's Dangote oil refinery to begin processing crude in Q3 2022

Bloomberg's Oil Demand Monitor

Mechanical work on the giant refinery in Nigeria has been completed with full operations expected to begin later this year. Bloomberg reported on Jan 23 [LINK] that Nigeria's giant new Dangote oil refinery is expected to begin crude processing operations in Q3 of 2022. The plant will begin with a processing capacity of 540,000 b/d with full production, 650,000 b/d, "hopefully" achieved by the end of the year or the beginning of 2023. The Dangote facility cost an estimated $19 billion to build and will generate enough output to meet the fuel demands of the nation and is likely to turn Nigeria into an exporter of crude. The refinery is named for the wealthiest man in Africa, Aliko Dangote, the primary donor whose wealth increased by $1.3 billion so far this January.

Oil – Next OPEC+ ministerial meeting is Tuesday Feb 2

OPEC+ meeting is Feb 2

There hasn't been much chatter about the upcoming OPEC+ meetings but the expectation is that OPEC+ will proceed with its planned +400,000 b/d increase for March. The current meeting schedule is Joint Technical Committee on Tues Feb 1, and then both the Joint Ministerial Monitoring Committee and the full ministerial meeting on Tuesday Feb 2.

Oil – JCPOA, US says "*in the ballpark*" for a deal

"in the ballpark" for a JCPOA deal

This week, we saw the most encouraging hints from the US that a JCPOA deal is getting closer. On Thursday, the Times of Israel quoted White House National Security Council coordinator for the Middle East, Brett McGurk, and posted [LINK] "*A senior White House official says the US and Iran are "in the ballpark of a possible [nuclear] deal" in Vienna. "We're in the ballpark of a possible deal. But again, I'm not going to put odds on this*". But what made this more interesting was the comments or non-comment from State Dept Ned Price on Friday morning. We tweeted [LINK] *"#JCPOA. "we're in the ballpark of a possible deal" says @brett_mcgurk. @StateDeptSpox doesn't shoot it down. more Iran & VEN #Oil exports may be last play for #Biden to keep oil prices down going into mid-terms. Thx*

@JacobMagid. #OOTT". No surprise, State Dept Ned Price was asked on Friday morning about McGurk's comments that they are in the ballpark on a possible deal. Here is Price's full answer, he didn't' acknowledge the ballpark nor did he shoot it down. If it wasn't close, he would have shot it down. Price replied "*Michel, you've heard us say this before: We are engaged indirectly in negotiations in Vienna because of a couple things. We believe that a mutual return to compliance with the JCPOA is – remains as of this moment the best means by which to reinstall those permanent, verifiable restrictions on Iran's nuclear program; and second, we're engaged in this process because we believe a mutual return to compliance is still possible. We believe the window of opportunity remains open. Now, that window is closing. It is becoming narrower and narrower. I don't want to characterize precisely where we are beyond what you've heard us say during the course of this round, and that is to say that there has been some progress achieved. But if we are to get there, that progress needs to outpace the speed with which Tehran's nuclear program has moved forward, has advanced. So we need to see progress be more than modest. We need to see it be more than incremental. We need to see that progress continue and quicken if we are going to get there in time to effect a mutual return to compliance with the JCPOA."*

Oil – Reminder, a JCPOA deal also frees up Iran's 80-90 mmb oil in storage in Asia

Iran's 80-90 mmb in storage will come free

On Monday, Bloomberg had a good reminder that any JCPOA would also immediately free up Iran oil barrels that are in storage in Asia. We tweeted [LINK] "*Tehran could sell some of the roughly 80 to 90 million barrels it holds in storage, many of them located in its main market of Asia". Good @business reminder these #Oil storage barrels will quickly hit market with #JCPOA return. Thx @PaulWallace123 gsmith52@bloomberg.net #OOTT."* These barrels will come quickly into markets with a JCPOA.

Oil – India oil imports up MoM to 4.61 mmb/d in December

India oil imports up in Dec

On Monday, India's Petroleum Planning and Analysis Cell released crude oil import data for December [LINK]. Total crude oil imports increased 6.56% YoY in Dec to 4.61 mmb/d and increased from 4.50 mmb/d in November, as refiners began to return 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 Dec was flat YoY at 4.35 mmb/d and increased slightly MoM from 4.18 mmb/d in November. Refinery throughput in December was +2.21% YoY to 5.08 mmb/d and a decrease from 5.15 mmb/d in November.

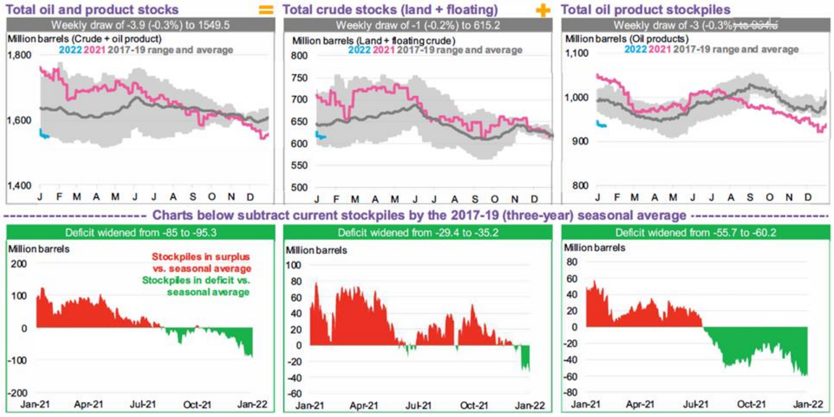
Oil – Bloomberg: global oil & products stocks deficit widened from 85 to 95.3 mmb

Bloomberg's Oil Demand Monitor

Bloomberg released their "Oil Price Indicators" weekly on Monday, provides good charts depicting near-term global oil demand and supply indicators. The key data this week is the outlook for global oil and products stocks which delivers a bullish outlook at the widening of the deficit. We tweeted [LINK] *"Aggregated oil stockpiles. Bullish: Stockpiles deficit widened from 85.0m bbl to 95.3m bbl" says @BloombergNEF Oil Price Indicators Weekly. Excellent weekly 40-slide #Oil supply/demand recap for those with @TheTerminal. Thx @WayneTanMing #OOTT".* Note this 85.0 to 95.3 million barrel deficit is compared to the 2017-2019 average. For the week ended Jan 14, land crude oil storage in tracked regions rose by 1.2% WoW to 522.9 mmb. The stockpile deficit against the 5 yr average (2015-2019) narrowed from 52.5 mmb to 50.8 mmb. Total crude inventories decreased by 0.2% to 615.2 mmb, including global floating crude stockpiles, with the deficit widening from 29.4 mmb to

35.2 mmb. Product stocks were up 2% WoW with the stockpile deficit against the 3 year average narrowing from 11.2 mmb to 10.2 mmb. Gas oil and middle distillate stocks have widened against their three-year average deficit (2017-2019) of 32.5 mmb to 34.0 mmb. Jet fuel consumption by international departures was down 82,300 b/d WoW while consumption by domestic passenger departures fell by 20,100 b/d. Global mobility indices were mixed over the past week. The high frequency oil and product stockpile deficit against the three-year seasonal average (2017-2019) has swelled to the highest level since the pandemic began, breaking records set in the previous week. Below is a snapshot of aggregate global stockpiles. Our Supplemental Documents package includes excerpts from the Bloomberg report.

Figure 23: Aggregate Global Oil and Product Stockpiles



Source: Bloomberg

Oil – Vortexa est 80.28 mmb at Jan 28, -25.77 mmb WoW vs mostly unchanged Jan 21

Vortexa floating storage

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 get revised over the weekend and next week. Note we do not check daily for the revisions so our comments are compared to the Jan 21 and Jan 14 estimates that were posted on Sat Jan 22 at 2pm MT. (i) We will have to watch next week's data to see if there is a big revision up in the Jan 29 data. There was a big WoW drop in crude oil floating storage, down 25.77 mmb WoW to 80.28 mmb. The last time it was this level was Sept 17, 2021. And there was only a small revision to last week's data. This drop down to 80 mm bucks the recent trend of crude oil floating storage creeping up to the over 100 mmb for the past couple months. (ii) As of 3pm MT Sat, Bloomberg has posted a big WoW drop in Vortexa crude oil floating storage as of Jan 28 to 80.28 mmb, which is -25.77 mmb WoW from Jan 21 of 106.05 mmb. There was only a small revision to the original Jan 21 estimate. (iii) There were relatively small revisions to the two prior weeks from those estimated as of 2pm MT on Sat Jan 22. At 3pm MT today, Jan 21 was estimated at 106.05 mmb, which is revised up +0.71 mmb vs 105.34 mmb estimated on Jan 22 at 2pm MT. At 3pm MT today, Jan 14 was estimated at 94.95 mmb, which is revised up +2.63 vs 92.32 mmb estimated on Jan 22 at 2pm MT. (iv) Jan 28 estimate of 80.28 mmb is down 143.76 mmb from the June 26, 2020 peak of 224.04 mmb. (v) Jan 28 estimate of 80.28 mmb is +18.41 mmb vs the pre-Covid Jan 27, 2020 estimate of 61.87 mmb. Below is the Bloomberg posted Vortexa crude oil floating storage data for the past two years as was posted yesterday at 3pm MT.

Figure 24: Vortexa Floating Storage Jan 28 Posted on Bloomberg 3pm MT Sat

Source: Bloomberg, Vortexa

Figure 25: Vortexa Estimates Jan 29 3pm MT vs Jan 22 2pm MT

Jan 29, 3pm MT Estimate Date	Mid Px	Jan 22, 2pm MT Estimate Date	Mid Px
Fr 01/28/2022	80280	Fr 01/21/2022	105.34k
Fr 01/21/2022	106.046k	Fr 01/14/2022	92319
Fr 01/14/2022	94949	Fr 01/07/2022	99648
Fr 01/07/2022	100.626k	Fr 12/31/2021	99274
Fr 12/31/2021	100.49k	Fr 12/24/2021	99329
Fr 12/24/2021	102.329k	Fr 12/17/2021	97642
Fr 12/17/2021	100.961k	Fr 12/10/2021	94770
Fr 12/10/2021	94808	Fr 12/03/2021	91781
Fr 12/03/2021	92470	Fr 11/26/2021	100.434k
Fr 11/26/2021	100.775k	Fr 11/19/2021	112.382k
Fr 11/19/2021	113.997k	Fr 11/12/2021	111.712k

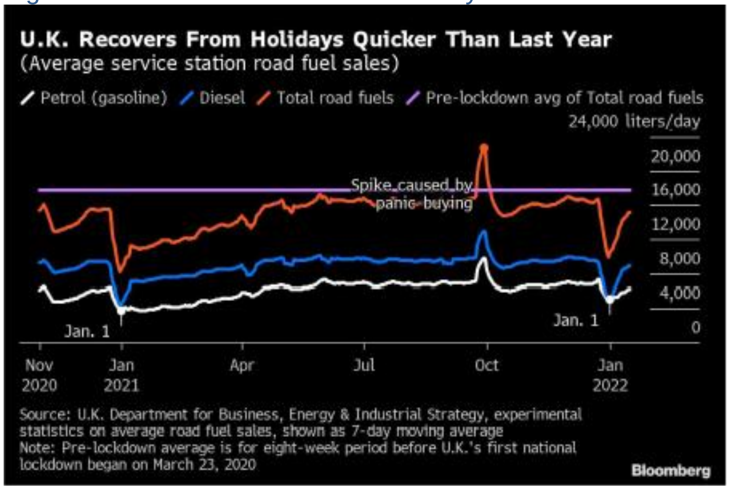
Source: Bloomberg, Vortexa

Oil – Bloomberg Oil Demand Monitor, UK fuel sales recover as infection rates decline

Bloomberg's Oil Demand Monitor

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. UK road fuel sales continue to recover from the steep decline during the Christmas and New Year holiday period, with recovery occurring at a greater rate than the equivalent week in 2021. Omicron infections have declined, and the UK government is set to end their "Plan B" restrictions on Jan 27; this greatly contrasts the government action from a year ago in which the UK entered their third national lockdown. The rest of Europe remains a couple weeks from their respective decline in infection rates and are expected to experience their own fuel demand dips when the January data becomes available. Of the 13 tracked cities for roadways congestion, only London showed an increase from the equivalent week in 2019; city traffic increased in Rome and Madrid while declining slightly in Tokyo, Paris and Berlin. Fuel consumption statistics show Italian oil product sales have slightly exceeded 2019 levels with strong demand outweighing the slump in jet fuel. Using the Italian data as a proxy for Europe, demand for diesel was within a ~2% of pre-pandemic levels and withing the 5-yr average range. The rolling 7-day average of commercial flights remained down 18% from 2019 despite being up 35% YoY. The three regions most affected by Covid-19 are Southeast Asia, down 82% versus the same week in 2019, Northeast Asia down 87%, and Southwest Pacific down 78%, OAG said in a note on its website. Central America is the most recovered region with international seat capacity only 5% below the 2019 level. Refinery utilization was up +5.5% YoY but still down 6.5% from 2019 levels with US Gulf refineries -6.5% from the equivalent week in 2019. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Figure 26: UK Road Fuel Sale Recovery



Source: Bloomberg

Oil – IMF lowers 2022 economic growth forecast mainly from US & China

IMF world economic outlook

It wasn't a big surprise that the IMF reduced its economic growth forecast in its January update to its world economic outlook. The update is versus October and that was really a pre Omicron period. And with Omicron, the IMF changed its 2022 outlook based on entering 2022 in a weaker position than was previously forecasted. The IMF estimates [LINK] that Global growth is expected to moderate from 5.9% in 2021 to 4.4% in 2022, a revision of 0.5% from the October outlook. The forecast largely reflects downward revisions in the US and China. The updated forecast continues to expect supply shortages and it removed fiscal and monetary policy baseline accommodations in the US and leading to a 1.2% revision from the October forecast. China's pandemic induced disruptions related to the Zero-Tolerance Covid-19 policy and protracted financial stress among property developers saw a 0.8% revision downward from the previous outlook. The Euro-Area noted a -0.4% revision in the growth outlook to 3.9% in 2022; Canada was revised down 0.8% to 4.1% YoY growth and Brazil had a -0.4% revision to 0.3% in 2022. India was revised up 0.5% to 9% YoY GDP growth. The effective global health strategy is expected to persist with countries around the world focus on access to vaccines, tests, and treatments; this will tighten monetary policy in effort to curb inflation while fiscal policy will prioritize health. Additionally, the IMF upped their 2022 oil price projections by 13.7%, with their average price basket of Brent, Dubai Fateh, and WTI expected to be 11.9% higher than the 2021 average of $67.30, meaning 2021 average is expected at $80.08 per barrel. Our Supplemental Documents package includes excerpts from the IMF update.

Oil & Natural Gas – Peak GoM oil & gas production looks assured with Biden review

Peak US GoM production is assured

There was big news in the US oil and gas space on Thursday, which we believe means peak Gulf of Mexico oil and gas production is assured and likely to be reached in the next 2-3 years. The Washington Post reported [LINK] "*A federal judge on Thursday invalidated the largest offshore oil and gas lease sale in the nation's history, ruling that the Biden administration violated federal law by relying on a seriously flawed analysis of the climate change impact of drilling in the Gulf of Mexico. The decision, by the U.S. District Court for the District of Columbia, threw out 1.7 million acres of oil and gas leases that the Biden administration did not want to sell. Shortly after taking office, President Biden suspended new oil and gas drilling on lands and waters owned by the federal government. But after a Louisiana judge struck down the moratorium last summer, administration officials said they were forced to go through with the sale in November.".* The sale invalidation is bad enough, but, what makes it look like a killing blow for the oil and gas sector was the Biden administration comments post the ruling. It's why we tweeted [LINK] "*Peak GoM #Oil #NatGas supply is now assured. Looks like end of GoM #Oil #NatGas lease sales under #Biden. "documented serious deficiencies" "need to take the time to make significant & long overdue programmatic reforms". Also will these reforms impact more than lease sales? #OOTT*." Our first thought on seeing the US Dept of Interior tweets was that this will likely be Keystone XL under Obama where they just put any potential approval on ice for years. There can't be any doubt that the DOI won't be having any other GoM lease sales and if there are no lease sales, there is no replenishment of future drilling opportunities to replenish reserves and production. And if there is no replenishment of opportunity, it assures peak GoM oil and gas supply is coming and likely within the next 2-3 years. The DOI official, Melissa Schwartz, tweeted [LINK] a short statement from the Dept on the court ruling "*As the Department has stated previously, to comply with the injunction imposed in the District Court of Louisiana litigation we were compelled to proceed with Lease Sale 257 based on the previous administration's environmental analysis and its decision to approve the lease sale. We are reviewing the Court's decision concerning deficiencies in that record. "Our publ8i lands and waters must be protected for generations to come. WE have documents serious deficiencies in the federal oil and gas program. Especially in the face of the climate crisis, we need to take the time to make significant and long overdue programmatic reforms. Our work will be guided by the law, science and sound policy. That's why the President called for a pause on leasing n his Executive Order, and why we are appealing the decision enjoining implementation of the pause."* Our Supplemental Document includes the Washington Post report.

Oil & Natural Gas – risk to any oil & gas projects approved under Trump admin

Sector insights from Q4 calls

The invalidation of the GoM lease sale is just one recent example of projects being canceled or enroute to being cancelled that were approved under the Trump administration. We believe these examples show clear risk for any major project approved during the Trump administration. Our concern is that the push to get projects approved during the Trump administration may have led to corners being cut on applications and approvals, which set up the potential for environmental groups to try for legal action to stop a project or the Biden administration to try to stop. This week there were two other headlines on this concern.

First, the Mountain Valley Pipeline (Appalachia natural gas pipeline). On Wednesday, Bloomberg wrote "*The U.S. Court of Appeals for the Fourth Circuit on Tuesday tossed the federal government's approval for Equitrans Midstream Corp.'s $6.2 billion Mountain Valley Pipeline to go through Jefferson National Forest, sending the shares of the company slumping the most since March 2020. Mountain Valley, which is more than 90% complete, aims to provide drillers in the gas-rich Appalachian Basin with much-needed takeaway capacity" "The Bureau of Land Management and U.S. Forest Service's reauthorizations for the project didn't consider sedimentation and erosion impacts, prematurely approved the use of a conventional bore method to build stream crossings, and failed to comply with the Forest Service's 2012 planning rule, the court said*." Second, the Boundary Waters Canoe Area Wilderness copper-nickel mine in NE Minnesota. On Thursday, Bloomberg reported "*The Interior Department yesterday canceled two mining leases near the Boundary Waters Canoe Area Wilderness in northeastern Minnesota, the latest development in a long-standing back-and-forth over a proposed copper-nickel mine in the region, Kellie Lunney reports. Secretary Deb Haaland said the department based its decision on a "careful legal review" that found the hardrock mining leases "were improperly renewed in violations of applicable statues and regulations*." The Biden administration has been anti oil and natural gas, no doubt about that. But they have also been trying to push the US forward on having more control of the supply chain for items like EVs and that means critical metals like copper and nickel. Our Supplemental Documents package includes the two Bloomberg reports.

Oil & Natural Gas – sector/play/market insights from Q4 calls

Sector insights from Q4 calls

We are just starting to get into Q4 calls and we expect to see a ramp up this week. This is our favorite time each time of each quarter as it is quarterly reporting and this is when we get the best insights into a range of oil and gas themes/trends, sectors and plays. As a reminder, our Energy Tidbits memo does not get into the quarterly results, forecasts, or valuation. Rather the purpose of highlighting a company is to note themes/trends and plays that will help shape a reader's investment thesis to the energy sector. In the conference calls, we also tend to find the best insights from the Q&A portion as opposed to the prepared remarks. Plus, we tend to get the best E&P sector insights from services, pipelines, refineries, and utilities

Baker Hughes – Expect 13-20 bcf/d LNG FIDs in next 2-3 years

Baker Hughes held its Q4 call on Jan 21. (i) For US activity, Baker Hughes expects the growth in US land could be 25-30%. Mgmt. stated *"we expect another year of impressive growth in the U.S. land market as well as recovery in offshore. Based on conversations with our customers, we expect the underlying trends in North America to remain the same as 2021 with public E&Ps and IOCs remaining discipline in deploying capital while private E&Ps will remain more active".* (ii) For international activity, mgmt. expects strong broad-based growth in 2022 in the low to mid digits led my Latin America and the Middle East. Mgmt stated *"the Middle East is in the very early stages of what we expect to be a multi-year growth cycle. Capital is being deployed in the region to restore near-term production levels and lay the foundation for longer-term capacity expansion.* (iii) Baker Hughes was extremely bullish in their LNG outlook with a forecast of 13-20 bcf/d of new FID in the next 2-3 years. One of the key comments was the goal to improve the environment to secure long-term offtake agreements. Mgmt stated "*We've indicated over the past quarters that we're* *seeing an LNG cycle beginning to accelerate. And generally speaking, LNG projects are beginning to be pull forward versus previous expectations due to the strong long-term LNG fundamentals and also the improving environment to secure long-term offtake agreements. So we also believe the recent policy movement out of Europe, that's encouraging to see what would be FIDs in 2023, maybe potentially be pulled forward into 2022 as well. So there a couple of large awards this year in 2022 and also some small and mid-sized awards that should be coming through"* (iv) Baker Hughes continues to highlight the energy transition focus in CCUS and hydrogen. In the Q&A, Mgmt. said *""We've given a 2022 outlook of between $100 million, $200 million. We think that we're on the higher end of that, and its continued momentum with our customers on really helping them to achieve their net zero targets. And I think the Ekona investment that you mentioned, again, it's another way in which we're expanding our portfolio of capabilities. It's a growth stage company, which develops turquoise hydrogen production technology, and it's another solution that can really help our customers. As we look at 2022 and beyond, again, we still see the opportunity to create a new business through the energy transition that by 2030 is $6 billion to $7 billion."* Our Supplemental Documents package includes excerpts from the Baker Hughes Q4 call.

Chevron – Expects macro industry to remain supportive of O&G markets
Chevron held its Q4 call on Friday. (i) They expect much lower cost inflation than other company forecasts. In the Q&A Mgmt. noted they are seeing low single digit inflation across their asset portfolio; while Permian is higher, they do not believe it will reach double digits. (ii) Chevron will not chase price. When asked if the $17 bn of their capex budget was still the high end of their capex range if oil prices remained elevated, Chevron CEO commented *"the overarching message that investors should take away is that we're going to stay disciplined on capital, we're not chasing price, we're improving returns, and you can count on us to continue to do that."* (iii) Permian production will continue to improve in 2022 and is expected to lead Chevron's growth, and should be +10% vs full year 2021 average production. (iv) Chevron does not believe that oil prices will be high in the medium term noting, "*Our longer term view on the price environment hasn't changed a lot. There's a lot of resource out there that can be produced economically at prices lower than what we see today. And our breakeven reflects that".* Chevron's Gorgon asset is expected to be reliable going forward into 2022 with no planned turnaround throughout the year as the company finishes up the last of their maintenance on the asset.

Halliburton – Expects macro industry to remain supportive of O&G markets
Halliburton held its Q4 call on Monday. (i) Halliburton sees a multi year cycle we were particularly interested in the short cycle comments surrounding wellbore capital. It reminds of a just in time delivery system; nothing to worry about in the future, but could create issues in the near term. As long as OPEC+ manages the return to pre pandemic oil demand, there is a good setup for the 2020s. Halliburton CEO commented *"while global energy demand and economic growth demonstrated resilience, global energy supply has shown its fragility. The impact of several years of underinvestment in new production is now apparent and the structural requirement to invest around the wellbore is crystal clear, We see increasing customer urgency and*

a pivot to what creates value for Halliburton". Apart from OPEC+ select group with surplus capacity, the rest will add any short cycle barrels possible (including SPR) to meet demand. We saw from the others service companies that OPEC is starting to add capital to deliver share, but the key is that they haven't done so in the past. It takes time for them to add capacity and we are seeing some don't have it. This points to years of stress to meet demand. (ii) Halliburton sees Frac costs increasing throughout the year commenting *"Pricing for our fracturing fleets is moving higher across the board. Both for our market leading low emissions equipment and our Tier 4 diesel fleet. As a result, we expect to see over 30% incrementals in our hydraulic fracturing business in the first quarter. Anticipated demand growth for equipment provides a runway for us to increase pricing throughout the year."* (iii) Halliburton is hesitant in their clean energy projects and so they have not seen any returns thus far. Halliburton CEO commented *"we are actively participating in the clean energy space without committing shareholder capital. Halliburton will evolve as energy evolves. And we will add to our already expanding opportunity as clean energy value chains mature. However, we will do so consistent with our capital allocation strategy and mindful of our commitment to deliver industry leading returns and free cash flow generation. We will proceed with patience, discipline and resolve."* .

Schlumberger – Under investment will lead to long cycle capital investments

Schlumberger held its Q4 call on Jan 21. (i) Oil demand is back to pre-covid levels in 2022 and growing further into 2023 "*Looking ahead into 2022, the industry macro fundamentals are very favorable, due to the combination of projected steady demand recovery, an increasingly tight supply market, and supportive oil prices. We believe this will result in a material step up in industry capital spending with simultaneous double-digit growth in international and North American markets. Absent any further COVID-related disruption, oil demand is expected to exceed pre-pandemic levels before the end of the year and to further strengthen in 2023.* (ii) North American O&G capex is expected to increase +20% and In the mid teens international; the US is expected to see stronger growth while Canada will be more moderate. In the Q&A, mgmt. said "*we foresee indeed that the US land, which is a big portion of this activity outlook, we'll be having a bias towards well construction, as the market ease rotating from depleting the ducts to replenishing the ducts, and so well construction rig-based activity is -- will be the lead, in the 20% plus. And I think we are set to respond to this with well construction portfolio in that environment and this would be a very favorable to us".* (iii) Sees underinvestment in O&G leading to the return of long cycle capital investments and that OPEC countries need to invest to protect their future market share. In the Q&A, mgmt. said "*Secondly I think the international under investments for the last few years, actually the last downcycle combined with the deep in the last two years is creating condition for let's say injection of short cycle capital and then long cycle capital investments to respond to the supply. So we are seeing growth in North America albeit a cut. We are seeing a rebound visible rebound in short and long cycle investments internationally and I will insist on the long cycle because I believe that both old capacities is being looked upon and by some OPEC member to secure future supply market share, but also the international and major are investing into their advantage offshore basins and we are seeing not only infill drilling, but we* *are seeing FID for offshore that are accelerating going forward".* (iv) Still no deal on the APS Southern Alberta JV as bids are likely mot reflecting the higher oil prices and cash flow. In the Q&A, mgmt. said "*So we have received several offers for our APS asset in Canada as part of the process we launched last year. So while we were assessing those proposals, the market conditions, actually continued to improve and the value of the asset increased as a result. So we actually took the decision that the offers we had received were not -- no longer reflective of the economic value and the cash flow potential of the asset, so we are not (Inaudible) those at the moment, the asset is now generating very strong cash flows, but we remain open to all options*." Our Supplemental Documents package includes excerpts from the Schlumberger Q4 call transcript.

Energy Transition – US/EU say are committed to "carefully managing the transition from fossil fuels to clean energy"

Is Biden changing his tune?

No one really pays much attention when they see China say reducing emissions isn't the priority or Saudi Arabia say the energy transition is poorly planned. However, we believe the eye opener that the energy transition plan isn't working is when the world leaders for the energy transition and Net Zero change their tune. They can't change overnight to say it doesn't work. Rather, they start by saying that they need to be careful on how they get rid of fossil fuels. This is what we saw from Macron just before COP26. And now we are seeing it from Biden and EU President von der Leyen. As everyone knows, Friday afternoons are the classic time when politicians try to sneak out any change in messaging in key items and that looks to be the case for Biden and EU President von der Leyen in their Friday afternoon "*Joint Statement by President Biden and President von der Leyen on U.S.-EU Cooperation on Energy Security*" [LINK]. The headlines are focused on Biden saying how the US "*is already the largest supplier of liquefied natural gas (LNG) to the EU. We are collaborating with governments and market operators on supply of additional volumes of natural gas to Europe from diverse sources across the globe*." However, yesterday, we tweeted [LINK] "*Did #Biden #VonderLeyen have a #MacronMoment? #FossilFuels commitment now also incl "and carefully managing the transition from fossil fuels to clean energy". carefully managing = we need to slow down #EnergyTransition or energy crisis for 2020s. Positive for #Oil #NatGas. #OOTT* ". Their statement is worth a read. It jumped out at us that Biden and van der Leyen have highlighted the challenges of energy security and high prices and inserted what looks to be a new commitment in their move to accelerating the move away from fossil fuels – they are committing to "*carefully managing the transition from fossil fuels to clean energy".* These are the two major world leaders for the energy transition and push to Net Zero. And we believe this is a big reality check on their side that they acknowledge the need to carefully manage the transition from fossil fuels. Why don't they just say it clearly – they need to change their energy transition plan and they can't get rid of oil and natural gas as quickly as they want or else the energy crisis of 2021 will continue thru the decade. They are having what we call a #MacronMoment. Our Supplemental Documents package includes the joint statement.

2022 Prediction #1, leaders admit energy transition isn't working

This joint statement fits to our expectation for 2022. In our Dec 12, 2021 Energy Tidbits, we noted what we called our 2022 Prediction #1. At that time we wrote "*Its December and so analysts will soon be coming out with 2022 predictions, so we* *thought we would beat them with one of our main 2022 predictions. On Thursday, 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." This should not surprise readers as we have been noting the start of energy transition leaders starting to admit, in a politician's manner, that the energy transition isn't working as per aspirations and energy costs will be a lot higher than aspired. We have said for years that the energy transition will happen, but it will take longer, be bumpy road and cost more than the aspirations. Last week's (Dec 5, 2021) Energy Tidbits wrote on the ADNOC CEO speech There was much more in the speech, which is why we tweeted [LINK] "If more leaders have a "Macron Moment" in 2022, maybe COP28 UAE in 2023 can be catalyst for getting down to work on practical, commercial, sustainable energy solutions: pro climate/pro growth? See SAF Group transcript of @SultanAhmedalj8 #ADIPEC keynote. #EnergyTransition #OOTT." We do wonder if we will see more world leaders accept that the energy transition isn't working according to their aspirations and that there is an increasing risk of a decade of energy crisis like seen in Europe in H2/21 unless the world puts in an achievable energy transition plan." We think COP26 will turn out to be turning point, but a turning point to force energy transition leaders into changing their plan. It why we think we will more of the energy transition leaders come out of the closet and admit this in 2022. But what got us to tweet this week was after seeing Saudi Aramco CEO Nasser speech at the WPC in Houston. Nasser said "There is one more thing that can no longer remain unsaid. A majority of key stakeholders agree with these realities as much as they believe in addressing climate change. We know this, because they say so in private. They should say it publicly too. I understand their dilemma. Publicly admitting that oil and gas will play an essential and significant role, during the transition and beyond, will be hard for some." So our #1 2022 Prediction is that we will see leaders come out of the close and admit, in a politician's way, that the energy transition plan needs to be changed. The key result will be that fossil fuels are needed for way longer and the outlook for oil, natural gas and LNG will be stronger thru 2030 and beyond.*

A #MacronMoment can take three forms

We use the term "Macron Moment" and the #MacronMoment as when an energy transition leaders come to the realization that the energy transition will take longer, be bumpy and cost more ie. it just won't be ready for prime time and they need to change their plans on how quickly they get rid of oil and natural gas. We are already seeing politicians start to publicly have a #MacronMoment but, so far, it has come in three forms of admission as noted below.

First, 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. And, even more importantly, he wants to bring a more pragmatic Energy Transition plan to the EU. On Nov 9, we tweeted [LINK] on Macro's address to the nation [LINK] that closed with his call for a more practical approach to the CO_2

emissions and one that will include Europe. Macron said "*But France will not be strong alone. With the European Union: ➜ We will be able to build a credible strategy for reducing our CO2 emissions, compatible with our industrial and technological sovereignty."* The Macron release had at the bottom a reminder "*Next January, it is a new model of investment and growth that the President will defend with the French presidency of the Council of the European Union."* 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. Our Supplemental Documents package includes the FT Macron report from Oct 30.

Second, Japan says must have a "*pragmatic time frame*" for decarbonization
No one should is surprised to see how Japan says their #MacronMoment. They don't say it isn't working, they don't say energy costs are way higher than expected. But they do clearly make the point. They say it important to have a pragmatic time frame for decarbonization. That sounds like Japan-speak for the energy transition aspirations plan isn't working and needs to be changed. On November 9, Japan and the IEA issued a press release and we tweeted [LINK] "*Today's Japan "go slow" getting rid of #Oil #NatGas fits Japan's Nov 9 on acceleration of decarbonization that must have "the importance of measures with pragmatic time frame". Japan is having a "Macron Moment". See Nov 9 tweet [LINK] #OOTT."* 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.

Third, US doesn't say it isn't working, just higher energy costs for yrs to come
In November, US Energy Secretary Granholm showed the third way of admitting the energy transition plan isn't working. She doesn't say specifically the energy transition plan isn't working or needs to be changed. She just avoids saying that. But she puts on the record that high energy costs are here for years. No one ever heard the Biden sales pitch on accelerating the push to Net Zero and reducing emissions including the warning that this will mean higher energy prices are here for years. That wasn't in the sale pitch. Here is what we wrote in our November 14, 2021 Energy Tidbits "*Last week's (November 7, 2021) Energy Tidbits noted Biden seemed to also acknowledge a longer life for oil and natural gas. On Oct 31, we tweeted [LINK] "Is #Biden following #Macron & finally realizing demand for #Oil #NatGas is going to be more for 2020s than in his #NetZero aspiration? Oops, cancel #KeystoneXL, do zero to support US oil supply growth, etc. 2020s will be very good for #Oil #NatGas prices & #OPEC+. #OOTT." Biden wasn't as direct as Macron the week before on demand (see our Oct 31, 2021 Energy Tidbits), but seemed to be acknowledging demand for*

oil isn't going away as fast as he had planned. And, as everyone now knows, supply has been hurt by lack of oil investment so its sets up the tighter oil market for the 2020s. In his closing G20 press conference, Biden said "Well, on the surface, it seems like an irony, but the truth of the matter is — you've all known; everyone knows — that the idea we're going to be able to move to renewable energy overnight and not have — from this moment on, not use oil or not use gas or not use hydrogen is just not rational." Energy Secretary Granholm was on MSNBC Morning Joe on Monday. We tweeted [LINK] on her comments and noted she that US/Can voters weren't warned in the recent elections that the Energy Transition will happen but will lead to higher prices on oil, natural gas and electricity for years to come. We 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."

Energy Transition – Xi "cutting emissions is not aimed at curbing productivity"

China's priority is not reducing emissions

No one should have any doubt that China's efforts to reduce emissions are limited to what it believes can be done without hurting China. Early Tuesday morning, we tweeted [LINK] on Xi's comments that China's priority is energy security not reducing emissions. On Monday, Xi reiterated China's position that it will not sacrifice security or productivity to reduce emissions. Xinhua reported [LINK] "*The relations between development and emission reduction must be properly handled, Xi said. Cutting emissions is not aimed at curbing productivity or no emissions at all, Xi said, stressing that the economic development and green transition should be mutually reinforcing. While bringing down carbon emissions, efforts should be made to safeguard energy security, industrial and supply chain security, and food security, as well as ensure people's normal daily lives, Xi said."* Xinhua also reported "*Coordination should be strengthened to take concerted moves in reducing carbon emissions, cutting pollution, expanding green efforts and promoting growth, Xi said. On advancing energy revolution, Xi noted that the gradual exit of traditional energy sources should be based on the safe and reliable substitution of new energy sources."* Our Supplemental Documents package includes the Xinhua report.

China has clearly stated "supply shortage is the biggest energy insecurity"

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

Energy Transition – Aramco CEO, energy transition built on un-realistic assumptions

Aramco CEO on energy transition

It probably won't impact any of the pro-Net Zero views, but Saudi Aramco CEO Nasser's Jan 24 speech [LINK] reminded of the Saudi Aramco view – the energy transition is built on unrealistic assumptions. Plus his big warning that the lack of investments is already showing signs of an energy crisis. His key comments were "*We know that energy is the lifeblood of modern civilization. And as the energy transition unfolds, oil and gas will remain essential in many ways. …Yet, this is not the popular narrative … which is built on un-realistic assumptions. We are already seeing signs of an energy crisis in some parts of the world due to lack of investments. Let me be very clear. Aramco will never compromise on our reliability … Because we will never back down from our responsibility. In our deepest DNA, we honor a commitment to the billions around the world who depend on us. And to "walk the talk" of words like "sustainability" and "reliability" and "responsibility" – you have to back that up with investment. …You have to deliver on what you started."* Our Supplemental Documents package includes the Aramco posted speech.

Energy Transition – Japan is another to protect consumers vs high oil/gasoline prices

Japan to help on gasoline prices

One of the big energy crisis themes in Europe has been protecting consumers from the real price of natural gas and electricity. This week, we saw Japan take moves to help consumers from increasing price of gasoline. Arab News, and others similarly, reported [LINK] that Japan was providing oil wholesalers with a 3.4 yen per liter of gasoline subsidy to try to curb surging gasoline prices. Industry minister, Hagiuda, said "*While retail prices vary from region to region, we expect that the subsidies will help prevent a sharp rise in oil prices*." On Friday, Bloomberg reported that ""*Japan will check oil price data scheduled for release next Wednesday to see if subsidy to refiners is tamping down prices at gasoline stands, trade minister Koichi Hagiuda said on Friday. * "We want to repeat that this measure is meant to curb a further rally in gasoline price, and not meant to bring the price down," he said."* Our Supplemental Documents package includes the Arab News report.

Japan has been trying to slow down its move away from fossil fuels
At the same time as Japan is trying to protect consumers from high gasoline price, Japan shifted in Q4/21 to be one of the leaders to recognize that energy security is the priority and that means slowing down a move away from fossil fuels. On Dec 2, 2021, we tweeted [LINK] "*"Is Japan having a "Macron Moment"? Govt "officials have been quietly urging trading houses, refiners & utilities to slow down their move away from #FossilFuels". Supports #Oil #NatGas #LNG to be stronger thru 2030. Thx @SStapczynski @Inajima17 #OOTT #EnergyTransition."* We use the term a "Macron Moment" as when leaders realize the energy transition isn't working as hoped and Japan doesn't want to risk getting rid of oil and natural gas. And in Japan's case, it isn't a question of slowing down how quickly they get rid of oil and natural gas. Rather, it's they are going to add more oil and natural gas. Don't forget Japan imports basically all of its energy other than nuclear power. Bloomberg reported "*Government officials have been quietly urging trading houses, refiners and utilities to slow down their move away from fossil fuels, and even encouraging new investments in oil-and-gas projects, according to people within the Japanese government and industry, who requested anonymity as the talks are private. The officials are concerned about the long-term supply of traditional fuels as the world doubles down on renewable energy, the people said."* And "*Japan's Ministry of Economy, Trade and Industry declined to comment directly on whether it is encouraging industries to boost investment in upstream energy supply, and instead pointed to a strategic energy plan approved by Prime Minister Fumio Kishida's cabinet on October 22. That plan says "no compromise is acceptable to ensure energy security, and it is the obligation of a nation to continue securing necessary resources." That latest strategy calls for the share of oil and natural gas produced either domestically or under the control of Japanese enterprises overseas to increase from 34.7% in fiscal year 2019 to more than 60% in 2040."* Our Supplemental Documents package includes the Bloomberg report.

Japan says must have a "*pragmatic time frame*" for decarbonization
This is not new for Japan, and it really fits what Japan press released on November 9. On Thursday, we tweeted [LINK] "*Today's Japan "go slow" getting rid of #Oil #NatGas fits Japan's Nov 9 on acceleration of decarbonization that must have "the importance of measures with pragmatic time frame". Japan is having a "Macron Moment". See Nov 9 tweet [LINK] #OOTT."* 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. Our Supplemental Documents package includes the Japan/IEA Nov 9 press release.

Energy Transition – Is methane from gas stoves equivalent to 17k or 500k cars impact
We recognize There were a number of headlines this week on a Stanford University study *"Methane and NOx Emissions from Natural Gas Stoves, Cooktops, and Ovens in Residential*

Methane from gas stoves

Homes" [LINK] posted on Environmental Science & Technology. The headline picked up everywhere was methane from natural gas stoves in the US is equal to the annual impact of carbon dioxide emissions from 500,000 cars. That's a lot of cars even though US has over 270,000,000 cars. The problem is that the reporting of the study isn't accurate. Arguably the people who wrote the study had to believe that it would be picked up just like was done by the CBC "*Emissions from U.S. gas stoves each year is equivalent to emissions from 500,000 cars, study says"* [LINK]. If they had used the car equivalent, they probably should have used 17,000 cars and not 500,000 cars. Here is what the study [LINK] says "*Natural gas stoves in >40 million U.S. residences release methane (CH4) a potent greenhouse gas through postmeter leaks and incomplete combustion. We quantified methane released in 53 homes during all phases of stove use: steady-state-off (appliance not in use), steady-state-on (during combustion), and transitory periods of ignition and extinguishment. We estimated that natural gas stoves emit 0.8−1.3% of the gas they use as unburned methane and that total U.S. stove emissions are 28.1 [95% confidence interval: 18.5, 41.2] Gg CH4 year−1 . More than three-quarters of methane emissions we measured originated during steady-state-off. Using a 20-year timeframe for methane, annual methane emissions from all gas stoves in U.S. homes have a climate impact comparable to the annual carbon dioxide emissions of 500 000 cars*." Note how the study compares the methane emissions from gas stoves to the annual carbon dioxide emissions from 500,000 cars. That doesn't look like an apples-to-apples comparison. In its Nov 2, 2021 release "U*.S. to sharply cut methane pollution that threatens the climate and public health"* [LINK], the EPA says "*"One third of the warming from greenhouse gases occurring today is due to human-caused emissions of methane, a potent greenhouse gas that traps about 30 times as much heat as carbon dioxide over 100 years."* Isn't the right apples-to-apples comparison on methane equivalent from cars and, if methane impact is 30 times more than CO2, shouldn't we be using 17,000 cars and not 500,000 cars? Our Supplemental Documents package includes page 1 from the study.

Energy Transition – Kerry/Biden push to stop capital for new natural gas power

Kerry on natural gas plants

Notwithstanding Biden now committing to carefully manage the transition from fossil fuels, when we saw Kerry's comments on Monday, we can't help but think they are setting up the potential for energy crunch in the later 2020s. We created at transcript of John Kerry's Jan 24 comments. Video at [LINK]. At 1:10 min mark. Kerry "*I also want to issue a warning signal. Many countries, most countries have the ability to deploy very significant additional amounts of renewables. And they're not choosing to do that. They're moving towards gas, and gas is a bridge fuel. Gas can be helpful in this transition. Gas is going to be important to the transition. But if we move too fast and too far with too much and build out an infrastructure for 30 to 40 years. with plans to be able to use it for 30 to 40 years without abatement. I emphasize this because abated, terrific. If you can capture 100% and it makes it affordable, that's wonderful. But we're not doing that. And gas is 87% plus methane and methane is leaking in most places somewhere between 5 and 10%. And that leakage is 80 times more damaging than carbon dioxide."* People will focus on the abatement commentary, which is valid. But we look at this as Kerry/Biden trying to force the renewable push by warning companies about committing capital to new natural gas plants. Companies have to make a capital decision on something like a natural gas power plant that has a 30 or 40 yr life and to do so in the face of knowing the Biden wants to have 100% of power be carbon free. He relaxed that to be carbon okay as long as abatement. But it is tough for companies to make that capital decision. If companies don't want to take that capital risk for new natural gas plants and the US (Canada also) has many natural gas plants that are old, our concern is that it will create a gap in natural gas power supply. If Biden/Kerry can't be successful in reducing energy demand (as seen in Europe), we think Biden/Kerry are helping to create that supply gap by reminding companies about the risk to building new natural gas power generation.

It's annoying to see politicians ridiculously exaggerate for anti fossil fuels
Annoying isn't the right word to use when politicians like Kerry deliberately significantly exaggerate to make their anti fossil fuels argument. The issue is best said from the old Asian proverb, one man tells a lie, dozens repeat it as the truth. But Kerry said "*And gas is 87% plus methane and methane is leaking in most places somewhere between 5 and 10%. And that leakage is 80 times more damaging than carbon dioxide."* He knows very well that 80 times isn't the number. As noted earlier, in its Nov 2, 2021 release "U.*S. to sharply cut methane pollution that threatens the climate and public health"* [LINK], the EPA says "*"One third of the warming from greenhouse gases occurring today is due to human-caused emissions of methane, a potent greenhouse gas that traps about 30 times as much heat as carbon dioxide over 100 years."*

Energy Transition – Lehigh Cement and Enbridge to drive CO2 storage solution in AB

Carbon storage projects advance in AB

Leigh Cement and Enbridge have announced their agreement to collaborate on a carbon solution for Leigh's cement manufacturing facility in Edmonton, Alberta. Enbridge issued a press release [LINK], which noted that Leigh was developing the first full scale carbon capture, utilization and storage (CCUS) solution for its cement facility in Edmonton. The plant is expected to capture approx. 780.000 tonnes of CO2 annually. The captured emissions would then be transported through a pipeline and permanently sequestered by Enbridge. Subject the award of carbon sequestration rights and approvals, the project could be in service as soon as 2025. Through the support of Leigh and Capital Power Corporation, Enbridge will apply to develop an open access Carbon Hub in the Wabamun area west of Edmonton; once built the Wabamun Carbon Hub will be one of the largest integrated CCUS projects in the world. The combined emissions capture from both Enbridge and Leigh's CCUS projects will create the opportunity to avoid 4 million tonnes of CO2 emissions. Enbridge's CEO commented *"Lehigh Cement's pioneering CCUS project is an exciting addition to our proposed Open Access Wabamun Carbon Hub, which is poised to support the decarbonization of multiple industries, including power generation, oil and gas, and now cement. This collaboration demonstrates our focus on local, cost-effective, customer-focused carbon transportation and storage solutions that drive scale and competitiveness while minimizing infrastructure footprint to protect land, water and the environment."* Our Supplemental Documents package includes the Enbridge release.

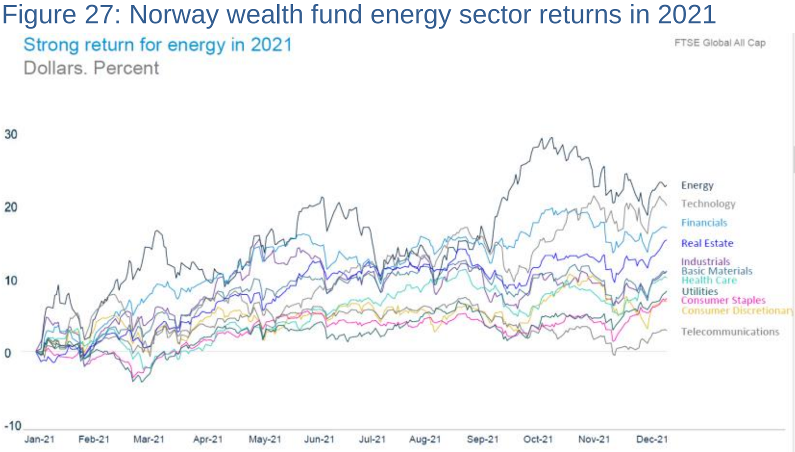
Capital Markets – Energy has best returns for Norway's wealth fund strong 2021

Energy best returns for Norway wealth fund

On Thursday, Norway's wealth fund press release on its 2021 results was titled [LINK] "*Very good results in 2021*". (i) They highlighted ""*The good results are mainly due to very strong developments in the equity market throughout the year. There was good return in all sectors, but the investments in technology and financials performed particularly well. The investments in technology returned an impressive 30.2 percent", says CEO of Norges Bank Investment*

Management Nicolai Tangen." Equities carried the day returning 20.8% vs total fund performance of 14.5%. They highlighted two low performing sectors "*the return on the fixed-income investments was -1.9 percent"* and "*the return on unlisted renewable energy infrastructure was 4.2 percent*." (ii) In today's world of not wanting to give any positive acknowledgement to oil and gas, we probably shouldn't have been surprised to see the short press release not mention oil and gas returns. We didn't know what was in their portfolio but assumed one logical oil and gas stock was the Norwegian supermajor, Equinor. Upon seeing the release, we tweeted [LINK] "*Norway wealth fund highlights its equities returned 20.8% in 2021 especially technology & financials stocks, tech an impressive 30.2%. Details not yet posted. Guess they just don't want to give credit to #Oil #NatGas stocks returns? Equinor shares were +60% in 2021? #OOTT".* (iii) There wasn't a presentation posted with the release but, as soon as we saw the slide deck, we tweeted [LINK] "*#Energy was top performing sector for return for Norway wealth fund. Unfortunately, fund didn't have a big energy position. A common underperformance for most generalist institutional investors. #OOTT #NatGas #Oil."* No surprise, energy was the top performing sector. But our tweet noted that, because of the low energy weighting, it was the #8 sector in terms of absolute kroner returns, basically tied with basic materials and consumer stables that both must have had much higher weightings. It's just the reality of returns for most generalist institutional investors – their energy weightings were so low, they hurt their total returns. Our Supplemental Documents package includes the release and excerpts from their slide deck.

Figure 27: Norway wealth fund energy sector returns in 2021



Source: Norges Bank Investment Management

Norway made a big change to oil & gas investing priority in Dec 2021

It looks like many didn't realize Norway's wealth fund made an abrupt change in its oil and gas investing priority a month ago, right before year end. Norway publicly announced it would no longer have a policy of selling oil and gas. Our SAF Group Dec 26, 2021 Energy Tidbits memo was titled "*Norway's wealth fund is another major investor, like cppib, to keep investing in oil & gas stocks*." In the Dec 26 memo, we wrote "*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 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

As a reminder, CPPIB (Canada Pension Plan Investment Board) made an even more direct endorsement in oil and gas when it also abruptly changed their oil and gas capital allocation priority in December. Our 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, 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 is 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."*

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

Mutual Fund & ETF assets increase MoM

On Monday, the IFIC (Investment Funds Institute of Canada) reported [LINK] mutual funds and ETF sales for December. 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 December, the IFIC reported "*Mutual fund assets totalled $2.077 trillion at the end of December 2021. Assets increased by $42.4 billion or 2.1% compared to November 2021. Mutual funds recorded net sales of $0.9 billion in December 2021. ETF assets totalled $347.4 billion at the end of December 2021. Assets increased by $11.5 billion or 3.4% compared to November 2021. ETFs recorded net sales of $5.6 billion in December 2021."* Our Supplemental Documents package includes the IFIC release.

Capital Markets – USDA consumer price index for food +6.3% YoY

USDA consumer price index for food

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 Dec 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 Dec, which is +0.5% MoM and +6.3% YoY. This is for the overall food price index, which weights various changes like beef/veal +18.6% YoY, pork +15.1%, eggs +11.1% with changes like fresh vegetables +2.4% YoY, dairy products +1.6% YoY and cereals & bakery products +1.4% YoY. We also just don't see how the USDA won't be low in their 2022 forecast which predicts price escalation between 2-3% throughout the year.

Heinz Kraft price increases much more than USDA forecast

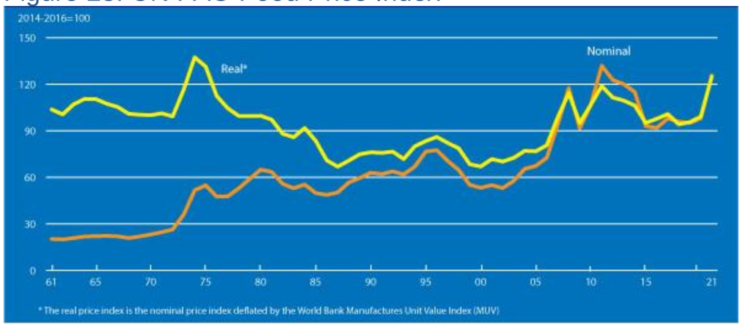
We probably wouldn't' have included this item if we hadn't just seen the USDA forecast for price escalation of 2-3% in 2022. So it jumped out at us to see CNN's Wednesday report [LINK] that it saw a Heniz Kraft letter to its customers indicating they would be raising prices in March on dozens of products including: Oscar Mayer cold cuts, hot dogs, sausages, bacon, Velveeta cheese, Maxwell House coffee, TGIF frozen chicken wings, Kool-Aid and Capri Sun drinks. The increases range from 6.6%

on 12oz Velveeta Fresh Packs to 30% on a three-pack of Oscar Mayer turkey bacon. Most cold cuts and beef hot dogs will go up around 10% and coffee around 5%. Some Kool-Aid and Capri Sun drink packs will increase by about 20%. The letter noted *"As we enter 2022, inflation continues to dramatically impact the economy."* Kraft Heinz has already raised their prices on the some of the same foods in recent months. Kraft Heinz is the latest of multiple consumer manufactures announcing their increasing of prices throughout the year, which include P&G, Tide and Congra. Prices continue to affect American households and will likely force many to change how they shop for food and essentials. Our Supplemental Documents package includes the CNN article.

Recall UN FAO Food Price Index for Dec was +23.1% YoY

Our Jan 9, 2022 Energy Tidbits highlighted the Jan 6 release of the UN FAO Food Price Index [LINK] titled *"The FAO Food Price Index reaches a 10-year high in 2021, despite a small December decline."* Note this is on a Real price basis. The FFPI averaged 133.7 points for Dec 2021, which was -0.9% MoM and +23.1% YoY. All food categories, save dairy registered monthly declines. The Cereal Price Index was -0.9% MoM and +27.2% YoY and Dairy Price Index that was +1.8% MoM and +17.4% YoY. The Vegetable oil Index was down 3.3% MoM atter a record high registered in October. Below is the all time FFPI graph.

Figure 28: UN FAO Food Price Index



Source: UN

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

@Energy_Tidbits on Twitter

For new followers to our Twitter, we are trying to tweet on breaking news or early views on energy items, most of which are followed up in detail in the Energy Tidbits memo or in separate blogs. Our Twitter handle is @Energy_Tidbits and can be followed at [LINK]. We wanted to use Energy Tidbits in our name since I have been writing Energy Tidbits memos for over 20 consecutive years. Please take a look thru our tweets and you can see we aren't just retweeting other tweets. Rather we are trying to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

LinkedIn – Look for quick energy items from me on LinkedIn

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.

Kobe Bryant's winning and leadership sayings

Wednesday Jan 26 was the 2nd anniversary of when basketball great Kobe Bryant died in a helicopter crash. It was great to see all the sports people remember Kobe and one thing that stood out was how they all noted his winning approach. I always believed that there are a lot of lesson from sports that are applicable to business and life. And I can see this leadership and greatness in some of the people I have had the great fortune to work with over my long working career. Here are some of Kobe's winning approach sayings. "*The important thing is that your teammates have to know you're pulling for them and you really want them to be successful*." "*"I can't relate to lazy people. We don't speak the same language. I don't understand you. I don't want to understand you." "I have nothing in common with lazy people who blame others for their lack of success. Great things come from hard work and perseverance. No excuses." "Dedication sees dreams come true." "I'll do whatever it takes to win games, whether it's sitting on a bench waving a towel, handing a cup of water to a teammate, or hitting the game-winning shot." "The moment you give up is the moment you let someone else win". "We can always kind of be average and do what's normal. I'm not in this to do what's normal." "A lot of leaders fail because they don't have the bravery to touch that nerve or strike that chord."*

Here's how Kobe Bryant said he separated himself from others

Kobe Bryant was noted by everyone as being the hardest working basketball player, never stopping to be the best. He always made no bones about it, he did it by outworking everyone else. The key for him was that he didn't try to turn it on and off, he just didn't stop always trying to get better. Here is how he described it. At 3:50 min mark [LINK], Kobe has just talked about how others will sleep in and get two training sessions a day and then goes into his training routine. Kobe says "*imagine you wake up at 3 and train at 4, 4 to 6, come home, breakfast, relax, so so, and now you are back at it again 9 to 11. Relax and now all of a sudden you're back at it at 2 to 4. Now you are back at it again 7 to 9. Look how much more training I have done by simply starting at 4. Now, so you do that, as the years go on, the separation that you have with your competitors and your peers just grows larger, and larger and larger and larger and larger. By year 5 or 6, it doesn't matter what kind of work they do in the summer, they are never going to catch up because they are 5 years behind*."

Tom Brady to retire?

The big NFL news yesterday was the report that Tom Brady is retiring. That was later shot down by Tom Brady's father who told key reporters such as Mike Giardi "Tommy has not made a final decision one way or the other and anybody else that says that he has is absolutely wrong". The key words are "final decision. Everyone has their view, we thought he gave a good hint in his podcast this week on whether he will retire or not. I probably wouldn't have written this if I hadn't written about Kobe Bryant. But after listening to other athletes talk about Kobe, it was so clear that he just wanted to win it all and he would be the best he could be every game to win it all. The best of athletes are never satisfied with not winning it all. That is what they strive for as their marker of how they did. It makes no difference to me that Brady expressed disappointment about the season and losing. What jumped out was his comments "*I'm proud and satisfied with everything we accomplished this year*" and "*I know when I give it my all, that's something to be proud of. And I've literally given everything I had, this year, last year and the year before that.*" It just doesn't sound like what a superstar says when they don't win it all.

Beijing Olympics starts on Friday Feb 4

We have to feel for the athletes that have prepared their lives to compete in the Beijing, Olympics. We can't appreciate what they had to sacrifice to get this elite level of athletics and what is bad is that there is so little excitement and chatter in the lead up to the official start on Friday Feb 4. These world class Olympic athletes don't do it for the publicity, but a big pick up in media attention, advertiser attention, etc can help provide an added enthusiasm/excitement for the games. The official start is Feb 4, but there are events such as curling that have games on Wed Feb 2, ahead of the official start.

The new 70th Anniversary Edition of Corvette – the Corvette Z06

Chevrolet announced it will have a new 70th Anniversary Edition for the 2023 model year – the Corvette Z06. Car and Driver [LINK] wrote "*The 2023 model year is important for the Chevrolet Corvette. Not only does this model year mark the arrival of the new Corvette Z06—propelled by a flat-plane-crank 5.5-liter V-8 pushing out 670 horsepower and 460 pound-feet of torque—but it is also the legendary sports car's 70th birthday, as the original C1 Corvette was first launched for the 1953 model year. To commemorate the occasion, Chevy is releasing a 70th Anniversary Edition package for 2023 Corvettes, including the new Z06.*" The original C1 Corvette was introduced in the 1953 model year. The Corvette probably took off when it made a dramatic change to its design for the second generation Corvette, the "Sting Ray".

Figure 29: 2023 Corvette Z06, 70th Anniversary Edition & 1963 Sting Ray

Source: Chevrolet, Wikipedia