Energy Tidbits

Feb 27, 2022

Produced by: Dan Tsubouchi

Huge Energy Week: RUS Invades Ukraine, JCPOA Deal Getting Close, Nord Stream 2 Halted, Shell's Bullish LNG View

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. The world and all markets are all about the escalating events/actions related to Russia's invasion of Ukraine (Click Here)
2. US says "*we're not quite at the point of a final [JCPOA] deal*", sounds like it's getting really close (Click Here)
3. Germany halts Nord Stream 2 certification process (Click Here)
4. Shell's bullish LNG forecast is now even more relevant with Nord Stream 2 limbo & increased risk on Russia energy supplies (Click Here)
5. Shell is still showcasing LNG Canada, which we believe points to LNG Canada Phase 2 in 2022. (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 129 bcf, storage now -209 bcf YoY deficit

YoY storage at -209 bcf YoY deficit

Weather is the key variable for natural gas in the winter and there can be WoW swings in gas demand (and therefore storage) with warmer or colder weeks. A good example is the EIA reported a 129 bcf draw (vs 194 bcf draw expectations) for the Feb 18 week, which was less than the 5-yr average draw of 166 bcf, and hugely below last year's draw of 338 bcf. Storage is 1.782 tcf as of Feb 18, decreasing the YoY deficit to -209 bcf, from 404 bcf last week and storage is 214 bcf below the 5-year average vs 211 bcf below last week. Below is the EIA's storage table from its Weekly Natural Gas Storage Report [LINK].

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons			
					Year ago (02/18/21)		5-year average (2017-21)	
Region	02/18/22	02/11/22	net change	implied flow	Bcf	% change	Bcf	% change
East	396	435	-39	-39	433	-8.5	428	-7.5
Midwest	450	496	-46	-46	520	-13.5	515	-12.6
Mountain	105	114	-9	-9	125	-16.0	115	-8.7
Pacific	176	177	-1	-1	222	-20.7	191	-7.9
South Central	655	689	-34	-34	692	-5.3	747	-12.3
Salt	168	173	-5	-5	162	3.7	226	-25.7
Nonsalt	487	516	-29	-29	530	-8.1	521	-6.5
Total	**1,782**	**1,911**	**-129**	**-129**	**1,991**	**-10.5**	**1,996**	**-10.7**

Source: EIA

Natural Gas – RCMP posts video clips of attacks on Coastal GasLink site

Violent attack on Coastal GasLink site

On Tuesday, the RCMP posted [LINK] "*Police look to the public to help identify those individuals responsible for the acts of violence at Coastal Gas Link*". It included 3 video clips of some of the attackers. It's clear that this was a well thought out attack as it looks impossible to identify anyone from the clips. The attackers were similarly dressed in what resembled the full white top to bottom Covid uniforms. We worry that the violence only escalates from here unless there is some sort of resolve that causes the anti-Coastal GasLink group to stop a further escalation. Last week's (Feb 20, 2022) noted how the there was a big change in peaceful protests in Canada escalating into violence but it wasn't the truckers protests in Ottawa or at the Ambassador Bridge that led to the Liberals involving the Emergencies Act. Rather it was anti-Coastal GasLink side attack on a BC worksite for the natural gas pipeline. Not only did they attack the worksite and workers, they attacked the police. And without a stopping of an escalation, this could turn out to be an inflection point that leads to delays in Coastal GasLink and potentially LNG Canada Phase 1. On Feb 17, Coastal GasLink reported [LINK] "*During the early morning hours of Feb. 17, 2022, approximately 20 masked and violent attackers wearing camouflage surrounded and attacked Coastal GasLink workers in a highly planned and dangerous unprovoked assault. It happened near the Morice River drill pad site off the Marten Forest Service Road — the location of a former blockade and opposition camp last year that lasted 59 days. This coordinated and criminal attack from multiple directions threatened the lives of several workers. In one of the most concerning acts, an attempt was made to set a vehicle on fire while workers were inside. The attackers also wielded axes, swinging them at vehicles and through a truck's window. Flare guns were also fired at workers. Workers fled the site for their*

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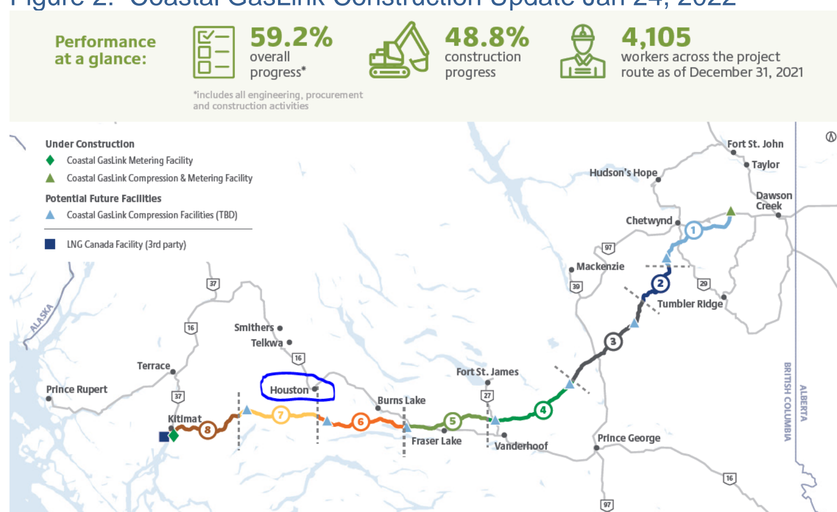
own safety and remain shaken by this violent incident. Fortunately, there were no physical injuries to Coastal GasLink workers. The attackers used grinders to cut locks on a permitted gate to the active construction site and continued to vandalize and attack heavy equipment and construction trailers on-site, causing millions of dollars in damage to Coastal GasLink contractor equipment and property. Equipment hydraulic and fuel lines were also cut, causing dangerous leaks. Damage and environmental impacts are still being assessed." Below is the Coastal GasLink construction update map as of Jan 24. We circled Houston. Our Supplemental Documents package includes the new RCMP release.

Figure 2: Coastal GasLink Construction Update Jan 24, 2022



Source: Coastal GasLink

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

On Friday, Pemex reported its oil and gas data for January. Pemex reported natural gas production of 4.713 bcf/d, which was down -2.8% YoY and up slightly -0.049% MoM, from December. For the past 3 years, an ongoing theme of the Mexican energy sector, has been their inability to grow domestic natural gas production. As a result, Mexico has relied on imports from the US which are reaching record levels; US pipeline exports to Mexico have increased ~2 bcf/d since Jan 1, 2018. Pemex does not provide any commentary along with its production data. Below is our ongoing table of Pemex reported monthly natural gas production.

Mexico natural gas still stuck below 5 bcf/d

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

Natural Gas Production bcf/d	2016	2017	2018	2019	2020	2021	21/20	2022	22/21
Jan	6.162	5.326	4.910	4.648	5.005	4.848	-3.1%	4.713	-2.8%
Feb	6.122	5.299	4.853	4.869	4.942	4.854	-1.8%		
Mar	6.030	5.383	4.646	4.857	4.946	4.839	-2.2%		
Apr	5.921	5.334	4.869	4.816	4.827	4.671	-3.2%		
May	5.841	5.299	4.827	4.841	4.460	4.730	6.1%		
June	5.881	5.253	4.840	4.843	4.754	4.727	-0.6%		
July	5.785	5.216	4.856	4.892	4.902	4.725	-3.6%		
Aug	5.686	5.035	4.898	4.939	4.920	4.656	-5.4%		
Sept	5.619	4.302	4.913	5.017	4.926	4.746	-3.7%		
Oct	5.583	4.759	4.895	4.971	4.928	4.718	-4.3%		
Nov	5.515	4.803	4.776	5.015	4.769	4.710	-1.2%		
Dec	5.380	4.811	4.881	5.024	4.846	4.690	-3.2%		

Source: Pemex

Natural Gas – Shell's very bullish LNG outlook, supply gap to "emerge" in mid 2020s

Shell's very bullish LNG outlook

There is no other ay to describe Shell's LNG Outlook 2022 other than this is very bullish for LNG and therefore the natural gas supply that can supply new LNG export projects. Shell now forecasts an LNG supply gap to emerge in the mid-2020s. The reality is that any type of "regular" oil, natural gas or LNG news this week was mostly overlooked with Russia-Ukraine dominating world news, energy news and everyone's attention. This includes the Shell LNG Outlook 2022 from Monday. We strongly recommend reviewing the slides. There was no posted transcript, although we made transcripts of some of the key comments. Here are a few of the key items: Our Supplemental Documents package includes the Shell press release and a number of slides from the slide deck.

Shell now forecasts a LNG supply gap ie. its now part of their planning

The most important takeaway is that Shell is now planning their strategies and capital allocation on a forecast of a LNG supply-demand gap to emerge in the mid-2020s. They are clearly telling markets that this is their business planning case, not an upside scenario. As soon as we saw the new slide deck, we tweeted [LINK] "*1/2. Buckle up for strong #LNG & #NatGas prices for 2020s. Clear warning from @Shell, now "forecast" #LNGSupplyGap to "emerge" in mid-2020s & "focuses attention" on need for more investment to increase supply. Yr ago, were bullish but not as certain, expected vs forecast #OOTT".* This is significant as there is a big difference between forecasting a LNG supply gap vs their 2021 LNG outlook that said "*a supply-demand gap is expected to open in the middle of the current decade".* Because it says that their planning scenarios on what they do for LNG is based on their view there is a supply gap. There was no change to Shell's forecast for LNG demand to almost double and hit ~92 bcf/d (700 MTPA) by 2040. But the issues on LNG supply mean that there is a LNG supply gap and investment in new supply is needed.

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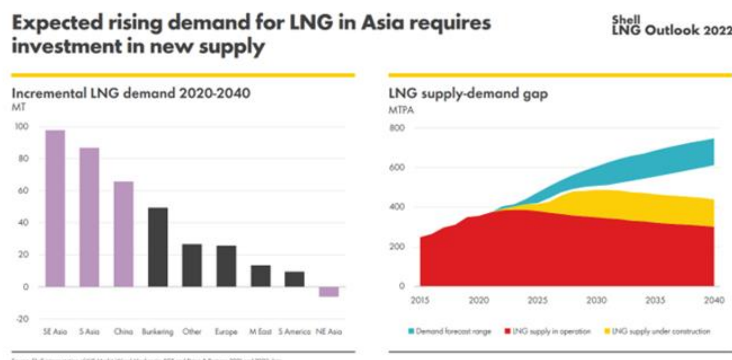
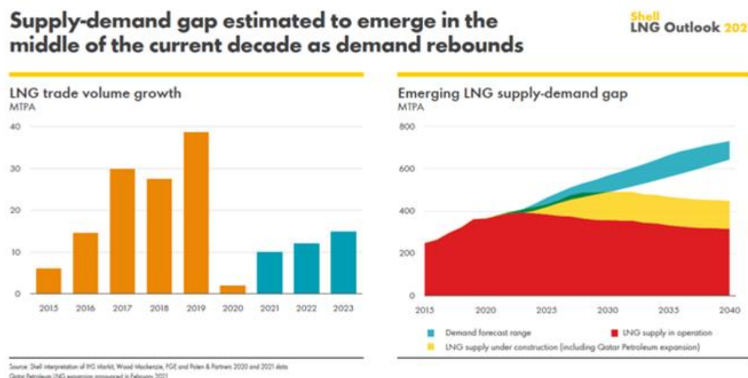
Figure 4: Shell LNG Outlook 2022 – Feb 21, 2022



Source: Shell

Figure 5: Shell LNG Outlook 2021 – Feb 25, 2021



Source: Shell

Shell now forecasts a LNG supply gap ie. its now part of their planning

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Highlighted Mozambique as the biggest reason for the LNG supply delays

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In the Q&A, management was asked what caused the push in the new LNG supply (the yellow part of the graphs) so that there is limited supply in 2025. Management replied that the biggest factor was Mozambique, LNG projects there were sanctioned but put on hold so the 2022 outlook assumption was to push the new Mozambique LNG supply to a later assumed date for completion. Shell did not say specifically what year they assume for first Mozambique LNG.

SAF's Apr 28, 2021 blog highlighted Mozambique LNG delay

Shell's new LNG supply gap forecast and mgmt's reply above reinforce that Mozambique LNG delays were the game changer to the outlook for LNG. Our Feb 13, 2022 wrote "The reason this is a big plus to LNG in the 2020s is that we continue to stress that TotalEnergies force majeure on its Mozambique LNG Phase 1 is much more than holding its 1.7 bcf/d Phase 1. It's actually holding back a total of 5 bcf/d of Mozambique LNG. And that 3 bcf/d of this 5 bcf/d was supposed to be onstream in 2024/2025. This was the reason why, on April 28 2021, we posted a 7-pg blog "*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*" [LINK] We thought, and still think, there has been a major change to the outlook for LNG supply in the 2020s and one that is still being overlooked – there is a big new LNG supply gap starting around 2025 that is hitting faster and bigger than anyone expects. We saw Total's April 27, 2021 announcement of force majeure at its Mozambique Phase 1 LNG of 1.7 bcf/d was much more significant that viewed. We just didn't see market focused on the fact that this situation backs up an additional 3.3 bcf/d of LNG supply that is also being counted on in all LNG supply forecasts. Total's Phase 2 of 1.3 bcf/d was to follow, and Exxon's Rozuma Phase 1 of 2.0 bcf/d was originally expected to go FID in 2019 but is now not expected to have a FID decision until 2022 at the earliest. Mozambique is considered a premium LNG supply region for Asia and is in LNG supply forecasts. Total's original in service for Phase 1 is 2024. We had been warning that Mozambique has a major LNG market impact and its why we posted the April 28 blog. Its also why earlier we said that this is starting the clock running for other LNG projects wanting to go FID to make their mind up ie. like LNG Canada Phase 2. Our Supplemental Documents package includes our 7-pg April 28, 2021 blog.

Natural gas is the only option for reliable energy in the energy transition

The first section of the call was devoted to reinforcing the theme that natural gas is the only immediately available option to reduce emissions and be available ie. it's the only reliable, available energy that can support the energy transition. Mgmt noted how switching from coal to gas in Asia could be huge. They also emphasized the intermittency and volatility of renewables with graphs on UK wind generation and how Brazil's low hydro meant big increases in LNG imports. Also how until renewable options emerge for shipping, LNG is the best available fuel source.

Natural gas and LNG demand growth still comes from Asia.

There is no change to their view that natural gas demand growth is driven by Asia and similarly for LNG demand growth. There was no change to Shell's outlook for LNG demand to almost double to 700 mtpa (92 bcf/d) in 2040. And also no change

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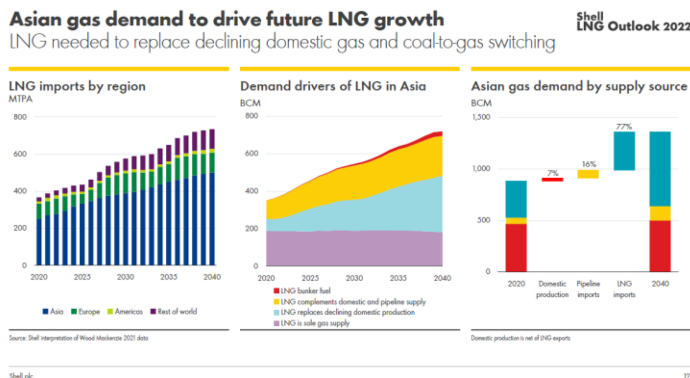
vs last year that over 70% of the LNG demand growth is driven by Asia. Shell gave a preview of this forecast in December. Our Dec 26, 2021 Energy Tidbits highlighted the head of Shell's Russia operations (Ekaterina Grushetskaya) comments in her TASS interview on Wed. [LINK] She made 4 key points on Shell's LNG outlook including LNG demand to almost double from 2020 to 2040, which is +45 bcf/d. This was consistent to Shell's forecast such as we noted in our Aug 2, 2021 Energy Tidbits memo on Shell's Q2 results call. See below item. And 75% of the demand growth is in Asia. This was always in Shell's outlook, but Grushetskaya's 75% puts in perspective at approx. +34 bcf/d to 2040.

Figure 6: Asian natural gas demand growth drives LNG growth

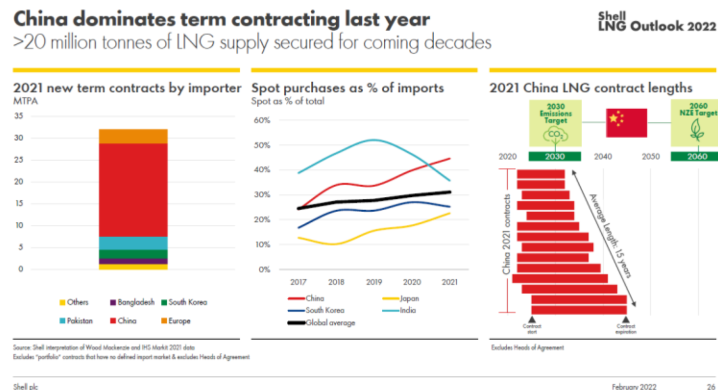


Source: Shell

Tight near term LNG market drives new long term contract

Shell also highlighted how the tight LNG market is driving a push to buyers entering into long term LNG contracts, in particular in China. Shell noted that, to date, almost all the new term contracts in 2021 were to Asian LNG buyers. Mgmt noted how the average of the new long term contracts is 15 years so well beyond 2030 and this marks a longer term commitment to natural gas.

Figure 7: Long term LNG contracts dominated by Asian buyers



Source: Shell

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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.

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

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	**Buyer**	**Seller**	**Country**	**Volume**	**Duration**	**Start**	**End**
			Buyer / Seller	**(bcf/d)**	**Years**		
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.

Will Shell FID LNG Canada Phase 2?

Natural Gas – Still seems Shell is showcasing LNG Canada as prelude to Phase 2 FID

We recognize that almost no one else has been believing Shell will FID LNG Canada Phase 2 this year, but we can't help still believe this following Shell's LNG Outlook 2022 and its Integrated Business Deep Dive webcast that followed the outlook webcast. We tweeted [LINK] "*Was #Shell showcasing #LNGCanada or just highlighting its positives today? @Shell expects average IRR of 14-18% for its pre-FID projects, which includes #LNGCanada Phase 2. #LNGCanada "is set to deliver the lowest carbon intensity in the entire industry". #OOTT #NatGas #LNG*". (i) Just like we have been highlighted over the past months, this week, Shell seemed to showcase LNG Canada on multiple fronts (i) Shell now plans assuming there is an LNG supply gap in mid 2020s and that this "*focuses attention*" on the need for more LNG supply FIDs. So they are saying there is a clear market need for someone to step forward. (ii) In the Integrated Gas comments, mgmt said they are making good progress on LNG Canada Phase 1 construction and first LNG cargos are on track for by the middle of this decade. (iii) LNG Canada is the lowest emissions LNG project in industry. This is making the case that if there is any LNG to be done in a world of reducing emissions, it is the lowest emissions and Shell says LNG Canada is the best. Mgmt said "*But the long term role of gas depends on efforts to abate emissions and develop cleaner pathways for gas. This is why we continually try to reduce the carbon intensity of our new projects. Take LNG Canada currently under construction. It will run on hydropower and is set to deliver the lowest carbon intensity in the entire industry.*" (iv) Shell's pre-LNG FID supply projects that includes LNG Canada have high RORs. Mgmt said "*For the pre-FID projects, we have an expected average internal rate of return of between 14% and 18%, and a unit technical cost below $5/mmbtu.*

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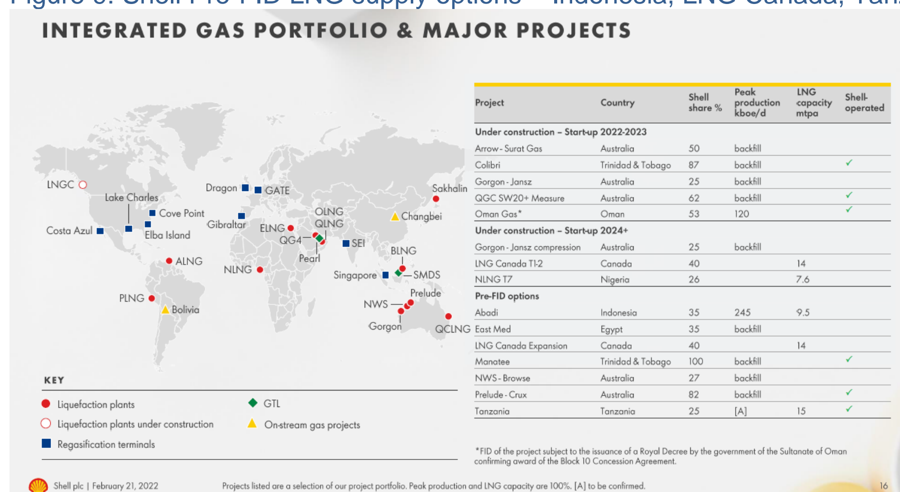
With most of these projects clearly having lower costs than the average in the industry. These are good numbers, but you will understand that we strive to push the IRR to the higher end and to push the unit costs down even further.” There were other items showcasing LNG Canada including pictures. It just feels like Shell continues to showcase LNG Canada, which we believe keeps pointing to them wanting to FID LNG Canada Phase 2 in 2022 and sooner rather than later. Our Supplemental Documents package includes excepts from the Shell Integrated Gas slide deck and transcripts we made of some of the Shell mgmt comments.

Figure 9: Shell Pre-FID LNG supply options – Indonesia, LNG Canada, Tanzania



Project	Country	Shell share %	Peak production kboe/d	LNG capacity mtpa	Shell-operated
Under construction – Start-up 2022-2023					
Arrow - Surat Gas	Australia	50	backfill		
Colibri	Trinidad & Tobago	87	backfill		✓
Gorgon - Jansz	Australia	25	backfill		
QGC SW20+ Measure	Australia	62	backfill		✓
Oman Gas*	Oman	53	120		✓
Under construction – Start-up 2024+					
Gorgon - Jansz compression	Australia	25	backfill		
LNG Canada T1-2	Canada	40		14	
NLNG T7	Nigeria	26		7.6	
Pre-FID options					
Abadi	Indonesia	35	245	9.5	
East Med	Egypt	35	backfill		
LNG Canada Expansion	Canada	40		14	
Manatee	Trinidad & Tobago	100	backfill		✓
NWS - Browse	Australia	27	backfill		
Prelude - Crux	Australia	82	backfill		✓
Tanzania	Tanzania	25	[A]	15	✓

*FID of the project subject to the issuance of a Royal Decree by the government of the Sultanate of Oman confirming award of the Block 10 Concession Agreement.

Source: Shell

Shell wants enough gas supply to align with LNG Canada offtake obligations

We couldn’t help tweet [LINK] “*Buckle up, could be huge for Cdn #NatGas M&A. @Shell just said like to align equity #NatGas supply and offtake obligations, used #LNGCanada, Shell has 40% interest so would be 1.44 bcf/d if it FIDs #LNGCanada phase 2. It's why #LNGCanada Phase 2 is the must watch event #OOTT #LNG”.* Shell specifically said they want to have enough natural gas supply to align with their offtake obligations at LNG Canada. There was another excellent example of mgmt showcasing LNG Canada when they really didn’t have to do so. In the Q&A, the analyst asks a general question if they will align their natural gas supply with their offtake obligations for any LNG project and then the analyst asked about the Coastal GasLink attack. The percentage question was not specifically directed at LNG Canada. However, mgmt took the opportunity to answer the supply question using LNG Canada. Mgmt replied “*typically, what I would say, as much as possible, having access across the entire value chain in as close of a percentage as you can, helps ensure that wherever value might rate at any point in time, you are capturing that value. So in general. Take our LNG Canada investment that you just referenced in the second question, we would look to be able to at least assure ourselves that we are not caught up by vagaries of one part of the market. let’s say the gas supply, but we would want to have enough on the gas supply equity side to be able to make sure if gas prices go up there, we benefit from them while maybe disadvantaging the*

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midstream or vice versa depending on where prices go. So we are not in the game of necessarily taking undue risk. we are in the game of creating integrated value chains that we can leverage as part of the broader portfolio." Shell has 40% in LNG Canada. Phase 1 is 1.8 bcf/d so Shell equity gas supply is 0.72 bcf/d. Our tweet included the Shell disclosure on North America natural gas supply, they don't provide Canada/US split, but that is roughly equal to North America in Q4/2021. They have some GoM natural gas but don't know the split. Maybe half or a little more in Canada? Phase 2 is 1.8 bcf/d so another 0.72 bcf/d

Natural Gas – Expect an urgency to refill Europe/Asia gas/LNG storage

Expect urgency to refill gas storage

If we have learned anything from the first few days of the Russia/Ukraine war/conflict, no one knows what will happen. Absent a return to pre conflict views, we believe that one result will be a greater urgency to refill natural gas and LNG storage levels around the world. As we have been highlighting, global LNG and Europe natural gas prices have been lucky that the weather worked to keep these prices down. It has been a warmer than normal winter so far in Asia and Europe, and wind generation has been very strong in Europe. But with the uncertainty on natural gas and LNG supply, we expect to see an urgency to fill up storage levels especially considering that natural gas and LNG prices could spike even higher if there is an interruption.

Natural Gas – Qatar "consumption behaviours determine" energy transition success

Qatar's Amir address to GECF

There were a lot of items lost in the news this week with Russia's invasion of Ukraine. This week, the 6th Summit of Gas Exporting Countries Forum was held in Qatar. The reporting of the messaging from the gas exporters was fairly consistent, highlighting the critical role that natural plays in the energy transition. The Qatar Peninsular reported [LINK] on the opening address by Qatar's Amir HH Sheikh Tamim bin Hamad Al Thani. The Amir said the common reminder the world needs "*a reliable source of energy that provides the right balance between achieving economic growth and dealing with environmental challenges*". This is the oil and gas common reminder – need reliable energy and have to have a balance between economic growth and reducing emissions. The Amir reminded *that the wealthy countries must take into account economic development requirements in "developing countries and poor societies, where nearly one billion people are deprived of electricity and fuel, the two basic sources required for a decent life for human beings*." The Amir also reminded of something that isn't said enough on the energy transition – consumption behaviors determine the energy transition. We would be more specific and say the consumption behaviour of fossil fuels. This has been the problem with the energy transition – governments and policy makers have squeezed capital allocation for supply and demand isn't changing. The Amir said ""*The transition to low-carbon energy is not only relevant to producers, but is also closely related to end-users whose consumption behaviours determine the extent of the effectiveness and success of this transition*." Our Supplemental Documents package includes the Amir's speech.

Natural Gas – Qatar's gas is tied up long term, only 10-15% is divertible

Qatar is limited help to Europe

Qatar's energy minister Al Kaabi reminded this week that Qatar really can't help much if Russia natural gas supplied to Europe get interrupted. In fact, he noted that no one can replace Russia's dominant supply to Europe. There were three other key reminders in his comments at the GECF press conference. (i) He didn't hesitate to remind that Qatar is in the

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long term contract business. (ii) Only 10-15% of Qatar LNG that could be diverted to Europe. The Qatar Peninsula reported "*"Russia provides I think 30-40 percent of the supply to Europe. There is no single country that can replace that kind of volume, there isn't the capacity to do that from LNG," he said. "Most of the LNG is tied to long-term contracts and destinations that are very clear. So, to replace that sum of volume that quickly is almost impossible," he said. Minister Al Kaabi said that for Qatar the amount of divertable contracts that can be shipped to Europe is only 10-15 percent. "It's not that something is not contracted, the question is, is it divertible or not? And the majority is tied up to long term contracts. The divertible volume is probably 10-15 percent," he said."* (iii) He reminds the issue is the lack of investment, not Russia-Ukraine. The Qatar Peninsula wrote "*The steep rise in the natural gas prices in the global markets are caused by the lack of investment and not due to Russian-Ukrainian crisis, said Minister of State for Energy Affairs H E Eng. Saad bin Sherida Al Kaabi. He said Qatar wants to meet European Union (EU) demands for additional LNG supplies, but most of its exports are already tied to long-term contracts. "Everything that is going on today on pricing is fundamentally because of lack investments and that will take time to catch up. Supply demand has a tendency to correct itself over time so hopefully this will be corrected, it will take time," said."* Our Supplemental Documents package includes the Qatar Peninsula report. [LINK]

Natural Gas – India Jan natural gas production +12.15% YoY to 3.26 bcf/d

India natural gas production +12.15% YoY

One of the key themes for India in the last year is that it looks like they have turned the corner on a decade of declining domestic natural gas production, which is even more important given the stronger than expected LNG prices in 2021-2022. 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 Tuesday, India's Petroleum Planning and Analysis Cell released their monthly report for January natural gas and oil statistics [LINK]. India's domestic natural gas production was up 12.15% YoY from 2.91 bcf/d in January 2021 to 3.26 bcf/d, down from 3.3 bcf/d in December. 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 Jan LNG imports down 10.55% YoY to 2.74 bcf/d, down 7.88% MoM

India LNG imports -7.88% MoM

There is no surprise that the above noted modestly increasing India domestic natural gas production means reduced 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 January of 2.74 bcf/d, down 10.55% YoY due to abnormally high spot prices. India has been trying to avoid high spot LNG prices. Note, imports in January were down by 7.88% MoM despite the MoM decrease in production.

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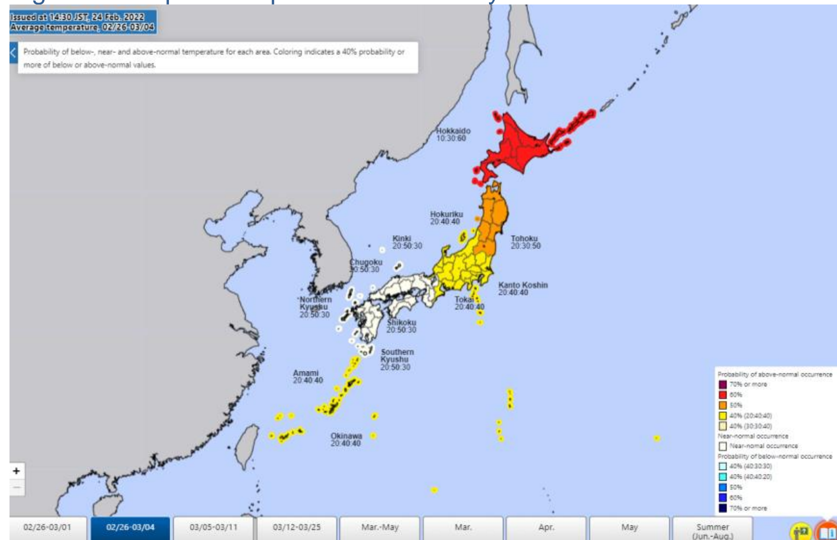
Natural Gas – Japan turning warm to end winter

Japan forecasted warm March

Japan had colder than normal temperatures for most of the new year, but is now expected to end Feb warmer than normal. The Japan Meteorological Agency posts its weekly temperature probability forecast for the next 4 weeks on Thursday mornings [LINK]. JMA forecasts that Japan will start to experience warmer temperatures as they head into the shoulder season; this should not incur any significant natural gas demand. Temperatures typically have daily highs above 15°C and nighttime lows of around 8°C. The northern regions of Japan are expected to have the warmest temperatures while the southern regions are expected to be above average but slightly cooler. Below is the JMA forecast for the next two week of the forecast period (Feb 19 – Feb 25 and Feb 26 – Mar 4) which expects below normal temperatures for the next two weeks before returning to warmer temperatures. As a reminder, Japan moves into spring much earlier than the US so March is typically not a major natural gas/LNG demand month.

Figure 10: Japan Temperature Probability Forecast Feb 26 – Mar 3



Source: Japan Meteorological Agency

Natural Gas – Japan's LNG stocks increase slightly at 1.82 mm tons

Japan LNG stocks below 5 yr ave

The colder than normal January led to increased demand but also more LNG cargos to ensure Japan wouldn't be caught short to end winter. The net impact was slightly higher WoW LNG stocks. Japan's METI data was released on Tuesday [LINK] and gave us insight into Japan's LNG stocks. LNG stocks increased for the week ended Feb 20, from 1.78 mm tons the previous week, and are now at 1.82 mm tons; this is below last year's levels of 2.30 mm tons and 8% below the 5-year average of 1.98 mm tons. The increase is likely a result of Japanese LNG buyers returns to the spot market after weeks of absence to resupply the quickly dwindling stockpiles of LNG. We expect further increases in the coming weeks as Japan is expected to experience warmer weather during March and demand is likely to dampen. Below is a chart depicting Japan's LNG stocks.

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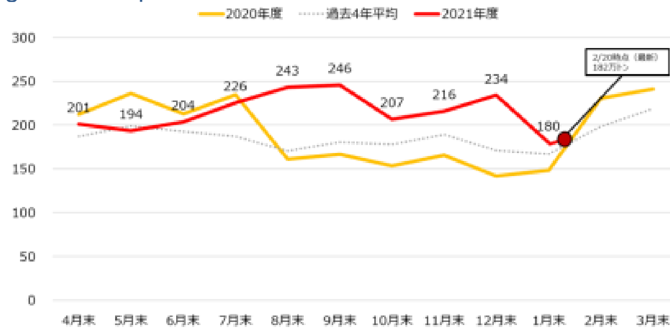
Figure 11: Japan's LNG Stocks



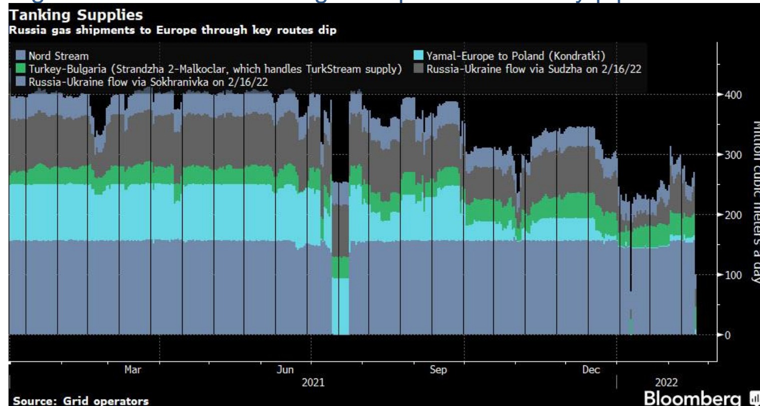
Source: METI

Natural Gas – Russia hurts EU natural gas if it only meets contract obligations

Russia hurts EU on natural gas supply

The focus, and rightly so, has been on the fear that Russia could cut off natural gas to Europe. We haven't thought that was the likely Russian play as Russia has been proud of their view that they have always delivered on contract obligations. And we believe Russia can hurt Europe enough by only delivering the minimum contract obligations. On Tuesday, Putin address the GECF meeting (Gas Exporting Countries Forum) and reinforced the Russia line that they always meet contract obligations. Putin said ""*Russia aims to continue uninterrupted (gas) supplies, including liquefied natural gas, to the world markets, improve related infrastructure and increase investments in the gas sector.*" On Thursday, we tweeted [LINK] "*Reminder Russia doesn't have to cut off #NatGas supplies to cause huge EU #NatGas prices. Russia has said they have always met contract obligations for #NatGas, but meeting the minimum volume obligation still creates a shortfall. See below @WillHares graph. #OOTT.*" Our tweet included the below graph that Bloomberg tweeted with the commentary "*here is our data on Russian piped supply to Europe - flows are down nearly 40% from normal levels last year. Mostly from Yamal (Poland) and Sokhranivka (Ukraine) pipelines | #oott #ongt*." A 40% reduction is approx 5.5 bcf/d. That is why we believe Russia can hurt Europe even if it only delivers on these lower levels of gas supply.

Figure 12: Russia natural gas shipments thru key pipelines



Source: Bloomberg

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Natural Gas – Gazprom reminds it delivers in excess of obligation to China

Gazprom exceeds gas volumes to China

Just like Russia (Gazprom, Putin and others) continues to remind that it has always and continues to meet all natural gas supply obligations to Europe, Gazprom reminds that it continues to exceed natural gas supply obligations to China via the Power of Siberia pipeline. On Friday, we tweeted [LINK] *"#Gazprom reminds that it delivers #NatGas "in excess" of obligations on #PowerofSiberia pipeline to China. But there are limits to how much excess as Gazprom does not yet have the domestic pipeline connection to shift the EU supply to China. #OOTT #LNG*." Gazprom's website posts the Power of Siberia export capacity at 3.7 bcf/d. In its Friday press release on its meeting with China's CNPC [LINK], Gazprom did not provide the actual natural gas volumes, but said "*The meeting participants discussed a wide range of issues of interaction between companies. In particular, the parties agreed on the dates for scheduled preventive work on the Power of Siberia gas pipeline in the spring of 2022. It was noted that gas deliveries along the "eastern" route are carried out in excess of the obligations of the Russian side."* This is consistent with recent disclosure that Gazprom was delivering in excess of contract obligations. On Dec 14, 2021, Gazprom's press release [LINK] said *"The parties highlighted the reliability of natural gas supplies via the Power of Siberia gas pipeline. Specifically, the daily amount of gas exports was significantly increased in November and December under the mutually beneficial arrangements between Gazprom and CNPC as compared with the schedule for 2021 that had been approved earlier*." Our Supplemental Documents package includes the Gazprom Feb 25 release.

Figure 13: Power of Siberia Gas pipeline

Source: Gazprom

Natural Gas – Russia is also 20% of Europe's LNG imports

Russia is 20% of EU LNG imports

The primary headlines on Russia's natural gas dominance in Europe is via pipelines especially with Nord Stream 2 being put on hold. But, on Wednesday, we tweeted [LINK] "*Russia also provides 20% of Europe's #LNG imports. Good reminder from @EIAgov. #NatGas #OOTT*". The reminder being Russia is a major LNG supplier to Europe and, along with US and Qatar, provide nearly 70% of Europe's total LNG imports. The EIA posted a good blog on their "*Today in Energy*" series that was titled *"Three countries provided almost 70% of liquefied natural gas received in Europe in 2021"* [LINK]. The United States became Europe's largest supplier of LNG in 2021 as TTF prices soared in the latter half of the year,

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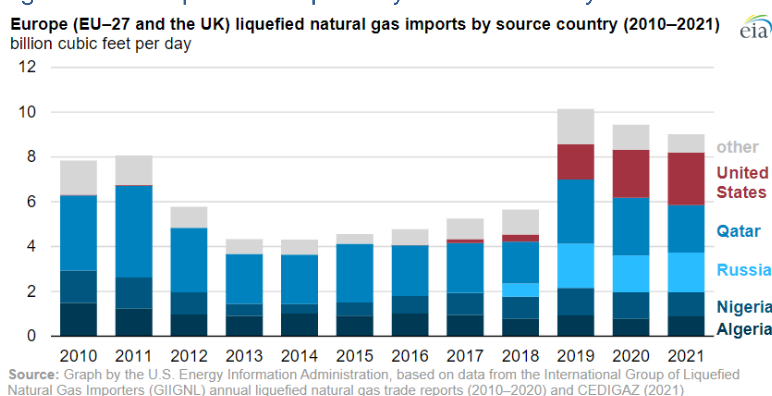
accounting for ~26% of all LNG imported by EU member countries; this was followed by Qatar accounting for 24% and Russia close behind with 20%. Exports of LNG from the United States to EU-27 and the UK increased from 3.4 bcf/d in Nov 2021 to 6.5 bcf/d in Jan 2022—the most LNG shipped to Europe from the United States monthly to date, and half of Europe's LNG for the entire month. Natural gas supply constraints stemming from declines in the Netherlands Groningen fields and North Sea fields, and the record low storage inventories were contributing factors to the higher imports from the US. Pipeline imports from Russia declined from 11.8 bcf/d in 2020 to 10.7 bcf/d entering the continent through the three main entry points; pipeline imports from Norway, which increased to 11.1 bcf/d in 2021, were enough to offset the reduced flows from Russia. These supply challenges have led to TTF spot price rising to all-time high levels at an average of $28.52/mmbtu from Sept through Feb; the TTF peaked at $60.20/mmbtu on Dec 21 which contrasts the Jan-Aug 2021 average of $9.28/mmbtu. Historically, spot TTF prices have traded lower than the Asian JKM price index but in recent months has tracked the Asian index closely and attracting a higher volume of flexible LNG supplies to Europe. LNG imports averaged 10.8 bcf/d in Dec and 14.9 bcf/d in Jan. Our Supplemental Documents package includes the EIA blog.

Figure 14: Europe LNG Imports by Source Country



Source: EIA

Natural Gas – Scholz stops certification process for Nord Stream 2

Germany stops Nord Stream 2 certification

Russia's invasion of Ukraine was the last straw, at least for now, for Germany on Nord Stream 2. Two weeks ago, German Chancellor Scholz met with Biden at the White House and, in the press conference, just couldn't even say the words Nord Stream 2 when asked about sanctions on the 5.3 bcf/d Nord Stream 2. Our Feb 13, 2022 Energy Tidbits noted that Scholz did then say "*And we made it very clear if there was a military aggression against Ukraine, this will entail severe consequences that we agreed upon together, severe sanctions that we have worked on together*." Post the invasion, Scholz took action. We tweeted [LINK] "*Breaking: #Scholz halting #NordStream2 certification process.If RUS keeps meeting contract obligations as it has (ie. at minimum contract obligation), any further NS2 delay = bullish #NatGas #LNG winter 22/23 prices. Note @WillHares graph below. #OOTT.*" The market has to the most part looked at Scholz's actions as meaning Nord Stream 2 is dead. We don't know but certainly accept that it isn't going to happen anytime soon. We did not find the transcript for his press conference, but Scholz was broadly reported saying Germany was

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putting the certification process for Nord Stream 2 on hold and quoted "*"That sounds technical, but it is the necessary administrative step so there can be no certification of the pipeline," "And without this certification, Nord Stream 2 cannot begin operating."*

Figure 15: Nord Stream 2, 5.3 bcf/d capacity

Source: Nord Stream 2

Natural Gas – Russia says Europe expect $64/mcf gas prices w/o Nord Stream 2

Russia warns EU on gas prices

Russia's response to the Nord Stream 2 certification on hold was simple – Europe should expect very high prices. We tweeted [LINK] "*"Welcome to a new world where Europeans will soon pay 2,000 euros for a thousand cubic meters of gas!" says @MedvedevRussia. Or $64/mcf. Makes current $25 or so look cheap. Expect a bigger rush this spring to refill #LNG #NatGas storage. #OOTT."* Alexander Medvedev tweeted [LINK] "*German Chancellor Olaf Scholz instructed to stop the certification of the Nord Stream 2 gas pipeline. Well. Welcome to a new world where Europeans will soon pay 2,000 euros for a thousand cubic meters of gas!"* Our tweet noted the conversion would be US$64/mcf, so call it 15x US natural gas prices. Medvedev is Deputy Chairman of the Security Council of the Russian Federation and a loyal Putin supporter.

Natural Gas – Europe storage only 29.90% full vs last year of 37.80%

Europe storage down to 29.90% full

Europe has been lucky that it hasn't been cold because the combination of a warm DJF, the massive increase in US LNG to Europe, and high wind generation this winter is having an impact on Europe gas storage. The YoY Europe storage gap continues to narrow since the start of the winter natural gas season. Europe gas storage started down 18.52% YoY and is now down 8.43 % 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 Feb 16 is still only at 29.90%, which is -7.90% less than last year levels of 37.80% and are -11.40%

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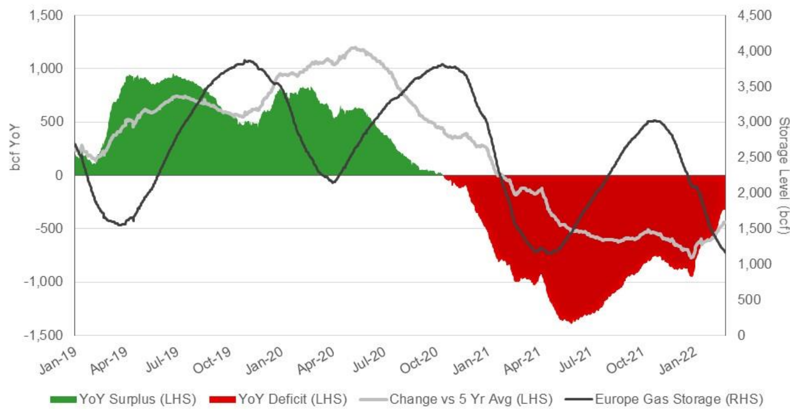
below the 5-year average of 41.30%. The set up for winter natural gas prices continues to support strong winter natural gas prices. Below is our graph of Europe Gas Storage Level.

Figure 16: Europe Gas Storage Level



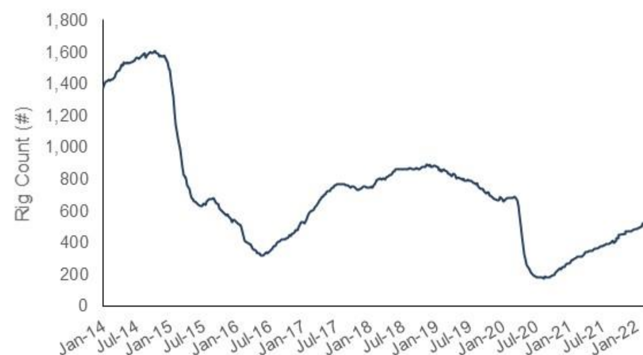
Source: Bloomberg

Oil – US oil rigs +2 WoW at 522 oil rigs at Feb 25

US oil rigs +2 WoW

Baker Hughes released its weekly North American drilling activity data on Friday. We expected another increase as the favourable ~$90/bbl WTI. 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 +2 WoW at 522 oil rigs, with all major oil and gas basins showing increases. Oil rigs are +350 off the bottom of 172 in Aug14/2020 week. There were modest basin changes this week; Permian was up +3 at 309 rigs this week while Bakken was flat at 33 rigs after increasing for consecutive weeks. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 162 to 520 oil rigs (-15%). US gas rigs were +3 WoW with increases in the Haynesville reflecting the heightened $4 HH. Below is our graph of US oil rigs since January 1, 2014.

Figure 17: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

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Oil – US frac spreads +7 to 290 for week ended Feb 25

Mark Rossano (C6 Capital Holdings) held his weekly US frac spread recap for week ended Feb 25 on the Primary Vision network. YouTube video is at [LINK]. For the week ended Feb 25,, US frac spreads at the high point in the week were +7 to 290. The increase is little faster than he expected. Rossano said some of the increase was related to "spot work", where a spread comes in for a short period. But some of it turns out to be sticky. There were increases linked to LNG with increases in the Haynesville and East Texas. Also more increases in the Permian, but he said some of that is "spot work". Also increases in some of the smaller basins, which he described as seasonal increase where they normally see a ramp up in March or April. Was expected to get to 300 in mid March but will be sooner now. The next 15 to 25 thereafter is tougher due to horsepower limitations.

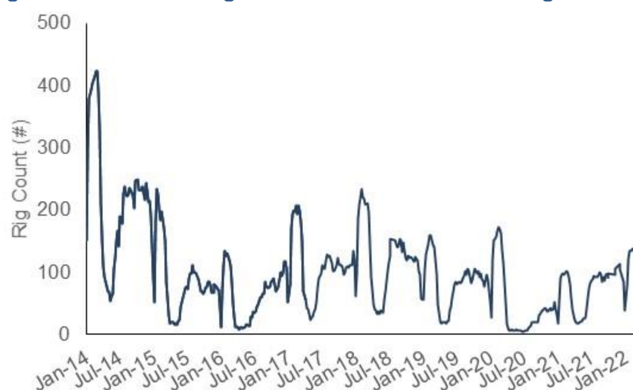
Frac spreads +7 to 290

Oil – Total Cdn rigs +4 to 224 total rigs, +61 rigs YoY

Total Cdn rigs were up +4 this week to 224 total rigs. Cdn oil rigs were +3 at 138 rigs. Cdn gas rigs were +1 at 86 gas rigs. The feedback we heard from a couple of oil players was that they were squeezing in a few more wells given oil is over $90 and looking to stay there for awhile. Total rigs are now +210 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 71 for a total Cdn rigs of 163, meaning total Cdn rigs are +61 YoY and total rigs are +12 vs 2019.

Cdn rigs +4 WoW

Figure 18: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production flat at 11.6 mmb/d

In the absence of any inclement weather, US production has remained flat in line with the expectation for the quarter. Weekly production in the US was flat this week at 11.6 mmb/d for the week ended Feb 18. Lower 48 production drove total production and was flat from last weeks level at 11.1 this week; US oil production is up YoY at +1.9 mmb/d from last year's February freeze and is still down significantly at -1.5 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The slight increase is mainly attributed to the cold weather subsiding in Texas allowing for increased production. Absent further 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 flat WoW

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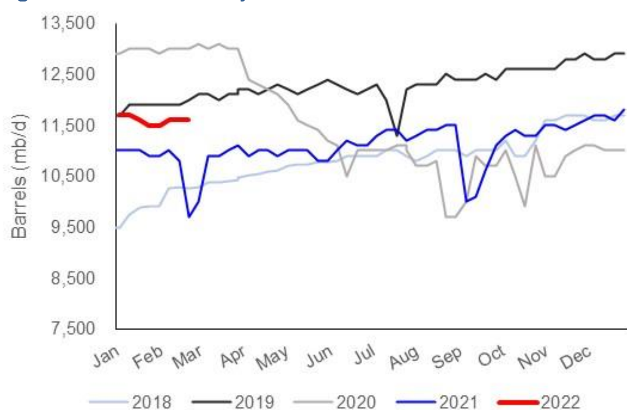
Figure 19: EIA's Estimated Weekly US Oil Production

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	01/28	11,500		
2022-Feb	02/04	11,600	02/11	11,600						

Source: EIA

Figure 20: US Weekly Oil Production



Source: EIA, SAF

Oil – White House says ask the oil and gas companies why they aren't drilling more

White House on more oil and gas drilling

The reality is that it will be almost impossible for the Biden administration to back away from their standard line that the president is doing everything he can to bring down gasoline prices. Its been said for too many months that it becomes almost impossible for them to openly acknowledge or take actions that have been suggested for months. Items like Jones

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Act waivers, federal excise tax on gasoline removal or holiday, or supporting the oil and gas sector to drill more. Rather, on supporting the oil and gas sector to drill more, the talking point is that it's up to the oil patch as to why they don't drill more. This was clear in the exchange at the White House Friday press conference with Press Secretary Psaki. Here is the exchange as per the White House transcript. [LINK] "*Q Yeah, so the President said he's doing everything he can to bring down energy prices — MS. PSAKI: Yeah. Q — gas prices here in the U.S. Is on the table then — or is he considering reversing some of the policies and regulations that he put into place that constricts the long-term supply of it to let Europe be more reliant on the U.S. for oil and natural gas? MS. PSAKI: You mean like LNG exports or something like that? Q LNG — LNG exports, but also oil prices — allowing — you know, opening up drilling again, reversing the ban on leases on federal lands. MS. PSAKI: Well, I think what's important to note here — and I talked about this a little bit yesterday — is that there are a range of available oil leasing sites that oil companies are not utilizing, so you should ask them about that.*"

Oil – WSJ "once dead shale" drilling comes back as oil nears $100

High oil brings back old plays

It isn't a big factor, but we highlight that a small portion of the stronger than expected growth in US oil production in 2022 isn't sustainable. Rather these are marginal plays that are only being drilled with oil nearing $100 and really only provide a temporary small burst in oil production. High oil prices do get producers to crank up drilling. But what is different this time is that big shale players are continuing to be disciplined and stick to low growth/high shareholder payout models. But what is the same as in all prior high oil and gas price periods, the high prices mean that many more wells can be drilled that weren't economic or that couldn't attract capital under lower (say $70 to $80 oil). In the old days, we would describe it as the oil and gas people basically going to their desk and pulling out all he plays that give sufficient return at $80 or $90 or $100 oil and getting at them. So with oil prices nearing $100, capital is being allocated to these marginal plays. We thought of this concept after seeing the WSJ report "*Frackers Push Into Once-Dead Shale Patches as Oil Nears $100 a Barrel. Oil producers drill in less-desirable areas like Anadarko Basin of Oklahoma and DJ Basin of Colorado, where activity virtually stopped during pandemic*". [LINK] There is no question that US oil production growth is looking to be stronger than most expected a few months ago. That shouldn't surprise given oil prices are much higher and now people are talking about downside prices being to $80 and not to $60. But the WSJ report reminds that oil prices over $90 are bringing activity back to areas that couldn't get capital allocated at lowr oil prices. These marginal plays do not bring sustainable oil growth like the Permian. Rather, they bring some sort of burst in oil production that isn't sustainable. So there will be a portion of the US oil growth in 2022 that doesn't form part of a new going forward higher base. To be fair this will be a very small percentage of the increased US oil production. The WSJ wrote "*Spurred by the highest oil prices in years, shale companies are moving drilling rigs back into oil fields that were all but abandoned a few years ago. Private oil producers are leading an industry return to places like the Anadarko Basin of Oklahoma and the DJ Basin in Colorado, where drilling had almost completely stopped in mid-2020 when those areas became unprofitable because of lower oil prices. Oil production in these marginal regions isn't expected to move the needle in the global market, which is facing tight supplies, but it could help some oil producers who have lost money in past years.*" Our Supplemental Documents package includes the WSJ report.

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Reminded of how gas players pulled drilled out all marginal plays in 2021
We don't expect the impact of drilling more marginal wells will provide much more than a burst in the US oil growth of maybe 100,000 b/d. So it's not a material impact. But the WSJ report reminded of prior times that oil and gas people pulled every previous marginal well or tie-in when oil or natural gas prices jumped up big. The classic was in 2001/2002. In H1/2001, HH prices spiked above $10 at one time. A COO of a small cap Cdn natural gas player said he pulled out crappy little tie-in or well that he could never justify drilling and drilled and tied-in like crazy. He wasn't alone and the inevitable one time burst of US and Cdn natural gas production. And by Nov 2001, HH prices had crashed below $2 with a 2002 forward strip just above $2. No surprise, when the one time burst natural gas wells production declined, natural gas production declined and HH gas prices ended up just over $3.20 in 2002.

Oil – Trans Mountain to only pass thru 20-25% of $8.8b cost overrun to shippers

TMX cost overruns to shippers

On Thursday, Bloomberg reported that Trans Mountain "*will mostly shield its shippers from the 70% increase in costs to build a new oil pipeline to the Pacific, helping to keep the key project a viable oil conduit for reaching Asian markets viable. Just 20% to 25% of the cost increases will be passed on through higher tolls to the companies that will be shipping oil on the line, the company said in an email Wednesday. Tolls will be filed with the Canada Energy Regulator shortly before the pipeline begins service."* This follows the massively higher Trans Mountain cost estimates for its expansion (TMX). Last week's (Feb 20, 2022) Energy Tidbits highlighted the Feb 18 announcement by Trans Mountain [LINK] "*Trans Mountain Corporation Updates Expansion Project Cost and Schedule"* that had two key updates. (i) 70% higher cost. "*Trans Mountain has completed a full review of its Project schedule and cost estimates. With all work fronts now active, mechanical completion of the Project is anticipated to occur in the third quarter of 2023. The total Project cost has increased from $12.6 to $21.4 billion."* (ii) One year delay in startup. Prior planned start up was by year-end 2022, but Trans Mountain wrote "*Schedule pressures total approximately $2.6 billion of the increase and include permitting processes required for the several thousand permits that are required for the Project, and significant construction challenges in both marine and difficult terrain which have extended the schedule into late 2023*." Our Supplemental Documents package includes the Bloomberg report.

Oil – Teamsters extends CP rail strike vote amid balloting issues

Teamsters strike vote delayed

Last week's (Feb 20, 2022) Energy Tidbits memo note the potential for a CP rail strike as the union was just finishing the strike voting by locomotive engineers, conductors, trainpersons and yardpersons – basically all the key personnel to keep trains moving. The voting was to be completed on Monday. But on Feb 18 Teamsters announced [LINK] they would extend the vote to conduct a strike that was originally announced on Feb 10. Teamsters noted that there have been issues with numerous requests for replacement ballots that are associated with undelivered ballots. Our February 13 Energy Tidbits noted "*On Thursday, the Teamsters Canada Rail Conference announced* [LINK] *it is conducting a strike vote "among its more than 3,000 Locomotive Engineers, Conductors, Trainpersons and Yardpersons. The strike vote results will be tabulated in late February." Teamsters says the "main issues at hand include wages, benefits and pensions." It looks like a clear compensation issue, which is interesting as Teamsters didn't highlight any working or safety or other factors. Although they did say "main" issues. Teamsters also stated "The Minister of Labour has appointed a*

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conciliator/mediator to support the process." Balloting was originally set to expire on Feb 21, but given the balloting complications, it has been extended to Feb 28.

Liberals haven't stepped in before with back to work legislation

If there isn't success in the conciliation process, we should expect an actual strike because the Liberals haven't previously stepped in to enact back to work legislation to stop a rail strike. Our Dec 1, 2019 Energy Tidbits highlighted the end of the 8-day CN Rail strike. At that time we wrote "*Oil – CN Rail strike ended on Day 8, but says "weeks, not days" to recover. As expected the CN Rail strike ended with a negotiated deal and not back to work legislation. It was well reported that the Liberals were doing all they could to avoid, what we called the nuclear option of recalling parliament to pass back to work legislation as the first bill of the new Liberal minority government. Especially a bill that would be supported by Conservatives but opposed by the NDP, who they will be needed support to stay in govt. The strike ended up lasting 8 days, so longer than the prior 7 day strike. National Post* [LINK] re*ported on comments from CN Executive Vice President of Corporate Services Sean Finn writing "We're looking at weeks to recover fully," Sean Finn, CN's executive vice-president of corporate services, said in an interview Thursday. "This is a complex network — 21,000 miles of track that at any given time 100,000 rail cars are operating on" and "During the strike, CN operated its network at about 10 per cent capacity. It will take between one and four weeks to clear the backlog depending on how far a customer is from an operating yard and how frequently they typically receive service, Finn said."*

Oil – Cdn crude by rail exports down MoM at 131.22 b/d in Dec, up 24% YoY

Cdn crude by rail exports

The Canadian Energy Regulator (successor to NEB) reported Canadian crude by rail exports were -1,072 b/d MoM in December to 131,224 b/d vs 132,296 b/d in November [LINK]. This puts Dec export volumes at -59,230 b/d YoY (-31%) vs Dec 2020 of 190,454 b/d. CBR volumes are +92,357 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. December WCS-WTI differentials decreased to -$15.83 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.

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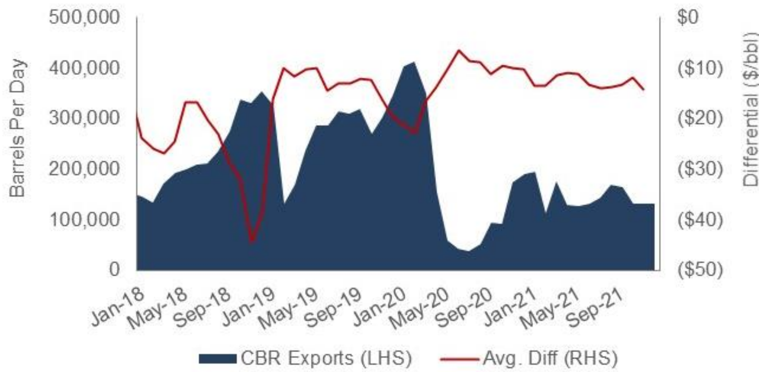
Figure 21: Cdn Crude by Rail Exports vs WCS Differential



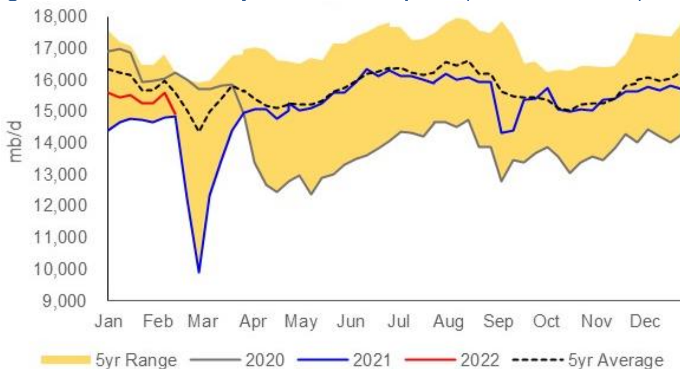
Source: Canadian Energy Regulator, Bloomberg

Oil – Refinery inputs +0.344 mmb/d WoW at 15.246 mmb/d

Refinery inputs up WoW

The EIA crude oil input to refinery data is for the week ended Feb 18. This is normally the seasonal period when crude oil inputs to refineries slightly declines due to turnarounds. US refineries have also been impacted by unplanned outage that have been impacting crude oil inputs. This week, the EIA reported crude oil inputs at refineries, up +0.344 mmb/d this week to 15.246 mmb/d for the week ended Feb 18, and are +3.16 mmb/d YoY. Refinery utilization was up at 87.4%, which is +19.2% YoY though is still below 5-year average utilization levels. Total products supplied (i.e., demand) decreased WoW, down 1.257 mmb/d to 21.483 mmb/d. Motor gasoline was up 0.086 mmb/d at 8.657 mmb/d from 8.570 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 increased to 8.645 mmb/d, up from last year.

Figure 22: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA

Oil – Explosion at Marathon's Garyville Refinery

Garyville Refinery explosion

On Monday, Marathon reported an explosion at their 578,000 b/d Garyville Refinery [LINK]. An investigation is underway to determine the cause of the blast which occurred in one of the

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petroleum producing units. Fire crews doused the flames for most of Monday morning. Reuters reported on Wednesday [LINK] that the fire began with an explosion on the diesel producing hydrocracker which has the third largest platform for production capacity in the US. The release noted "*At this time, there are no fatalities or injuries reported. There was one minor injury of a contract worker that is being reported, being treated at a local facility*". The refinery, located along the Mississippi river in southwestern Louisiana. The Garyville refinery is configured to process a wide variety of crude oils into gasoline, distillates, fuel-grade coke, asphalt, polymer-grade propylene, propane, refinery-grade propylene, dry gas, slurry and sulfur. Products at the refinery are transported by pipeline, barge, transport truck, rail and ocean tanker. The refinery has access to the export market and multiple options to sell refined products. A major expansion project was completed in 2009 that increased Garyville's crude oil refining capacity, making it one of the largest refineries in the U.S. Marathon has not disclosed what units were down. The latest update we have seen was Bloomberg's reporting of the Wood Mackenzie/Genscape data as of Monday "*Activity at all monitored units remained unchanged. The 114k b/d hydrocracker and 35k b/d coker remained offline".* Our Supplemental Documents package includes the Marathon report.

Oil – Union workers accept Exxon offer to end lockout at Beaumont refinery

Beaumont Refinery lockout ends

On Monday, workers at Exxons Beaumont Refinery – represented by the United Steel Workers Association (USW), accepted the Exxon's latest offer to end the lockout that has lasted since May. Bloomberg reported on Tuesday [LINK], that the 10-month lockout was ended with a return-to-work agreement. The 369,000 b/d refinery has been operating since May 1 with temporary managers and workers, running at an undisclosed reduced capacity, though reported at approximately 60%. Our January 9 Energy Tidbits last noted the lockout in which the ~600 union represented workers were unsuccessful in coming to an agreement with Exxon to end the lockout. The USW rejected Exxon's last offer nearly four months ago. The new local contract adds a paid holiday on Martin Luther King Jr Day. The agreement allows more confidence in Exxon's ability to expand the refining capacity by 250,000 b/d as the new highly trained workforce will be able to operate the planned addition crude unit that processes low sulfur crude from the Permian Basin. There has been no comment released by Exxon or the USW to date. Our Supplemental Documents package includes the Bloomberg report.

Oil – Steelworkers agree on national refinery labor deal

A national labor agreement

Yesterday morning, we tweeted [LINK] ""*Tentative new 4-yr national labor agreement between @steelworkers & @MarathonPetroCo on behalf of #Oil refineries. Reports Oil co's moved on pay to close the gap. hopefully sets stage to avoid US refinery labor issues for awhile. #OOTT".* This is significant as Marathon is negotiating on behalf of other refineries for this national deal that is then used as the basic for local discussions. The United Steelworkers announced [LINK] "*The United Steelworkers (USW) today said that the union has reached tentative agreement on a new, four-year contract with Marathon that outlines a pattern for improving wages, benefits and working conditions throughout the industry during the course of its term. The agreement will impact over 30,000 oil refinery, petrochemical plant, pipeline and terminal employees in more than 200 USW represented bargaining units. "The industry came to the table with demands that would have undermined generations of collective bargaining progress," said USW International President Thomas M. Conway."* Our Supplemental Documents package includes the USW announcement.

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Oil – US "net" oil imports up +0.623 mmb/d WoW at 4.142 mmb/d

US "net" oil up WoW

US "NET" imports were up +0.623 mmb/d to 4.142 mmb/d for the Feb 18 week. US imports were up +1.038 mmb/d to 6.828 mmb/d. US exports were up 0.415 mmb/d to 2.686 mmb/d. The WoW increase in US oil imports was driven by US's Top 10 imports by country were up +0.894 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was up this week by +0.527 mmb/d to 3.869 mmb/d, which is now ~0.1 mmb/d above the average levels in Jan/Feb of 2020. (ii) Saudi Arabia was up 108,000 b/d to 0.358 mmb/d this week. (iii) Colombia was up +0.098 mmb/d to 0.332 mmb/d. (iv) Ecuador was flat at 0.098 mmb/d. (v) Iraq was up 60,000 b/d to 285,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico was up by 258,000 b/d to 0.768 mmb/d.

Figure 23: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d)	Dec 10/21	Dec 17/21	Dec 24/21	Dec 31/21	Jan 7/22	Jan 14/22	Jan 21/22	Jan 28/22	Feb 4/22	Feb 11/22	Feb 18/22	WoW
Canada	3,879	3,147	4,032	3,803	3,340	3,556	3,752	3,953	3,631	3,342	3,869	527
Saudi Arabia	463	384	609	418	294	381	596	613	383	250	358	108
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	569	503	648	226	584	902	321	383	958	510	768	258
Colombia	232	146	184	64	241	193	143	286	258	234	332	98
Iraq	29	359	268	226	317	434	133	412	226	225	285	60
Ecuador	265	195	308	95	58	0	0	236	101	98	98	0
Nigeria	217	128	58	53	0	0	43	9	144	182	25	-157
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	5,654	4,862	6,107	4,885	4,834	5,466	4,988	5,892	5,701	4,841	5,735	894
Others	817	1,332	652	779	1,235	1,279	1,248	1,193	688	949	1,093	144
Total US	6,471	6,194	6,759	5,664	6,069	6,745	6,236	7,085	6,389	5,790	6,828	1,038

Source: EIA, SAF

Oil – Record US imports from Russia in 2021 with ~700,000 b/d through November

US increased imports from Russia in 2021

We were surprised to see that the US had imported a record level of petroleum products from Russia in 2021. We tweeted [LINK] *"Did you know US #Oil #PetroleumProducts imports from RUS was at new record in 2021? Dec actuals not in but just under 700,000 b/d thru Nov. Here are splits by PADD. Thx @EIAgov #OOTT"* The EIA has yet to update their Dec actuals for imports from international countries, but there is still some great takeaways for US oil imports from Russia [LINK]. The US has imported ~650,000,000 b/d from Russia for the first 11 months of the year. The split is as follows: The US imported 191,000 b/d of crude oil, ~446,000 b/d for a total crude oil and petroleum products total of ~637,000. The US Gulf Coast (PADD 3) saw the greatest level of oil and petroleum product imports from Russia with ~357,000 b/d being imported from Russia. The East Coast (PADD 1) was the next highest with 161,000 b/d and The US West Coast (PADD 5) was the third largest importer with ~118,000 b/d of crude and petroleum products imported from Russia. Below is a chart showing the Imports by PADD District.

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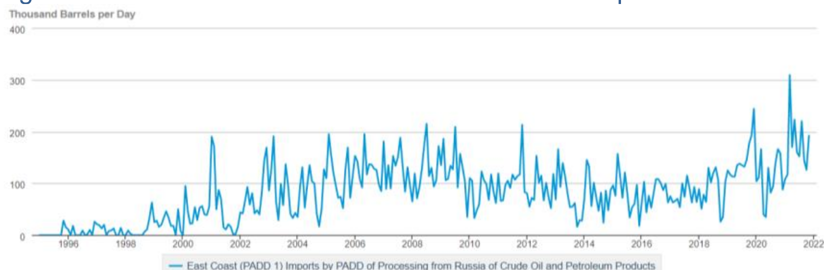
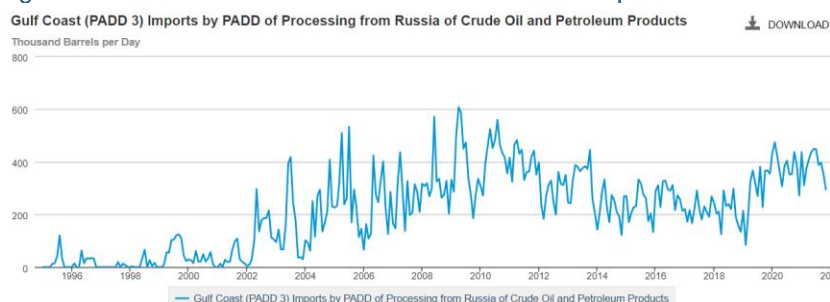
Figure 24: PADD 1 Crude and Petroleum Product Imports from Russia



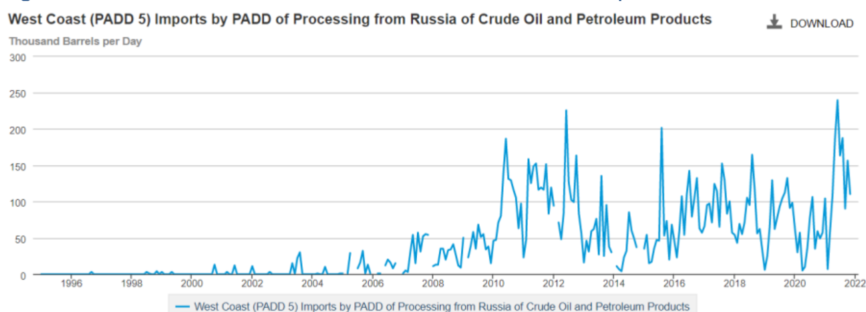
Source: EIA

Figure 25: PADD 3 Crude and Petroleum Product Imports from Russia



Source: EIA

Figure 26: PADD 5 Crude and Petroleum Product Imports from Russia



Source: EIA

Oil – Pemex oil production still stuck around 1.7 mmb/d, but partners now 58,000 b/d
On Friday, Pemex released its January production for its interests, it was 1.701 mmb/d of oil, which is basically unchanged for all of 2021 and flat MoM. Pemex's oil production in October was lower due a fire on a platform and we would have expected it to be higher in November and December, January sees production slowly return. Pemex's interest YTD Jan 31 production is 1.701 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 53,000 b/d and has averaged 49,000 b/d for YTD Dec 30. As a result, total Mexico oil production

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(Pemex and non-Pemex) was 1.959 mmb/d for Jan and 1.705 mmb/d for YTD Jan 31. Below is our chart tracking Pemex oil production.

Figure 27: Pemex Mexico Oil Production

Oil Production (thousand b/d	2017	2018	2019	2020	2021	21/20	2021	2022	22/21
Jan	2,020	1,909	1,623	1,724	1,651	-4.2%	1,651	1,705	-1.1%
Feb	2,016	1,876	1,701	1,729	1,669	-3.5%	1,669		
Mar	2,018	1,846	1,691	1,745	1,697	-2.8%	1,697		
Apr	2,012	1,868	1,675	1,703	1,693	-0.6%	1,693		
May	2,020	1,850	1,663	1,633	1,688	3.4%	1,688		
June	2,008	1,828	1,671	1,605	1,698	5.8%	1,698		
July	1,986	1,823	1,671	1,595	1,701	6.6%	1,701		
Aug	1,930	1,798	1,683	1,632	1,657	1.5%	1,657		
Sept	1,730	1,808	1,705	1,643	1,709	4.0%	1,709		
Oct	1,902	1,747	1,655	1,627	1,692	4.0%	1,692		
Nov	1,867	1,697	1,696	1,633	1,691	3.6%	1,691		
Dec	1,873	1,710	1,706	1,650	1,694	2.7%	1,694		

Source: Pemex

Oil – Mexico January oil exports down to 832,000 b/d, lowest in decades

Pemex January oil exports

We aren't aware of any Mexican oil tanker loading issues in January. But unless there was weather related issues that hurt crude oil tanker loadings, the Pemex January oil export data would be signaling the start of Mexico's plan to reduce oil exports to zero in 2023. On Friday, Pemex reported January oil exports were 0.832 mmb/d, which was down MoM vs December of 1.037 mmb/d, but down 15.0% YoY vs January 2021 of 0.979 mmb/d. January oil exports of 832,000 b/d is the likely the lowest in decades. Pemex oil exports to US were 0.611 mmb/d in January, which was in line with the average of the prior few months. Below is our table of the Pemex oil export data.

Figure 28: Pemex Mexico Oil Export

Oil Exports (thousand b/d)	2016	2017	2018	2019	2020	2021	21/20	2022	22/21
Jan	1,119	1,085	1,107	1,071	1,260	979	-22.3%	832	-15.0%
Feb	1,241	1,217	1,451	1,475	1,093	1,006	-8.0%		
Mar	1,062	1,001	1,176	1,150	1,144	925	-19.1%		
Apr	1,081	1,017	1,266	1,023	1,179	923	-21.7%		
May	1,204	958	1,222	1,205	1,062	1,031	-2.9%		
June	1,098	1,157	1,110	995	1,114	1,106	-0.7%		
July	1,146	1,255	1,156	1,079	1,051	1,173	11.6%		
Aug	1,261	1,114	1,181	1,082	1,190	1,099	-7.6%		
Sept	1,425	1,159	1,206	995	1,023	983	-3.9%		
Oct	1,312	1,342	1,027	963	908	935	3.0%		
Nov	1,273	1,388	1,135	1,114	1,171	1,025	-12.5%		
Dec	1,115	1,401	1,198	1,115	1,243	1,037	-16.6%		

Source: Pemex

Pemex CEO reminded Mexico oil exports down big in 2022, and to zero in 2023

Here is what we wrote in our Jan 2, 2022 Energy Tidbits. "*For the last year, one of the mostly ignored oil stories has been that Pemex (Mexico) expects to have its domestic refineries process all Mexican oil production such that that will no longer be oil exports and also imports of petroleum products ie. they will be self sufficient on petroleum products. On Tuesday, we tweeted [LINK] "Pemex/MEX will stop exporting*

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*crude in 2023 after reducing exports to 435k b/d in 2022 says @Pemex CEO. vs ~1 mmb/d in 2021. PADD 3 Gulf Coast gets >50% of MEX #Oil exports. Cdn heavy/med wins when MEX oil exports go down. Thx @amystillman #OOTT." Pemex CEO Oropeza spoke at the National Palace before Mexican President Obrador. Pemex posted [LINK] "He specified that it is proposed to maintain the value of proven reserves, the requirement of the National Refining System will be covered to serve the domestic market, so oil exports will stop starting in 2023." Bloomberg reported on the presentation adding more details "Pemex will stop exporting crude in 2023 after reducing exports to 435k b/d in 2022, Pemex Chief Executive Officer Octavio Romero Oropeza said during a press conference in Mexico City on Tuesday. * Crude processing to reach 1.509m b/d in 2022 and 2m b/d in 2023 with the addition of the Deer Park, Texas refinery and the Dos Bocas refinery in Tabasco. * NOTE: Mexico's six refineries have capacity to process 1.627m b/d: Pemex."*

AMLO has been highlighting his plan to have no more oil exports

Mexico increasing oil refining volumes and stopping oil exports has been a key priority for AMLO. Our second tweet on Tuesday was [LINK] "*Pemex/MEX stopping crude oil exports is the only forecast that has been pretty accurate. Just noted the year ago Dec 23, 2020 AMLO tweet on this. Arguably part of it is that Pemex is much lower than their 2022/2023 production forecasts from 2020.*" On Dec 23, 2020, we tweeted [LINK] "*Breaking: Positive to Cdn heavy #WCS #Oil prices post 2020. #AMLO saying new #Pemex Dos Bocas 300,000 b/d refinery on track for June 2022 finish. Along with increasing existing refineries currently operating <60% up to ~1.5 mmb/d would mean almost zero Mexico oil exports. #OOTT.*" It also just so happens that the new Dos Bocas refinery is located in AMLO's home state of Tabasco. AMLO's energy priority has been to increase existing refinery utilization and build the new Dos Bocas refinery so Mexico had refinery capacity to process all of its crude oil production. This would eliminate oil exports with the big win being that Mexico would be able to produce the gasoline, diesel, etc it needs and not have to import these petroleum products.

Creates >0.5 mmb/d heavy/medium supply gap in Gulf Coast PADD 3 refineries

Assuming Pemex can increase its refinery utilization to go along with the new Dos Bocas refinery and Mexico can then stop oil exports in H2/22, this will create a heavy/medium oil supply gap in Gulf Coast PADD 3 refineries. We have been highlighting for years how Cdn heavy/medium crude oil has been the big winner when there are declining US Gulf Coast PADD 3 imports of heavy/medium crude oil from Mexico and Venezuela. And if Mexico stops heavy/medium oil exports in H2/22, Cdn heavy/medium crude stands to be the desired supply. The biggest risk is that the US removes Venezuela sanctions and that Venezuela then increase oil production and exports including to the US. Below are the EIA's current PADD 3 imports of crude oil from Mexico and Canada. Please note the different scales in the graphs.

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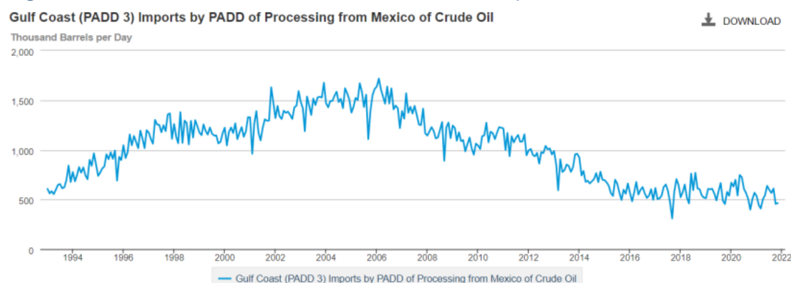
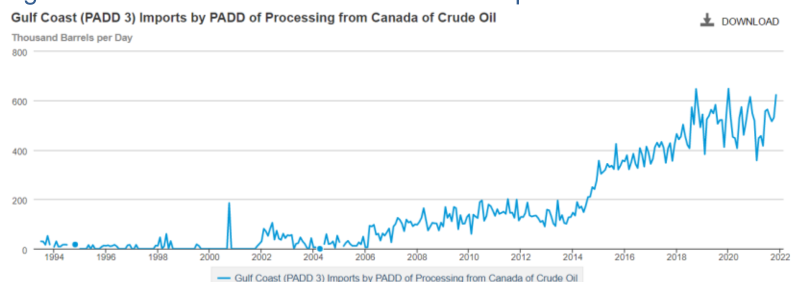
Figure 29: Gulf Coast PADD 3 Crude Oil Imports From Mexico



Source: EIA

Figure 30: Gulf Coast PADD 3 Crude Oil Imports From Canada



Source: EIA

Oil – Norway January oil production of 1.736 mmb/d, down -6.1% MoM

Norway oil production

The Norwegian Petroleum Directorate released its January production figures [LINK] of 1.736 mmb/d of oil, which is -3.7% YoY and –6.1% MoM from December of 1.849 mmb/d. January production was down slightly (-0.04 mmb/d) with the forecast amount of 1.776 mmb/d. The NPD does not provide any explanations for the MoM changes. The story for Norway has been that its oil production returned to growth in the last 3 years because of the Johan Sverdrup oil field, and tax breaks from the government allowing increased capex in the energy sector.

Figure 31: Norway January 2022 production

		Oil	Sum liquid	Gas	Total
		mill bbl/d	mill bbl/d	MSm³ /d	MSm³ o.e/d
Production	**January 2022**	**1,736**	**1,968**	**342,2**	**0,655**
Forecast for	January 2022	1,776	2,079	318,2	0,649
Deviation from forecast	January 2022	-0,040	-0,111	24,0	0,006
Deviation from forecast in %	January 2022	-2,3 %	-5,3 %	7,5 %	0,9 %
Production	January 2021	1,802	2,122	330,2	0,668
Deviation from	January 2021	-0,066	-0,154	12,0	-0,013
Deviation in % from	January 2021	-3,7 %	-7,3 %	3,6 %	-1,9 %
Production	December 2021	1,849	2,091	355,3	0,688
Deviation from	December 2021	-0,113	-0,123	-13,1	-0,033
Deviation in % from	December 2021	-6,1 %	-5,9 %	-3,7 %	-4,8 %

Source: Norwegian Petroleum Directorate

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Oil – Nigeria confirms can't meet quota but hopes to do so by year end

Nigeria can't meet quota levels

Nigeria confirmed what markets all have been reflecting – they can't meet their quota levels but hope to be able to do by the end of the year. On Tuesday, we tweeted [LINK] "*No short term #Oil supply bump coming from Nigeria. @HETimipreSylva "we are not happy at all because we are the losers, i mean prices are strong and that we're not able to take advantage of these prices". #OOTT #OPEC.*" Nigeria's energy minister Sylva may not have specifically said they can't mee their quota, but said it by saying they aren't able to take advantage of high prices. He did say they hope to boost its oil production by the end of 2022. On Tuesday, Reuters reported [LINK] petroleum minister Sylva's comments at the gas exporters conference in Doha, Qatar. Sylva noted *"We are working hard and we're expecting that by the end of this year we'll be able to bring back our production. We are not happy at all because we are the losers. I mean prices are strong and that we're not able to take advantage of these prices. We have some issues with investment and can't bring [oil production] back to where it was before."* Nigeria has been struggling to meet its production Quota's set under the OPEC+ supply deal due to the exodus of many oil companies in its supply fields. Most recently Nigeria experienced an explosion at its offshore FSPO Trinity Spirit facility with the timeline for its return still unclear. However, our January 20th Energy tidbit noted the Nigeria's Dangote Refinery is expected to come online in Q322; the giant refinery will begin with a crude processing capacity of 540,000 b/d and a full production capacity of 650,000 b/d. While the Dangote refinery will help Nigeria on its way to increase production, a lack of investment from international companies and nations see's it unlikely that the nation will be able to boost production in the near term. Our Supplemental Documents package includes the Reuters report.

Oil – Next OPEC+ ministerial meeting is Wednesday March 2

OPEC+ meeting is March 2

No surprise that with all going in the markets and the world with Russia invasion of Ukraine that there hasn't been much chatter about the upcoming OPEC+ meetings. The next OPEC and non-OPEC Ministerial Meeting (ONOMM) is set for Wed March 2 and will be via videoconference. The meeting might have been very interesting if the US, EU and other were to have tried to cut Russia's oil, natural gas and LNG exports. But, they have been clear that they are not doing anything to impact Russia's energy exports. Accordingly, the fear of oil shortages seem to have gone out of the oil price and that also would point to no change in OPEC+ planned 400,000 b/d monthly increase.

Oil – Saudi's Abdulaziz says need to keep OPEC+ consensus building permanently

Saudi wants long term OPEC+ approach

We called Saudi energy minister Abdulaziz "The Man" because we don't think anyone could have done what he has done for oil markets. And also as we put in July 1, 2001 tweet [LINK] "*If you could invite 3 people for dinner? #SaudiEnergyMinister Abdulaziz should be on everyone's list, he is on mine! "The Man" who saved the #Oil market and shows he is just a good person with a heartfelt tribute. #OOTT Thx @dan_murphy for video.*" But, he is The Man for saving oil markets. So it was interesting to see his comments last Sunday (after we went to press on our memo) that he is in favor of a long term OPEC+ consistent building approach. Bloomberg wrote "*Saudi Arabia's energy minister said that OPEC+ must stay together for the long-term stability of the oil market. "We need to keep this consensus building approach to be with us permanently because without it we will lose sight of our collective*

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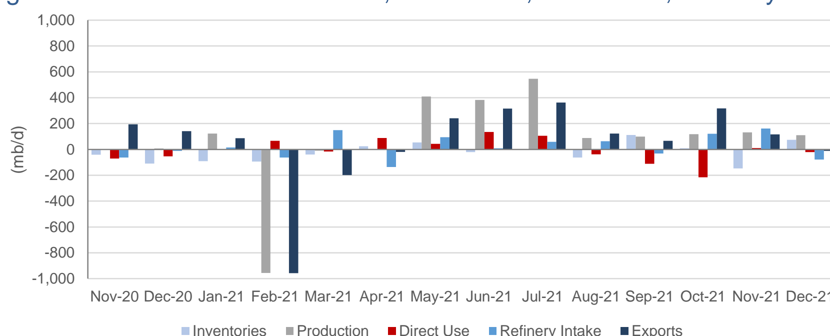
ambition," Saudi Energy Minister Prince Abdulaziz bin Salman said at an energy conference in Riyadh Sunday. "Ask any producer of oil and gas today, if it were not for OPEC+ would they be the chairmen and the CEOs of today? And the answer: they would have vanished." We also love his commentary.

Oil – Saudi exports -12,000 b/d MoM in December with higher production

Saudi decreased Dec exports

The JODI data for Saudi Arabia oil supply and demand for December was updated on Tuesday [LINK]. (i) There were no real surprises from the JODI data for December. The increased MoM production and build to inventory were in excess to the decreased exports and refinery intakes. There was basically no change to direct use of crude oil for electricity. (ii) Saudi used marginally less oil for electricity in Dec vs Nov which is a shift back to normal. Normally, the use is less in Nov and Dec as temperatures are more moderate and less air conditioning demand. December temperatures were back to normal especially in the second half of the month which explains the lower direct use of crude for electricity generation throughout the month. The peak summer use was July at 691,000 b/d, that declined to 339,000 b/d in Nov and now reported +-21,000 b/d MoM to 318,000 b/d for Dec. Dec 2021 is up 51,000 b/d YoY from Dec 2020 of 267,000 b/d. Dec was also below the 5-yr average of 324,000 b/d. (iii) The normal seasonal decline in Saudi use of oil for electricity would see a peak to trough decline of >400,000 b/d to under 300,000 b/d. (iv) On the overall JODI data for Dec, there was a 0 b/d of unaccounted for demand though there was 146,000 b/d of unaccounted supply. There was increased supply of 36,000 b/d MoM from production +110,000 b/d MoM and inventory up -143,000 b/d MoM. vs decreased demand -111,000 b/d from refinery intakes -78,000 b/d MoM, exports -12,000 b/d MoM, and direct use for electricity -21,000 b/d. ie. leaving 0 b/d unaccounted. (v) Inventories increased up 2.28 mmb MoM from 132.378 mmb to 134.662 mmb. Inventories remain at historically low levels, sitting below 150 mmb. (vi) Below are the AccuWeather Temp maps for Riyadh for Dec, Jan and Feb MTD. Careful they are different scales but look for oil for electricity to decrease as we continue to move away from peak season. Below are our updated graphs for the Saudi JODI data for December.

Figure 32: MoM Saudi Inventories, Production, Direct Use, Refinery Intake & Exports



Source: JODI, Bloomberg

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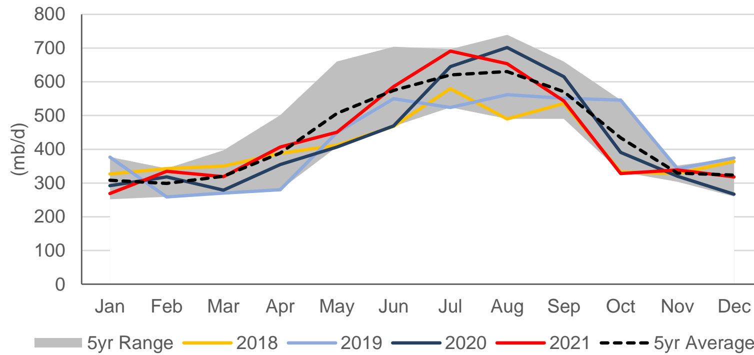
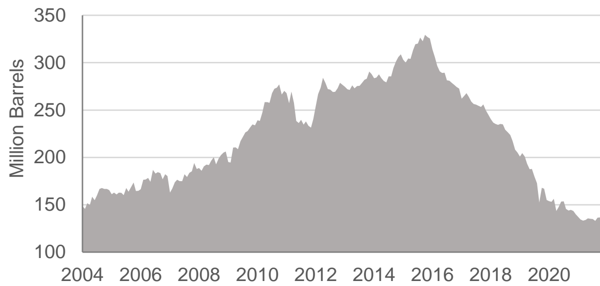
Figure 33: Saudi Arabia Direct Use of Crude Oil For Electric Generation



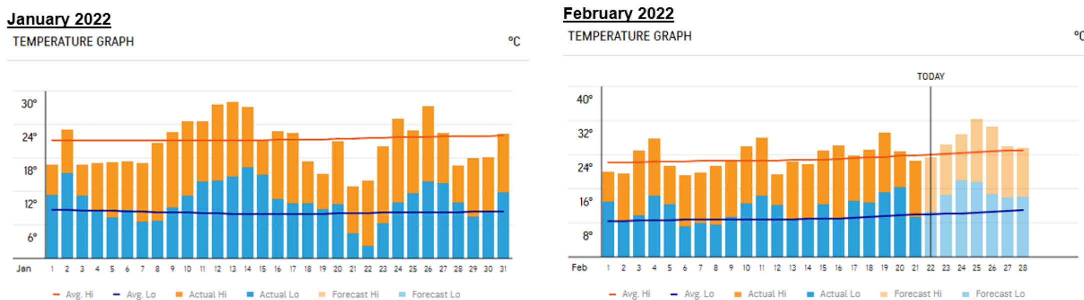
Source: JODI

Figure 34: Saudi Arabia Crude Oil Inventories (million barrels)



Source: JODI

Figure 35: Riyadh Temperature Recaps for Dec, Jan and Feb



Source: AccuWeather

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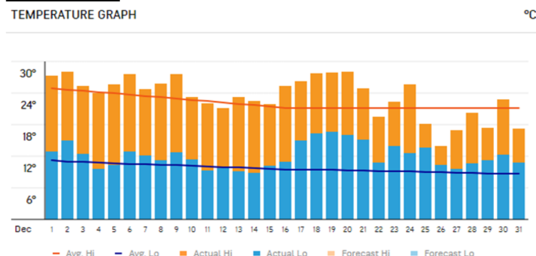
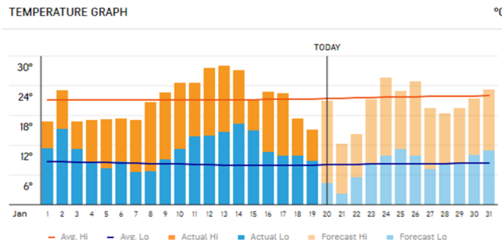
December 2021



January 2021



Source: AccuWeather

Oil – JCPOA deal? US says "*we're not quite at the point of a final deal*"

Sounds like JCPOA getting even closer

We are now two days from Biden's March 1 State of the Union and, with the Russia invasion of Ukraine dominating the US, Germany, UK, France and Russia time, it looks like our expectation for a JCPOA deal before Biden's SOTU isn't likely to happen. We recognize that there is a JCPOA team led by O'Malley, but ultimately a massive decision like JCPOA return requires a massive allocation of thought and time by Biden, Blinken, etc. By itself, we would have expected it to dominate their time. But now how can there be anything besides Russia/Ukraine dominating their time. The other factor we should have said is that the Iranians probably wouldn't have wanted to give Biden something positive for his SOTU. Regardless, based on the White House comments on Friday, it seems clear that the US is still planning or expected to get to a revised JCPOA deal. But it may not happen before Tuesday. Yesterday, we tweeted [LINK] on the White House Press Secretary Jen Psaki Friday press conference. The press conference was dominated by Russia/Ukraine, but there were a couple comments on the JCPOA. Psaki was asked "*OPEC is making moves now to get ready to include Iranian oil in — if the U.S. is successful with the Iran nuclear deal. Would the President then welcome Iranian oil coming into the U.S. to lower gas prices?* Psaki replied "*Well, again, we're not quite at the point of a final deal on the nuclear deal. So, we will talk about that if we get to that point."* She raised the "if" there is a deal but didn't do the normal qualifier that US State Dept spokesman Price did on Wed *"but at the same time, a number of very difficult issues remain unresolved.*" Also in the Friday press conference, Psaki said "*We are working — Russia is a part of the P5+1, as we're working and making progress on an Iran nuclear deal. There's no question that achievement of that would make the world safer".* Prior to the Russia invasion, we had thought one of the key themes for the SOTU was going to be how Biden made the world safer in the last year – safer from Covid, safer from the threat of nuclear war, safer by a strong economy, etc. Our Supplemental Documents package includes excerpts from the White House transcript.

On Feb 1, Biden gave his clearest indicator he was prepared to give a little

We have been of the view that Biden was going to give in to some degree to get a revised JCPOA. We still believe that. And we think that Biden has clearly signaled he was prepared to make changes. Our Feb 6, 2022 Energy Tidbits memo was titled "*Biden's Team Messages Prepared to Give on "Details" to Get JCPOA Done*". At that time, we wrote "*No question it was a week of indicators pointing to a JCPOA deal coming very soon. On Tuesday morning, we tweeted [LINK] "Sounds like #Biden*

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prepared to make last minute concessions to get #JCPOA. "We are prepared to go back into the deal. It doesn't mean that every detail of the negotiation has been resolved from our side, but we are prepared to make those tough choices" US State Dept. #OOTT." Yesterday, we retweeted [LINK] the Tuesday tweet with the message "#JCPOA. #Biden had this briefing on Tues for a reason - he is prepared to give on something to get JCPOA done. Reality is that any give will be messaged as a "detail". #OOTT ." There was a US State Department background briefing on Monday afternoon (not Tues as in my tweet) on JCPOA and it seemed like there must be a reason. Last week's (Jan 30, 2022) Energy Tidbits noted the US official comment that they were "in the ballpark" for a JCPOA deal. At the Monday briefing, the Stated Dept official was specifically asked about the "in the ballpark" comment. The official didn't shoot down or confirm the question of the other US official saying they were in the ballpark for a deal. Rather he talked about making progress but still more work to be done. But then we saw what looked to be the one big opening given by the US as to why there will be a deal. At the start, he stuck to the line that its really up to Iran and that the US will remove sanctions that are inconsistent with the JCPOA. But then there is this exchange that he admits they will have to make some concessions but these are just details. The US State Dept transcript [LINK] has the official saying "Again, your question is kind of a different way to ask the prior question about what we think, where we are in the negotiations, which I don't want to – I'm not going to address outside of the negotiating room. I'd say the decisions that need to be made by the U.S. in order to come back to the deal have been made. We are prepared to go back into the deal. It doesn't mean that every detail of the negotiation has been resolved from our side, but we are prepared to make those tough choices."

Oil – Oil output from Iraq's West Qurna-2 suspended for maintenance

Iraq temporarily closes production in oil field

Earlier this morning, Bloomberg reported "*Iraq stopped oil production from two southern fields with a combined capacity of almost half a million barrels a day.*" Most of this is due to the earlier reports this week of maintenance at the West Qurna-2 field from Feb 21 to March 14. But yesterday, protests at Nasiriya halted production. Bloomberg reported "*The operators of Nasiriya and West Qurna-2 have said nearby fields will be able to produce more to compensate for the temporary losses. Work at Nasiriya, capable of supplying as much as 80,000 barrels a day, was halted on Saturday because of protests that prevented staff from reaching the site, according to a statement from Thiqar Oil Co. That followed the closure of the huge West Qurna-2 field on Feb. 21 for maintenance. The field, which can pump 400,000 barrels a day, is scheduled to resume normal operations on March 14, though the companies that run it are trying to restart output sooner*." We are skeptical by the statement that Iraq can offset the 400,000 b/d barrels from nearby fields. Our Supplemental Documents package includes the Bloomberg report.

Oil – BloombergNEF China oil markets monthly

BloombergNEF China oil insights.

One of our favorite BloombergNEF monthly reports is its China Oil Markets Monthly, which is a good snapshot of China demand and supply. February was weak for oil demand stemming from the continuation of Covid-19 and the Lunar holiday in which travel declined nearly 14%. The Lunar New Year holiday saw travel average 25.5 million trips per day, which was below the Ministry of Transportations estimates. Airlines have since added flights after the holiday, which has been bullish for jet fuel demand. Diesel demand remains under pressure from

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weak consumer spending which has impacted road cargo traffic. Refinery run rates sank 55% in February, which is the lowest levels since April 2020. BNEF expects the continued lackluster demand to impact refinery run rates in the coming weeks. On crude oil, Bloomberg noted *"China has lowered both the crude import and fuel export quotas in early 2022 in a move to secure domestic fuel supply amid capacity consolidation. The first batch of crude quotas for 2022 saw an 11 % drop year-on-year, while fuel export quotas declined by more than 50%. Fuel exports compared to the same batch in 2021. The decline in fuels outflow from China has pushed refiners in the rest of Asia Pacific to raise their run rates."* Our Supplemental Documents package includes excerpts from the BNEF report.

Figure 36: BloombergNEF China Oil Markets Monthly

	Indicator	Value	Change		Last update	Comment
Demand	**Traffic**		**M-o-M**	**Y-o-Y**		• Covid-19 outbreaks have disrupted the usual travel rush during the Lunar New Year holiday. Daily trips as of February 17 averaged 25.5 million. This represents a 17% increase compared to 2021, but still falls short of the earlier forecast of 30 million trips per day made by the Ministry of Transport. • Jet fuel demand for January and February surged by 17% year-on-year, according to the flight schedule tracked by BloombergNEF. • Diesel demand faces downward pressures as lower consumer spending hits road diesel consumption. For more details, see the ***demand*** section from page 3.
	Road freight volume	616 bln tons-km	-1%	+4%	Dec 2021	
	Air passenger traffic	41 bln ppl-km	+29%	-35%	Dec 2021	
	Port cargo throughput	1.3 bln tons	-0%	+3%	Dec 2021	
	High frequency index		**W-o-W**	**M-o-M**		
	Road congestion index	98%	+16 ppt	-1 ppt	Feb 16, 2022	
	Subway traffic index	93%	+14 ppt	+2 ppt	Feb 16, 2022	
	Flight schedules		Increase	Increase	Feb 15-21, 2022	
Refining	**Refinery utilization**		**M-o-M**	**Y-o-Y**		• Run rates from independent refiners have plunged to 55% in February, the lowest level since April 2020. Weak domestic demand, the lack of export quota, and the Winter Olympics all contributed to the low level of throughput. • BloombergNEF expects lackluster demand to weigh on refinery run rates in the coming weeks. Meanwhile, as a diesel shortage comes to an end, and jet fuel demand remains under pressure, refiners will need to cut middle distillate yields again after having significantly raised output during the last quarter. For more details, see the ***refining*** section from page 7.
	Country-wide throughput	13.89 m b/d	-5%	-2%	Dec 2021	
	Independent refineries	56%	-9 ppt	-16 ppt	Feb 18, 2022	
	Refinery output					
	Gasoline	13.54m tons	+0%	+16%	Dec 2021	
	Diesel	16.86m tons	+2%	+30%	Dec 2021	
	Jet kerosene	1.9m tons	-16%	-49%	Dec 2021	
Trade	**Crude imports**		**M-o-M**	**Y-o-Y**		• China has lowered both the crude import and fuel export quotas in early 2022 in a move to secure domestic fuel supply amid capacity consolidation. • The first batch of crude quotas for 2022 saw an 11% drop year-on-year, while fuel export quotas declined by more than 50% compared to the same batch in 2021. The decline in fuels outflow from China has pushed refiners in the rest of Asia Pacific to raise their run rates. For more details, see the ***trade*** section from page 10.
	National total	10.91m b/d	+7%	+20%	Dec 2021	
	Selected routes (BBG)	4.51m b/d	-19%	-19%	Dec 2021	
	Fuel exports					
	Quota usage	98%			Jan-Dec 2021	
	Gasoline	940k tons	+16%	-35%	Dec 2021	
	Diesel	330k tons	-45%	-78%	Dec 2021	

Source: BloombergNEF

Oil – India oil imports down MoM to 4.56 mmb/d in January

India oil imports down in Jan

On Tuesday, India's Petroleum Planning and Analysis Cell released crude oil import data for January [LINK]. Total crude oil imports decreased 1.53% YoY in Jan to 4.56 mmb/d and decreased from 4.61 mmb/d in December, 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 1.53% YoY. Petroleum products demand for Jan was flat YoY at 4.16 mmb/d and decreased slightly MoM from 4.35 mmb/d in December. Refinery throughput in December was +2.52% YoY to 5.29 mmb/d and a increase from 5.08 mmb/d in December.

Oil – Vitol see perhaps a prolonged period of $100 plus at some point in next 6-9 mths

India oil imports up in Dec

After we posted last week's Energy Tidbits, there was an excellent Bloomberg interview with Vitol CEO Russell Hardy that ended up being one of the key oil market stories for a couple days. We tweeted [LINK] "*"Yes, we will see perhaps a prolonged period of $100 plus at some point in the next 6 to 9 months", doesn't think RUS/UA conflict "accounts for a huge amount of the price premium at the moment" says @vitolnews CEO Hardy. great interview*

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@annaedwardsnews! #OOTT #Oil." The headline grabber Bloomberg asking "*how would you view the prospects of getting to $100 from here*?" And then CEO Hardy replied "*we actually touched a hundred on dated Brent on Monday, I think it was. so it's not a new phenomenon. When you look at the supply and demand factors that have affected the market for the last couple of years since the pandemic, demand has recovered now to about the level we were pre-pandemic. and it's going to exceed the level we were pre-pandemic in the back half of 2022 and into 2023. So supply needs to catch up. and I think what the market is worried about is how much supply there is going to be available in the second half of the year and going into 23. So, in our view, Yes, we will see perhaps a prolonged period of $100 plus at some point in the next 6 to 9 months. It's very difficult to be precise about the exact timing. But demand is going to surge this second half of the year provided there is no additional worries about the pandemic. and provided travel resumes to something like normal*." The video of the Bloomberg interview is at [LINK]. Our Supplemental Document package includes the transcript we created of the Hardy comments.

Oil – Raymond James: global oil inventories are "way too tight"

RJ oil inventories are "way too tight"

Oil was bouncing around this week with the changing expectations if Russia's invasion would or would not impact oil supply. We thought it was important to remind of some of the key oil fundamentals for 2022, in particular the low level of global oil stocks. On Tuesday, we tweeted [LINK] "*Reminder that behind the RUS/UA adding risk premium to #Oil, there are great fundamentals incl low days of consumption for global oil inventories. Thx @RaymondJames John.Freeman@RaymondJames.com @ustin.Jenkins@RaymondJames.com #OOTT."* Our tweet included the below graph from RJ's Feb 22 comment "*Energy Stat: Oil Update – Raising Price Deck Again as Inventories/OPEC+ Spare Capacity Shrink*". RJ wrote "*The summary version: Global inventories are way too tight, with more draws coming in 2022… all while OPEC+ spare capacity shrinks. Since peaking in 2Q20, global inventories have been drawing at an astonishing pace. Newly-revised (finally!) IEA data shows an average draw of nearly 2 million bpd from the end of 2Q20 to YE21, resulting in more than 1 billion barrels of inventory draws in six quarters. This has fully erased the 2019 and 1H20 build, pushing OECD inventories well below normal levels. Our updated model shows continued draws in 2022 before flipping to a very modest inventory build in 2023. The question from our last update of "how are you bullish with builds?" arises again, in a more bullish way — and the answer: We need to rebuild oil inventories, and we're not. Nearly all global inventory indicators are well below the bottom end of 5-year ranges, and that's before demand heads back to above pre-COVID levels, all while OPEC+ spare capacity is set to decline rapidly. Some key assumptions, detailed later, include 1) global demand averages above 101 million bpd for 2022, reaching 104 million bpd for 2023; 2) OPEC + production curtailments are unwound by the end of 2022, as per the group's recent agreement, but spare capacity is exceedingly tight in 2023; and 3) U.S. production growth in 2022 and 2023 remains subdued relative to prior bullish cycles given producer discipline (private E&Ps should be thanking their public counterparts). The chart below neatly summarizes are view… inventories imply prices must move higher".*

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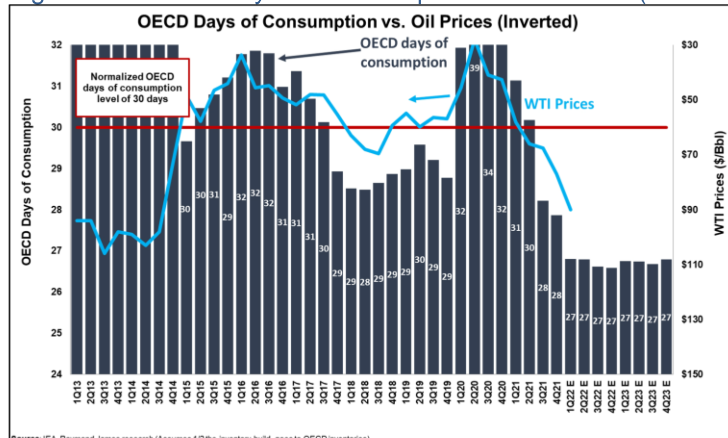
Figure 37: OECD Days of Consumption vs Oil Prices (Inverted)



Source: Raymond James

Oil – Bloomberg: Global oil inventories continue to show big deficit

BNEF's oil price indicators

For those with a Bloomberg terminal we recommend flipping thru BloombergNEF's "Oil Price Indicators" weekly that comes out on Mondays as it 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 relative to the 2017-2019 average. The deficit for crude and product widened from 102.4 mmb to 108.3 mmb compared to the 2017-2019 average. For the week ended Feb 11, land crude oil storage in tracked regions rose by 0.1% WoW to 517.3 mmb. The stockpile deficit against the 5 yr average (2015-2019) widened from 70.2 mmb to 74.2 mmb. Total crude inventories decreased by 0.2% to 623.9 mmb, including global floating inventories. Product stocks were down 1.8% WoW with the stockpile deficit against the 3-year average widening from 65.0 mmb to 72.4 mmb. Gas oil and middle distillate stocks have narrowed against their three-year average deficit (2017-2019) of 44.3 mmb to 43.0. Jet fuel consumption by international departures rose by 34,000 b/d WoW while consumption by domestic passenger departures rose by 58,900 b/d. Global mobility indices rose over the for the fourth consecutive week. The high frequency oil and product stockpile deficit against the three-year seasonal average (2017-2019) suggests the stockpile deficit has widened to near the post pandemic record set three weeks ago. Below is a snapshot of aggregate global stockpiles. Our Supplemental Documents package includes excerpts from the Bloomberg report.

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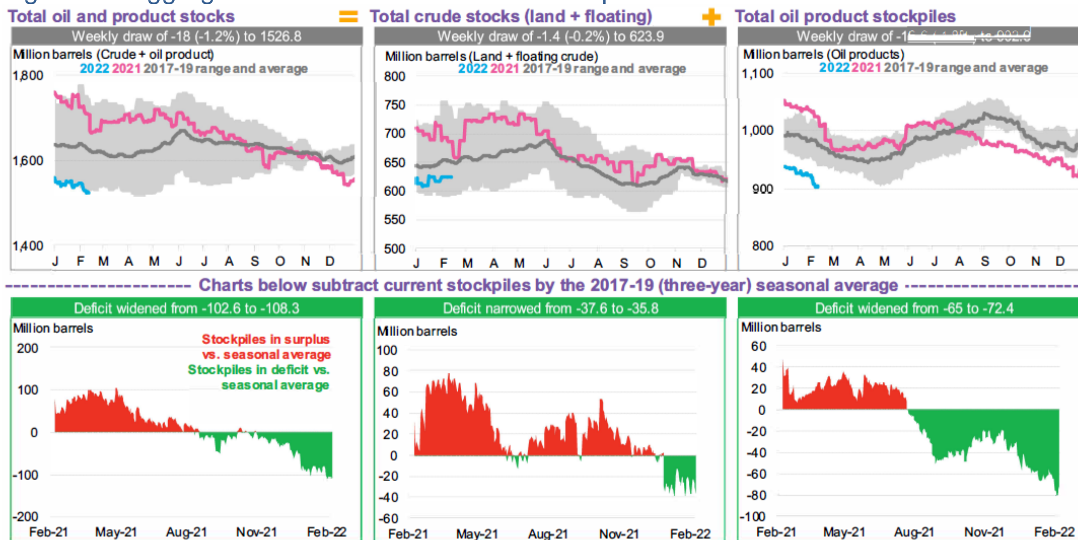
Figure 38: Aggregate Global Oil and Product Stockpiles



Source: Bloomberg

Oil – No Vortexa crude oil floating storage data posted this weekend

Vortexa floating storage

We do not have an item on Vortexa global crude oil floating storage for Feb 25 because, as of our 7am MT news cut off, Bloomberg has not posted any of the data.

Oil – Bloomberg Oil Demand Monitor, Air Travel continues recovery

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. Gasoline prices continue to be at record levels but has not impacted motorists taking to the roadways. Gasoline consumption has risen near pre-pandemic levels over the past week. With mobility restrictions now being lifted and many citizens now back in office, the increase in demand has seen US gas prices above the $3.50/gal for several days – the highest level since 2014. Demand continues to remain high as miles travelled by passengers has not been deterred by the high gasoline prices across both the US and the UK. Heavy goods vehicles and vans are being driven more since the beginning of the pandemic as a result of increased use of home delivery services and internet shopping. India continues to note MoM growth in petroleum fuel demand with the country's oil ministry expecting growth of 5.5% in the fiscal year beginning April 1. Gasoline demand in the first half of February was 2.1% less than in 2020 in India, though according to a survey of India's 3 biggest retailers, national diesel demand was down 15% and jet fuel demand was down an additional 43%. City congestion was up in Taipei and London, which had congestion levels Monday morning that were above 2019 levels. The 11 other cities tracked by Tom Tom were all below, though US cities were impacted by the national holiday. European flight numbers and seat capacities show evidence that air traffic was noticeably busier MoM. European flights were up 2x on Monday at 18,147 flights, an improvement rom the low of 13,722 in late January, still trailing 2019 by 30% still well behind the recovery in air travel in the US. Total seat capacity in the US was up by 1.7% compared to the equivalent

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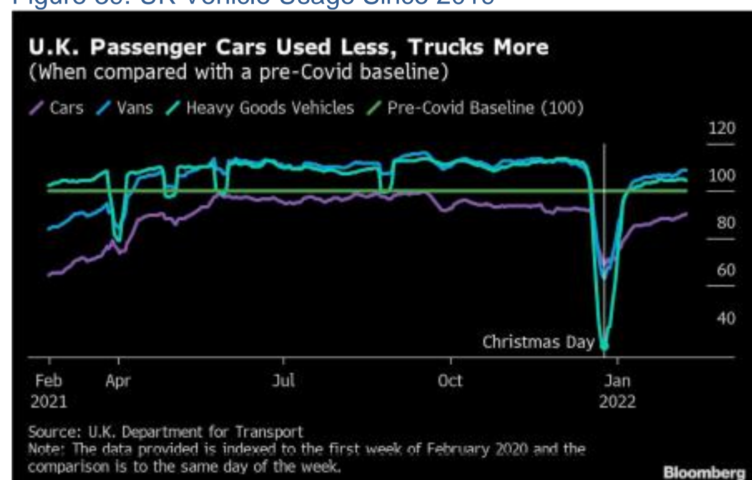
week in 2019. Refinery utilization was up this week at 85.3% with total US refinery utilization down just 0.6% from 2019; US east and Midwest refineries were up 8.8% and 8.2% respectively when compared with 2019 levels. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Figure 39: UK Vehicle Usage Since 2019



Source: Bloomberg

Oil – Bloomberg: Economic and mobility indicators increase as Covid decreases

Bloomberg's Oil Demand Monitor

There were some good oil demand themes highlighted in BloombergNEF Oil and Product Markets Monthly release on Friday. We tweeted [LINK] *"Reminder key #Oil demand theme for 2022 - as Covid decreases, economic & mobility indicators increase. Thx @BloombergNEF@WayneTanMing #OOTT."* The Omicron wave appears to have peaked with cumulative global reported cases rising 22% MoM to 429 million cases – a slowdown from January MoM with 2.2 million cases per day from 2.9 million cases per day in January. Vaccination rates (full doses) grew by +3% to 59% MoM. Economic indicators were resilient in the west. The report noted *"Flash manufacturing PMI for the U.S. climbed to 57.5 in February, from 55.5 in January. With the U.S. inflation rate at a 40-year high of 7.5% versus a year earlier, the Federal Reserve has turned hawkish in recent months and traders are pricing in six quarter-point interest-rate hikes by the end of this year. In the euro zone, manufacturing PMI fell to 58.4 in February, from 58. 7 in January. Consumer prices rose by a record 5.1 % in January, with traders now pricing in a quarter-point interest rate hike by the European Central Bank."* Mobility indicators also remained strong with Global Road traffic activity rising sharply from January levels; this is attributed to seasonal factors and slightly a reduction in the severity of the Omicron wave. Google's mobility index as of Feb 20 has increased to 31.3% of Jan-Feb 2020 levels. Our Supplemental Documents package includes the BloombergNEF report.

Oil – January truck tonnage +0.6% MoM, up 1.2% YoY

Truck tonnage index +1.2% YoY in January

Demand for truck haulage continues to grow, but supply shortages are still an obstacle for the industry. Truck tonnage was up during December for the fifth consecutive month, but it is

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worth noting that the index fell by 4.6% from April to July so not quite back to the levels observed in 2020. The American Trucking Association released its seasonally adjusted Truck Tonnage Index for January on Tuesday [LINK]. January observed a 0.6% increase MoM from December, after increasing 1% last month. It was the sixth consecutive month with a gain and Chief Economist Bob Costello noted, "*January's gain was the sixth straight totaling 4.4%. The index, which is dominated by contract freight with only small amounts of spot market truck freight, is off 3.9% from the all-time high in August 2019 and only 1.5% below March 2020 when the pandemic hit. In January, truck tonnage was helped by rising retail sales and factory output. While housing starts fell last month, which is another important driver of truck tonnage, it remained at high levels.*" The index is up 1.2% YoY from January 2021, with a consecutive YoY gain. Trucking serves as a barometer of the U.S. economy, representing 72.5% of tonnage carried by all modes of domestic freight transportation, including manufactured and retail goods. Trucks hauled 11.84 billion tons of freight in 2019. Motor carriers collected $791.7 billion, or 80.4% of total revenue earned by all transport modes. Our Supplemental Documents package includes the ATA release.

Figure 40: Truck Tonnage Index

Source: ATA

Oil & Natural Gas – increasing and huge wildcards/risk from Russia-Ukraine

Russia/Ukraine

There is so much uncertainty/risk from the rapidly moving and changing story, but our overall view as of 7:15am MT, is that there is increasing risk to what happens. All we have seen are surprises and escalation and less sign of a quick end. And if there is no sign of a quick end, it means there is more risk to disruptions in Russia's dealings with the world. To date, the west has tried to specifically exclude energy (and said soi), but it's hard to tell where the next escalation comes and Putin's response. The events and actions related to Russia's invasion of Ukraine are moving fast and furious today. And by the time people read the memo before noon MT, there will be even more changes. Our news cut off was 7:15am MT, it is normally 7am MT but we just saw the Russian breaking news. The best we can do on a rapidly moving story is to try to highlight some of the key news/actions in the last couple days. (i) The unpredictability of Putin's response was just shown and why we delayed our news cut off for 15 min. We don't think people expected Putin's comments this morning. We tweeted [LINK] on the TASS 7:15am MT report [LINK] Putin said "*Top officials in NATO's leading countries have been making aggressive statements against our country. For this reason, I give orders*

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to the defense minister and chief of the General Staff to introduce a special combat service regime in the Russian army's deference forces." Our tweet noted that in western terms that is being described as putting his forces, including his nuclear deterrence force, on High Alert. (ii) Earlier this morning, we tweeted [LINK] on Germany's big actions "*Breaking #DE defense spending >2% of GDP, approved 2 #LNG terminals. On top of halted #NordStream2 certification, sending critical anti tank & anti aircraft Stinger missiles. @BundeskInzier looks like global leader of action, not just words. #OOTT #NatGas".* The big news is that Germany is sending 1,000 anti tank missiles and 500 anti aircraft Stinger missiles. This is exactly what Ukraine needs, and hopefully they can get them there quickly. (iii) Increased risks to shipping. There have been reports of at least three merchant cargo ships hit in the Black Sea. (iv) Supply chain delays/interruptions. This is a fast moving story so we are seeing a range of reports that have to delay or interrupt the energy supply chain including difficulty in getting letters of credit for Russian oil/products tanker deliveries, insurance cost reviews, etc. (iv) The cyber attack on the Kremlin website on Friday was more an annoyance, but we believe it is just the start of the cyber war. (v) Yesterday's "*Joint Statement on Further Restrictive Economic Measures*" [LINK] that included "*Specifically, we commit to undertake the following measures: First, we commit to ensuring that selected Russian banks are removed from the SWIFT messaging system. This will ensure that these banks are disconnected from the international financial system and harm their ability to operate globally. Second, we commit to imposing restrictive measures that will prevent the Russian Central Bank from deploying its international reserves in ways that undermine the impact of our sanctions."* The attention is on SWIFT and the criticism it wasn't a blanket SWIFT removal. But we also highlight the restrictions on the central bank from deploying its international reserves. (vi) As of yet, there has been no direct impact on energy imports, but the early morning reports are that some of the countries, like the UK, want to discuss some sort of restrictions on importing Russia energy.

Bloomberg's "*All about SWIFT*"

Yesterday, we tweeted [LINK] "*Timely recap as #SWIFT is topical with pressure on @OlafScholz to support taking RUS off #SWIFT. "a country cut off from SWIFT can suffer significant economic pain. That's what happened to Iran in 2012". Thx @nickcomfort @nat_droz @SStapczynski #OOTT."* It turned out to be timely as later on Saturday, the west issued their joint statement noted above. Our tweet linked to Bloomberg's "*All About Swift, One Possible Path to Sanction Russia*". It's a good read on SWIFT. Our Supplemental Documents package includes the Bloomberg report.

Oil & Natural Gas – EIA reminds of high decline rates in US oil and gas production

High decline rates in shale/tight plays

The Diamondback 2022 guidance reminded of the challenge for shale/tight oil and natural gas plays – they have high initial decline rates. Last week, the EIA posted two blogs that show the general scope of the decline rate challenge. The EIA did not provide the actual rist year decline rates, but only said "*legacy production, or crude oil production from existing wells, typically declines relatively quickly in tight oil formations*". The US shale/tight oil and gas players are generally happy if their overall decline rates are below 30%. This isn't the high first year decline rate of a new well, but the overall 1st year decline for their entire oil and gas production base. The EIA forecasts US crude oil production +760,000 b/d YoY to 12.0 mmb/d, and +630,000 b/d YoY in 2023 to average 12.6 mmb/d. The EIA forecast US natural

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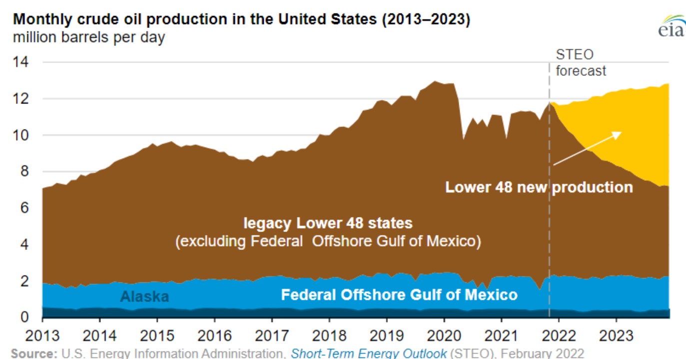
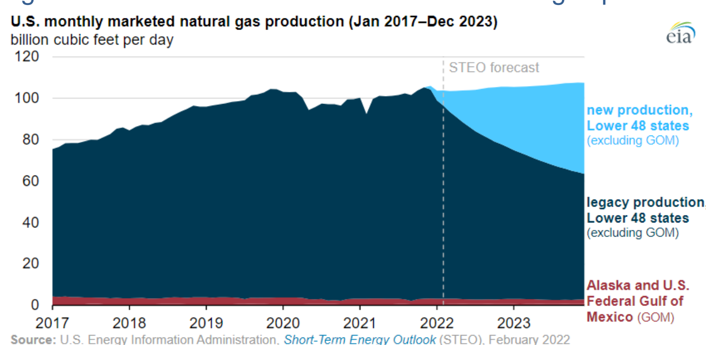
gas production to average 104.4 bcf/d in 2022 and then a new record high of 106.6 bcf/d in 2023. The EIA blogs do not show first year decline, but rather show overall decline rate of the entire production base. The blogs were the Feb 16 blog "*U.S. crude oil production forecast to rise in 2022 and 2023 to record-high levels*" [LINK] and Feb 16 blog "*U.S. marketed natural gas production forecast to rise in 2022 and 2023*" [LINK]. Our Supplemental Documents package includes the two blogs.

Figure 41: EIA Forecast US oil production



Source: EIA

Figure 42: EIA forecast US marketable natural gas production



Source: EIA

Energy Transition – Shell reminds of intermittency of renewables

Shell reminds renewable is intermittent

There was another data reminder from the Shell LNG Outlook 2022 on how renewable power is intermittent. On Monday, we tweeted [LINK] *"#Shell reminds of intermittency of #RenewableEnergy. EU renewable capacity was +6% YoY in 2021, but, primarily due to low #WindEnergy, EU renewable generation was -3% YoY. #NatGas is the reliable fuel needed to support continued big Renewable growth. #OOTT #EnergyTransition."* Shell's presentation include the below graphic. We listened to the webcast and mgmt noted that the issue was low wind generation in 2021. As a result, Europe renewable capacity was +6% YoY in 2021, but its renewable generation was -3% YoY. So more capacity but less generation. There were other slides that highlighted this such as the slide titled "*Gas is there when the sun does not shine, wind does not blow or rain does not fall*".

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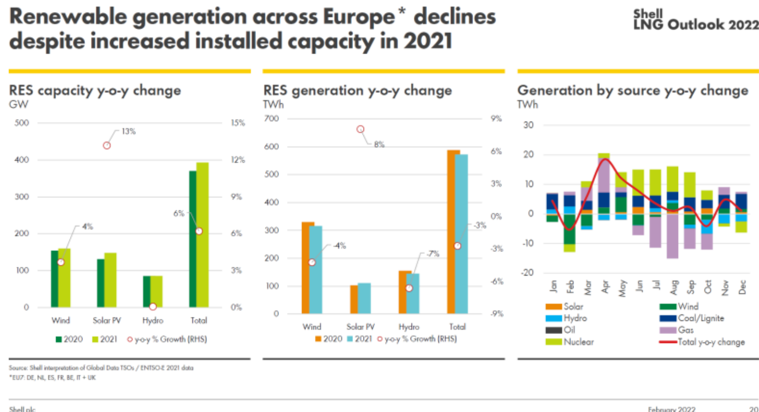
Figure 43: Europe Renewable Capacity vs Generation



Source: Shell

Energy Transition – US Postal Service $11.3b fleet replacement is ~90% ICE/10% BEV

USPS to focus on ICE for fleet upgrade

Here is a good example why it's important for presidents to change govt agencies heads if they want support for their agenda. US Postal Service (USPS) is still being run by Trump appointee Louis DeJoy and he ignoring one of Biden's Jan 27, 2021 Executive Order to move Federal fleets to clean and zero emission vehicles. The USPS announced that they will be replacing their aging mail trucks with 165,000 new vehicles, with approximately 10% expected to be battery electric vehicles (BEVs) and the remainder being internal combustion engine vehicles (ICEs) for total expenditure of $11.3b [LINK]. The USPS remains committed to its obligations under the Next Generation Delivery Vehicle process in which they are committed to the fiscally responsible roll-out of electric vehicles within their fleet. The NGDV will introduce 5.000 BEVs by 2023. The USPS CEO commented *"our commitment to an electric fleet remains ambitious given the pressing vehicle and safety needs of our aging fleet as well as our fragile financial condition. As our financial position improves with the ongoing implementation of our 10-year plan, Delivering for America, we will continue to pursue the acquisition of additional BEV as additional funding – from either internal or congressional sources - becomes available, the U.S. Postal Service have waited long enough for safer, cleaner vehicles to fulfill on our universal service obligation to deliver to 161 million addresses in all climates and topographies six days per-week."* The Postal Service communicated its completion of the NEPA process in a record of decision (ROD) filed with the Federal Register. The NGDV program provides for the introduction of internal-combustion and electric-powered, purpose-built vehicles that deliver significant reductions in vehicle emissions and improvements in fuel economy versus the existing delivery vehicle fleet. Our Supplemental Documents package includes the USPS update.

Capital Markets – IFIC: Mutual funds and ETF assets -2.0% in January

Mutual Fund & ETF assets decrease MoM

On Tuesday, the IFIC (Investment Funds Institute of Canada) reported [LINK] mutual funds and ETF sales for January. IFIC does not provide any commentary on the numbers but there should be no surprise that the assets are down. Energy stocks had a another good month in January, but broad markets were down in January ie. Nasdaq -8.5%. So market price

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decreases accounted for majority of the overall decrease in net assets. For January, the IFIC reported "*Mutual fund assets totalled $2.021 trillion at the end of January 2022. Assets decreased by $55.3 billion or 2.7% compared to December 2021. Mutual funds recorded net sales of $7.2 billion in January 2022. ETF assets totalled $342.5 billion at the end of January 2022. Assets decreased by $4.6 billion or 1.3% compared to December 2021. ETFs recorded net sales of $5.1 billion in January 2022.* Our Supplemental Documents package includes the IFIC release.

Capital Markets – USDA consumer price index for food +7.0% YoY

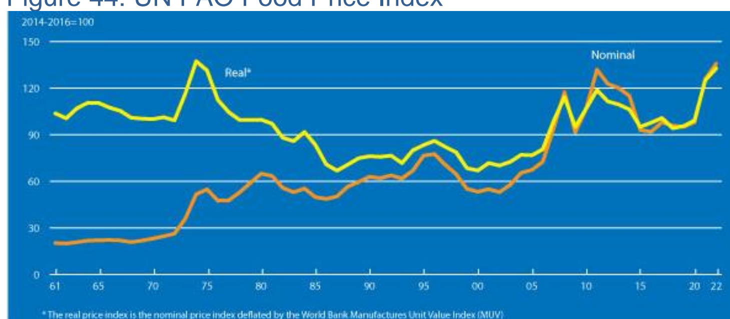
USDA consumer price index for food

Whenever we see the US government food price data, we still keep asking our friends who live in the US if they believe their food bills are only up, in this case 7% 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 Jan on Friday [LINK], and we wanted to hear their reaction to the USDA numbers. The USDA posted its consumer price index for food data for Jan, which is +1.0% MoM and +7.0% YoY; while this is an increase MoM, it still seems low given the rapidly increasing grocery bills being reported. This is for the overall food price index, which weights various changes like beef/veal +16.0% YoY, pork +14.1%, eggs +13.1% with changes like fresh vegetables +5.6% YoY, dairy products +3.1% YoY and cereals & bakery products +6.8% YoY. We also just don't see how the USDA won't be low in their 2022 forecast which predicts price escalation between 2.5-3.5% throughout the year.

Recall UN FAO Food Price Index for Jan was +19.6% YoY

Our Feb 6, 2022 Energy Tidbits highlighted the Feb 3 release of the UN FAO Food Price Index [LINK] titled "*FAO Food Price Index rebounded in January.*" Note this is on a real price basis. The FFPI averaged 135.7 points for Jan 2022, which was -0.9% MoM and +23.1% YoY. All food categories registered monthly increases. The Cereal Price Index was +0.1% MoM and +12.5% YoY and Dairy Price Index that was +2.4% MoM and +18.7% YoY. The Vegetable oil Index was up 4.2% MoM marking an all time high. Below is the all time FFPI graph.

Figure 44: UN FAO Food Price Index



Source: UN

Demographics – 4 in 5 Cdn say they changed food buying habits

High food prices affecting Canadians

Increasing food prices continue to impact Canadian households, forcing many to adjust their budget for food. The Angus Reid Institute released a report on Tuesday [LINK], which found

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the 4 in 5 Canadians have changed what they are eating to accommodate for inflation. For those with children under 13 in their household, nine in ten (89%) say they've changed up their food shopping habits in response to rising prices. This includes 3 in 5 (60%) who have switched to cheaper brands at the grocery store, more than the 2 in 5 (42%) of those without young children in the household that say the same. Survey respondents in Saskatchewan, Manitoba and Atlantic Canada appear to be most affected by rising prices with 53%, 53% and 56% respectively indicating difficulties feeding their families. Across the country, a majority in every province would like to see a pause in supply management or for supply management be done away with completely. Surprisingly the survey says that even high-income families are making changes to their grocery lists. 62% or respondents with and income of $200K or more noted they were eating out less, while 34% in this income bracket indicated they were eating less meat and 29% saying they have begun switching to cheaper brands. Households with incomes below $25k saw 69% say they were eating out less, 41% indicate buying less meat and 59% saying they have switched to cheaper brands. Middle income earners, $50k-99k saw 63% indicate they were eating out less, 46% say they have switched to lower quality brands and 39% indicating they have reduced their consumption of meat. Men aged 18-34 were the most likely group to cut back on their consumption of alcohol to save money with 36% of respondents indicating this as their strategy. Below is a table outlining the survey responses based on household income.

Figure 45: Household Adjustments to Rising in Food Prices

Are you or your household doing any of the following more than usual because of food prices?

	Total (n=1,622)	Household Income					
		<$25K (n=138)	$25K-$49K (n=260)	$50K-$99K (n=538)	$100K-$149K (n=304)	$150K-$199K (n=125)	$200K+ (n=76*)
Eating out less	62%	65%	69%	62%	63%	56%	52%
Switching to cheaper, lower quality brands	46%	59%	57%	46%	43%	29%	29%
Cutting back on meat	35%	41%	41%	39%	28%	28%	34%
Cutting back on alcohol	25%	29%	28%	27%	25%	21%	21%
Cutting back on fresh fruit and vegetables	21%	37%	27%	20%	14%	13%	16%
Gone to a food bank for groceries	4%	15%	6%	2%	1%	2%	2%
Other	10%	12%	12%	9%	9%	11%	5%
None of these	19%	10%	11%	20%	19%	33%	30%

Source: Angus Reid

Demographics – Russian population fell by 1 million in 2021

The declining population rate continues to be one of Putin's biggest concerns in the future of Russia. Bloomberg reported on Friday [LINK] that the natural decline in Russia's population stood at 1,042,675 for the year in 2021; this is the first time the figure has exceeded 1 million

High food prices affecting Canadians

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since the inception of the Russian Federation in 1991. The figure doubles the natural decline rate in 2020, though the statistics industry primarily attributes the sharp decline to deaths associated with the Covid-19 pandemic; Russia was the third worst hit country by the novel virus. The total number of deaths increased at a significant 15.1%, for a total of 2.4 million deaths in 2021. The steadily declining birth rate stood at 1.4 million in 2021 -2.3% from 2020 and the lowest it has been since 2002. Putin has made increasing Russia's birth rate a priority of his policy agenda, offering tax breaks, welfare benefits and free school meals, as well as his signature "materinskiy kapital" – one-off payments to families upon the birth of a new child. Our Dec 26 Energy Tidbits noted Putin's comments at a press conference in which he stated *"We have domestic issues typical of Russia, primarily demographic problems. We had two natural declines in our demographic development: during World War II or the Great Patriotic War, as we call it, in 1943–1944, and in the early and middle 1990s after the collapse of the Soviet Union. There was an equal drop in the birth rate. It was the lowest in 1999 – I believe a little over 1,200,000. In 2006, we already had almost two million births – more than 1,900,000. This problem has acquired a systemic and economic character due to the shortage of workforce in the labour market. We have a little over 80 million there and our losses amount to 1.1–1.2 percent a year. In this context, demographics is one of our main problems both for humanitarian and economic considerations, and because we need to strengthen our statehood as well.*" Our Supplemental Documents package includes the Bloomberg report.

Putin's greatest concern is Russia's shrinking population

Here is what we put in our Dec 26, 2021 Energy Tidbits. "*Putin's big press conference comments on Russia's population reminded us of an item we forgot to include in our Dec 5, 2021 Energy Tidbits – Putin's greatest concern is the shrinking Russia population. This week, Putin noted "There are issues that cannot but cause concern, including life expectancy, which has slightly decreased from 71.5 to 70.1 years." The item we forgot to include was Putin's comments at the "Russia Calling! Investment Forum" on Nov 30. [LINK]. Putin was asked "What keeps you awake at night?" In the sense, "What is your greatest concern?". Putin responds "We have domestic issues typical of Russia, primarily demographic problems. We had two natural declines in our demographic development: during World War II or the Great Patriotic War, as we call it, in 1943–1944, and in the early and middle 1990s after the collapse of the Soviet Union. There was an equal drop in the birth rate. It was the lowest in 1999 – I believe a little over 1,200,000. In 2006, we already had almost two million births – more than 1,900,000. This problem has acquired a systemic and economic character due to the shortage of workforce in the labour market. We have a little over 80 million there and our losses amount to 1.1–1.2 percent a year. In this context, demographics is one of our main problems both for humanitarian and economic considerations, and because we need to strengthen our statehood as well. I will not enumerate all the measures and instruments we are using and intend to continue using in the future in order to tackle this problem. In general, we managed to get things moving in the recent past. Overall, we understand what we can do and know how to do it."*

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Demographics – Japan sees declining birth and marriage rates

Japan has higher natural population decline

The number of childbirths in Japan dropped to a fresh record low in 2021, the sixth year in a row it has done so. The Straits Times reported on Friday [LINK] that in preliminary data released on Feb 25, there was a 3.4% decline in births at 842,897, or 29,786 fewer births from a year ago. The article noted *"Japan's fertility rate last year stood at 1.33, which is far less than the government's official target of 1.8 by 2025. This not only appears out of reach, but is below the replacement rate of 2.1 that is required to maintain the population at a constant level."* The decline is believed to be a result of younger people refraining from getting pregnant due to anxieties surrounding healthcare and the economic future as Covid first began to spread. The preliminary data applies childbirths among Japanese and Foreigners alike, the finalised data that will be released later this year is expected to be worse, as it will apply solely to citizens in Japan. A compounding factor contributing to the declining fertility rate is the number of marriages in 2021, which dropped to a post war low of 514,242 couples, down 4.3% from 2020. This is expected to worsen the fertility crisis as very few babies are born in Japan out of wedlock. Our Supplemental Documents package includes the Straits Times article.

Demographics – South Korea birth rate declines in 2021

Korean declining birth rate

Korea's fertility rate hit record lows in 2021 as the total number of newborns fell for a consecutive year, continuing to highlight the countries bleak demographic situation. The Korea Times reported on Wednesday [LINK] that the number of children women could bear in her lifetime fell to 0.81% in 2021, down from 0.84% in 2020 which is the fourth consecutive year of fertility below 1% and the lowest since 1970. South Korea is the only member OECD nation that was below 1% with the member average at 1.61%. Forecasts for the fertility rate point to a continued decline to 0.7% in 2021 before rebounding back to 1% in 2031. The data underpins the key demographic issue of declining birth rates and a rapidly aging population, as many young South Koreans have delayed or given up on having children amid the prolonged economic slowdown and rapidly increasing housing prices. Falling birthrates is expected to accelerate the "demographic cliff", a phenomenon in which a major drop in the working age population creates a labour supply shortage and limits economic growth. The country's working-age population or people aged 15 to 64, came to 37.4 million in 2020, accounting for 72.1% of the total. This population is forecast to continue to fall and reach 17.4 million in 2070, down 53.5% from 2020 levels. Our Supplemental Documents package includes the Korea Times article.

Demographics – Nordic countries have increasing birth rates coming out of Covid

Nordic countries birth rates up

We, like others, had wondered if Covid might be like seen during big blackouts with a birth spurt. But that hasn't been the case to the most part. As noted above, coming out of Covid, we are seeing declining birth rates in key Asian countries, but they aren't alone ie. also US. There is one area that looks to be bucking that trend – the Nordic countries. And it appears that the key reason is the "*robust social safety nets*". The reality is that Nordic countries and others need to have stronger birth rates as immigration is more stringent. On Wednesday, Bloomberg reported on Finland saying "*The number of live births jumped 6.7% last year, the most in nearly five decades. Other nations on Europe's northern rim have experienced their own pandemic baby bumps, making the region of 28 million people an outlier among advanced economies, several of which have seen fertility rates drop to historic lows."* Bloomberg also reported as to why, writing "*Researchers looking for clues to why the Nordics*

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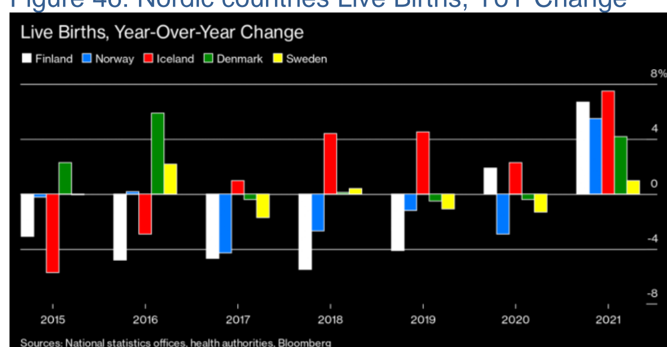
bucked the trend have converged on a likely answer: Robust social safety nets, including policies designed to ease the burden of parenthood, insulated couples from the economic stresses experienced by peers in other industrialized countries." Our Supplemental Documents package includes the Bloomberg report.

Figure 46: Nordic countries Live Births, YoY Change



Source: Bloomberg

Demographics – Do texts/emails build same relationships as meetings/phone calls?

Texts/emails vs meetings/phone calls

Its been interesting to hear comments from some senior oil people about the changing world of financial relationships. Part of it is due to view that the oil and gas sector is a much smaller part of the business for financial firms, especially in the increasing ESG world. But part of it is also due to the changing way of doing business and they wonder if business will go back to the pre-Covid world of meetings and phone calls instead of emails and texts. The comment is that they don't feel the depth of relationships anymore. We remind that a part is that there just isn't the money in for those firms. Regardless, it's the concept the new way of doing business may not be building the depth of relationships. There was a good comment from NFL Washington Commanders head coach Rivera talking on the Brian Flores lawsuit that reminds of relationship building. Bleacher Report wrote [LINK] "*Rivera told Mike Florio of Pro Football Talk on Friday the case will help bring attention to the need for broader representation within NFL coaching staffs: "First of all, I think what Brian is doing is courageous and it really truly is bringing everything to the forefront and to the light. I think it is important because the biggest problem in my opinion that minorities face is that people don't know these guys. You have to get to know who they are to give them opportunities. I have a friend who's in sales and he's always told me, 'You need three elements if you're going to sell. People have to get to know you, people have to get to like you and people have to get to trust you to buy from you.'"*

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.

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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.

>1.3 million Ukrainians in Canada

There is a big Ukrainian population in Alberta, but we suspect most will be surprised by the Wikipedia numbers [LINK] that estimate, outside of Ukraine and Russia, Canada is next with the most Ukrainians estimated at >1.3 million. What is cool is that there is consensus of the first officially recorded Ukrainian immigrants to Canada – Ivan Pylypiw and Wasyl Eleniak been documented to arrive in Canada on Sept 7, 1891. Having said that, there are many more undocumented reports of Ukrainian immigrants before Pylypiw and Eleniak. There was a big influx of Ukrainians around 1900. The trans continental railway in 1895 opened western Canada and Canada wanted immigrants, in particular from agriculture countries like the Ukraine, to farm the lesser quality farmlands.

William Shatner, Alex Trebek and Wayne Gretzky

If this was Jeopardy, we would reply "Who are famous Canadians with Ukrainian ancestry". Albeit it goes back to their parents and grandparents, but they are three of the famous Canadians with Ukrainian ancestry. In particular, there are a lot of great hockey players that fit tis group. Here would be one example of the all star team: Goal – Terry Sawchuk. Defense – Wayne Babych and Lindy Ruff. Centre – Wayne Gretzky. Right Wing – Mike Bossy. Left Wing – Johnny Bucyk. There were a lot of great centres like Dale Hawerchuck, Bernie Federko, Tom Lysiak, etc. Plus some of the best all time fighters including Dave Semenko, Stan Smyl and Orest Kindrachuk. Lastly, can't help mention a couple of the Toronto Maple Leafs from their 60's heyday – Johnny Bower and Eddie Shack.

Reminder Ontario provincial election by June 2, 2022

Politicians are no different in the US or Canada or elsewhere so it's easy to see when an election is approaching. The next Ontario provincial election is no later than June 2, 2022. On Tuesday, Ontario announced "*Ontario's Newest Red Tape Reduction Act Features Fewer Fees, Better Services. Package increases affordability and simplicity for people and businesses."* [LINK] Some appeal to everyone like "*cutting costs for million of Ontario vehicle owners by refunding licence plate sticker renewal fees paid since March 1, 2020*". Some were targeted at key voter regions such as Durham Region, on the eastern border of Toronto "*Giving commuters a break by removing tolls from Highways 412 and 418. This responds particularly to requests from municipal leaders and Indigenous communities in Durham Region."* Current seats in the 124 legislative assembly are Progressive Conservatives 68, New

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Democrat 40, Liberal 7, Green 1, New Blue 1, Ontario Party 1, Ontario First Party 1, Independent 3, and Vacant 2. Some of these parties will surprise those who don't follow Ontario politics. Our Supplemental Documents package includes the Ontario announcement.

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