Energy Tidbits

April 3, 2022

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Liberals Emissions Reduction Plan Is Setting Up the Oil & Gas Sector for Failure

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 Liberals Emissions Reduction Plan (see pg 197) is setting up the Cdn oil and gas sector for failure (Click Here)
2. Biden's budget proposals takes away incentives to drill and maintain low rate oil and gas producing wells. (Click Here)
3. AMLO's "plan emergente" means Mexico will focus on keeping oil exports up and not reducing in 2022. (Click Here)
4. Two more Asian LNG buyers lock in 20-yr supply (Click Here)
5. Biden's big 180 mmb oil release from SPR is a 160 mmb "sale" and a previously 20 mmb "exchange" (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 build of 26 bcf, storage now -347 bcf YoY deficit

YoY storage at -347 bcf YoY deficit

The end to winter natural gas is a week away, but, considering how warm it was in the US this winter, it's been a good winter for gas storage with a modest widening of the YoY storage deficit from -282 bcf YoY at Oct 31 to current -347 bcf YoY. The EIA reported a 26 bcf injection (vs 26 bcf injection expectations) for the Mar 25 week, which was less than the 5-yr average draw of -23 bcf, and above last year's injection of 14 bcf. Storage is 1.415 tcf as of Mar 25, increasing the YoY deficit to -347 bcf, from 216 bcf last week and storage is 244 bcf below the 5-year average vs 255 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 (03/25/21)		Historical Comparisons: 5-year average (2017-21)	
Region	03/25/22	03/18/22	net change	implied flow	Bcf	% change	Bcf	% change
East	268	268	0	0	307	-12.7	285	-6.0
Midwest	317	318	-1	-1	402	-21.1	378	-16.1
Mountain	89	87	2	2	112	-20.5	99	-10.1
Pacific	161	157	4	4	194	-17.0	175	-8.0
South Central	581	559	22	22	747	-22.2	721	-19.4
Salt	169	156	13	13	224	-24.6	220	-23.2
Nonsalt	412	404	8	8	522	-21.1	501	-17.8
Total	**1,415**	**1,389**	**26**	**26**	**1,762**	**-19.7**	**1,659**	**-14.7**

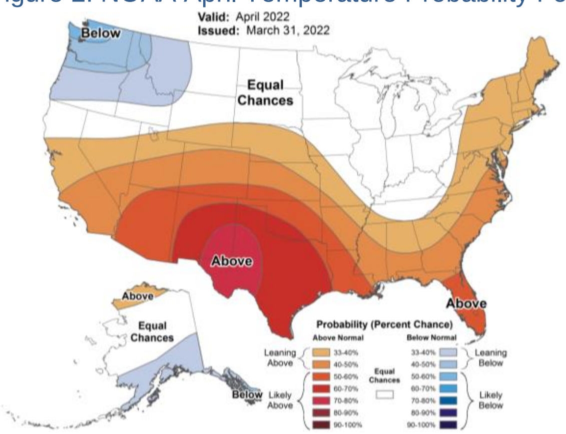
Source: EIA

Natural Gas – NOAA's expects warm April in US south, but it's shoulder season

NOAA monthly forecasts

On Friday, NOAA posted its look ahead at April temperatures [LINK]. There should not be a big impact to natural gas demand as temperatures will still be mostly shoulder season where it's not hot enough to drive big air conditioning demand. The forecast expects temperatures in the high 20s for southern states like Texas and Florida and calls for temperatures in the mid teens along the US east coast and the Midwest is expected to have normal temperatures. Below is a graphic depicting NOAA's monthly outlook.

Figure 2: NOAA April Temperature Probability Forecast



Source: NOAA

Natural Gas – US Jan gas production down 2.4 bcf/d MoM, +2.1 bcf/d YoY

There is no change to the US natural gas story that US natural gas supply from both dry shale gas and association gas from shale/tight oil continues to be up strongly YoY. However, it looks like weather was an issue for Jan natural gas production. The EIA released its Natural Gas Monthly on Thursday, [LINK], which includes its estimates for "actuals" for January gas production. US gas production in January was 94.9 bcf/d, down MoM from December of 97.3 bcf/d and up 2.1 bcf/d YoY. Note that December's data was revised upwards by +0.1 bcf/d from 97.2 bcf/d last month. There continues to be a YoY surplus of +2.1 bcf/d and +4.8 bcf/d for the month of January and December, respectively. January production is down 2.01 bcf/d since the Dec/19 peak of 97.0 bcf/d and 0.3 bcf/d above March 2020 of 94.6 bcf. Our Supplemental Documents package includes excerpts from the EIA Natural Gas Monthly.

Figure 3: US Dry Natural Gas Production

bcf/d	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	56.0	60.0	66.0	65.3	66.8	73.4	73.6	70.6	78.7	89.4	95.1	92.8	94.9
Feb	57.2	58.8	67.0	65.4	68.4	73.8	77.3	71.5	80.4	90.0	98.1	86.2	
March	57.3	61.5	65.0	65.3	68.9	74.1	73.8	73.2	81.3	90.6	94.6	92.3	
Apr	57.6	62.3	64.8	66.1	70.5	75.2	73.7	73.3	81.2	91.0	92.9	93.2	
May	58.0	62.4	65.0	65.9	70.2	74.1	72.9	73.3	82.1	91.7	87.8	93.0	
June	57.2	62.1	64.6	65.8	70.5	74.0	72.2	74.0	82.5	92.0	88.4	93.2	
July	58.2	62.5	66.3	67.1	72.0	74.2	72.8	74.7	84.2	92.5	89.8	93.7	
Aug	58.9	63.2	66.0	66.9	72.4	74.3	72.2	74.7	85.9	94.8	90.2	94.3	
Sept	59.1	63.1	66.4	66.8	72.4	74.7	71.7	76.0	87.3	94.7	89.5	93.6	
Oct	60.1	65.1	66.5	67.0	73.1	74.2	71.4	77.3	88.4	96.0	88.9	95.6	
Nov	60.1	65.9	66.6	67.7	72.6	73.9	72.0	79.8	89.9	96.7	92.0	97.0	
Dec	61.0	65.6	66.0	66.5	73.2	73.9	71.2	80.4	89.5	97.0	92.5	97.3	
Average	58.4	62.7	65.9	66.3	70.9	74.2	72.9	74.9	84.3	93.0	91.6	93.5	94.9

Source: EIA

Natural Gas – US LNG exports +1.6 bcf/d YoY in Jan to 11.4 bcf/d

US Dec LNG +1.6 bcf/d YoY

The story for US natural gas markets continues to be the increasing US LNG exports, which averaged a new monthly record of 11.4 bcf/d in Jan, which was +1.6 bcf/d YoY. The big driver to stronger (and higher downside support) US natural gas prices has been the ramp up in US LNG exports, which are up ~7 bcf/d over the past 3 years. This is over 2.5 tcf a year of added gas demand for US natural gas supply. On Thursday, the EIA Natural Gas Monthly reported "actuals" for US LNG exports were 11.4 bcf/d in January, which is up +1.6 bcf/d YoY and up +0.3 bcf/d from December of 11.1 bcf/d. The EIA expects exports will remain "at high levels" for the beginning of 2022. Note our table rounds to one decimal and the actual is 11.412 bcf/d for January. Below is our table of EIA's monthly LNG exports.

Figure 4: US LNG Exports (bcf/d)

(bcf/d)	2016	2017	2018	2019	2020	2021	2022
Jan	0.0	1.7	2.3	4.1	8.1	9.8	11.4
Feb	0.1	1.9	2.6	3.7	8.1	7.4	
March	0.3	1.4	3.0	4.2	7.9	10.4	
Apr	0.3	1.7	2.9	4.2	7.0	10.2	
May	0.3	2.0	3.1	4.7	5.9	10.2	
June	0.5	1.7	2.5	4.7	3.6	9.0	
July	0.5	1.7	3.2	5.1	3.1	9.7	
Aug	0.9	1.5	3.0	4.5	3.6	9.6	
Sept	0.6	1.8	2.7	5.3	5.0	9.5	
Oct	0.1	2.6	2.9	5.7	7.2	9.6	
Nov	1.1	2.7	3.6	6.4	9.4	10.2	
Dec	1.3	2.7	4.0	7.1	9.8	11.1	
Full Year	0.5	1.9	3.0	5.0	6.6	9.7	11.4

Source: EIA

Natural Gas – US pipeline exports to Mexico up MoM to 5.6 bcf/d in January

US Jan pipeline exports to Mexico up MoM

The EIA Natural Gas Monthly also provides its "actuals" for gas pipeline exports to Mexico, which were 5.6 bcf/d in January, which was up YoY and up from December of 5.4 bcf/d. There were no revisions to this month's data. It has also been a warmer than normal winter in many parts of Mexico, which has led to more open the windows weather and less air conditioning demand for power. Mexico natural gas production remains stuck below 5 bcf/d and the completion of new pipeline infrastructure such as the Wahalajara system [LINK] increases US penetration further into Mexico. Below is our table of the EIA's monthly gas exports to Mexico.

Figure 5: US Pipeline Gas Exports To Mexico (bcf/d)

bcf/d	2014	2015	2016	2017	2018	2019	2020	2021	2022
Jan	1.7	2.2	3.2	3.9	4.4	4.9	5.2	5.6	5.6
Feb	1.8	2.3	3.5	4.0	4.5	4.8	5.4	4.9	
March	1.9	2.4	3.3	4.2	4.3	4.8	5.4	5.9	
Apr	1.9	2.6	3.5	3.7	4.4	4.7	4.6	6.1	
May	2.0	2.8	3.7	4.0	4.4	5.0	4.7	6.2	
June	2.2	3.0	3.9	4.5	4.6	5.2	5.4	6.6	
July	2.2	3.3	4.0	4.4	4.9	5.4	5.8	6.4	
Aug	2.1	3.3	4.3	4.4	5.0	5.4	6.0	6.3	
Sept	2.2	3.3	4.1	4.2	5.0	5.4	6.1	6.0	
Oct	1.9	3.2	4.2	4.2	4.9	5.5	6.0	6.0	
Nov	1.9	3.0	4.0	4.5	4.7	5.3	5.5	5.5	
Dec	2.1	3.2	3.6	4.4	4.5	4.9	5.3	5.4	
Full Year	2.0	2.9	3.8	4.2	4.6	5.1	5.5	5.9	5.6

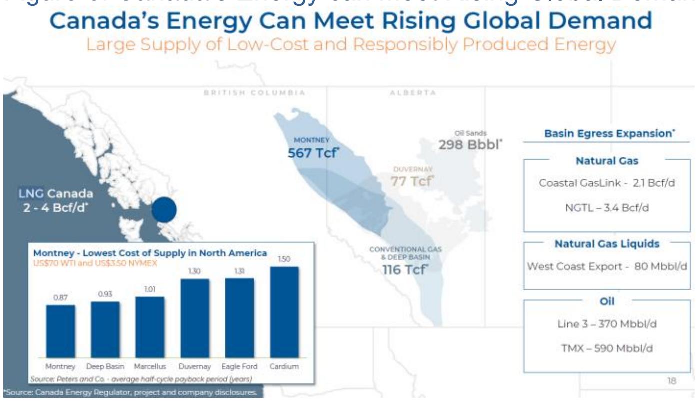
Source: EIA

Natural Gas – Sounds like Keyera is also bullish on LNG Canada Phase 2 FID odds

Keyera sounds bullish on LNG Canada Phase 2

We continue to be bullish on the potential for Shell to FID LNG Canada Phase 2 in 2022. Keyera held its investor day on Tuesday and we tweeted [LINK] on their comments in Q&A on LNG Canada. Keyera didn't specifically say they expected Shell to FID LNG Canada Phase 2, but they clearly saw the need & opportunity for the Phase 2. Mgmt was asked about their strong projected growth rate in their gathering and processing group. Mgmt replied "*"Robert and maybe just add we want to emphasize that we see a lot of growth in our basin over the next 5 years. And again, I think people forget about just how much market access that either been built or is getting built now and specifically with natural gas. Again you look at the coal to gas switching in Alberta more export capacity into the US and then LNG off the West Coast and I think there is a lot more demand beyond the first 2 trains, which is 2 bcf in demand. But when you add it all up, it translates to growth and a lot of that's going to happen in the Deep Basin and also the Montney, we're well situated. We are volume-based business, so as the volume. So as we see more growth in our basin. We expect to see increase volumes through our gas plants. And again the discussions that we're having with our customers sort of line with that view."* Below is the Keyera slide from the Investor Day.

Figure 6: Canada's Energy can Meet Rising Global Demand



Source: Keyera

Natural Gas – Two more Asian long term LNG deals with North American LNG projects

Two more Asian long-term LNG deals

We continue to believe the best data point to show the sooner and larger LNG supply gap is the continued push by Asian LNG buyers to lock up long term LNG supply. We have been calling the LNG supply gap for year now but we thinks it's even sooner and larger now with the western push to move away from Russian pipeline natural gas and pulling of capital from Russian LNG under construction LNG projects. This week, we saw two more Asian LNG buyers lock up long term LNG supply from North American LNG projects. Energy Transfer's 20 year deal with China's ENN and Mexico Pacific LNG's 20 year deal with China's Guangzhou Gas.

Energy Transfer's 20-yr 0.36 bcf/d deal with China's ENN

On Tuesday. Energy Transfer announced [LINK], a sale and purchase agreement with China's ENN. The deal will see 0.36 bcf/d of LNG be shipped from Energy Transfer's Lake Charles LNG export facility. The purchase priced is indexed to the Henry Hub Benchmark on a 20 year term with deliveries expected to begin in 2026. The SPAs will become fully effective upon the satisfaction of the conditions precedent by ET LNG, including reaching FID Energy Transfer commented *""We are very pleased to have ENN as a customer. The execution of these two SPAs represents a significant event in moving the Lake Charles LNG project towards FID. We are experiencing strong demand for long-term offtake contracts for Lake Charles LNG and we are optimistic that we will be in a position to take a positive FID by year end. The Lake Charles LNG project is expected to be financed primarily through infrastructure funds and strategic partners, with Lake Charles LNG retaining an equity stake and operatorship of the liquefaction facility."* Lake Charles LNG will be constructed on the existing brownfield regasification facility and will capitalize on four existing LNG storage tanks, two deep water berths and other LNG infrastructure. Our Supplemental Documents package includes the Energy Transfer release.

Guangzhou Gas Signs 20-year LNG deal with Mexico Pacific Ltd

On Friday, Guangzhou Gas filed [LINK] a new LT LNG deal with Mexico Pacific Ltd that will see 0.26 bcf/d of LNG be sent from Mexico Pacific's LNG facility. Cargoes will begin delivery upon the completion of financing and construction of the Mexican facility, for a term of 20 years. The price of the LNG cargoes will be liked to the Henry Hub index. Guangzhou looks to diversify its gas resources and increase its supply capacity amid the global gas volatility. In the company report, Guangzhou acknowledges special risk "*During the performance of the contract, there may be fluctuations in the linked index, industry policies, downstream sales, exchange rate fluctuations and trade controls, the seller's LNG facility cannot be Investors are advised to pay attention to investment risks due to the risks caused by factors such as financing and operation in the future.*" Our Supplemental Documents package includes the Google translate version of the Guangzhou announcement.

Mexico Pacific LNG is potential 1.7 bcf/d capacity

Here is what we wrote in our Sept 12, 2021 Energy Tidbits about Mexico Pacific LNG. "*Mexico Pacific is a greenfield LNG project on Mexico west coast with 3 equal phases and total of 1.7 bcf/d capacity for all 3 phases. On natural gas supply for the LNG, Mexico Pacific [LINK] notes how the Permian is an easy natural gas supply and says something that most aren't aware in terms of distance. It says "Located a similar distance to Waha as U.S. Brownsville projects, and closer than Louisiana projects. A robust network of existing, heavily underutilized natural gas pipelines with available capacity". Below is the NGI map from their report.*"

Figure 7: Mexico Pacific LNG

Source: NGI's Map of Mexico's Natural Gas Pipelines, Market Hubs & LNG Facilities 2022 Edition

Source: Natural Gas intelligence

Asian LNG buyers abruptly switched to long term LNG deals last July

Last week's (March 27, 2022) Energy Tidbits memo noted that Europe LNG buyers are 9 months behind Asian LNG buyers in locking up long term LNG supply. It was clear to many that there was a major change in LNG outlook. We turned very bullish on LNG outlook for the 2020s once TotalEnergies went force majeure on its Mozambique LNG in April 2021. We posted our April 28, 2021 blog *"Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?"* as we thought the market had overlooked that this force majeure backed up 5.0 bcf/d of Mozambique LNG that was originally planned to start in phases in 2024. And that this would create an earlier and larger LNG supply gap in the mid 2020s. Then we started to see validation of this view when Asian LNG buyers in July made an abrupt change to their LNG contracting and pivoted to trying to lock in long term LNG supply. On July 14, 2021 we posted our 8-pg "*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs".* Here is an excerpt from the blog "*The last 7 days has shown there is a sea change as Asian LNG buyers have made an abrupt change in their LNG contracting and are moving to lock in long term LNG supply. This is the complete opposite of what they were doing pre-Covid when they were trying to renegotiate Qatar LNG long term deals lower and moving away from long term deals to spot/short term sales. Why? We think they did the same math we did in our April 28 blog "Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?" and saw a much bigger and sooner LNG supply gap driven by the delay of 5 bcf/d of Mozambique LNG that was built into most, if not all LNG supply forecasts. Asian LNG buyers are committing real dollars to long term LNG deals, which we believe is the best validation for the LNG supply gap. Another validation, Shell, Total and others are aggressively competing to invest long term capital to partner in Qatar Petroleum's massive 4.3 bcf/d LNG expansion despite plans to reduce fossil fuels production in the 2020s. And even more importantly to LNG suppliers, the return to long term LNG contracts provides the financing capacity to commit to brownfield LNG FIDs. The abrupt change by Asian LNG buyers to long term contracts is a game changer for LNG markets and sets the stage for brownfield LNG FIDs likely as soon as before year end 2021. It has to be brownfield LNG FIDs if the gap is coming bigger and sooner. And we return to our April 28 blog point, if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? LNG Canada Phase 1 at 1.8 bcf/d capacity is already a material positive for Cdn natural gas producers. A FID on LNG Canada Phase 2 would be huge, meaning 3.6 bcf/d of Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub. And with a much shorter distance to Asian LNG markets. This is why we focus on global LNG markets for our views on the future value of Canadian natural gas."* Our Supplemental Documents package includes our April and July blogs.

There have been 6.24 bcf/d of long-term LNG supply deals since July 1, 2021
We first highlighted this abrupt shift to long term LNG supply deals in our July 14, 2021 8-pg "*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs".* We included a table of the deals done in that short two-week period. We continue to update that table, which now shows 6.24 bcf/d of long term LNG deals since July 1, 2021. 82% of the deals have been by Asian LNG buyers, but we are now seeing rest of world long

term deals post Russia/Ukraine. Below is our updated table of Asian and Europe LNG buyers new long term supply deals since July 1, 2021

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
Feb 4, 2022	CNPC	Gazprom	China / Russia	0.98	30.0	2023	2053
Mar 24, 2022	Guangdong Energy	NextDecade	China / US	0.20	20.0	2026	2046
Mar 29, 2022	ENN	Energy Transfer	China / US	0.36	20.0	2026	2046
Apr 1, 2022	Guangzhou Gas	Mexico Pacific Ltd	China / Mexico	0.26	20.0	n.a.	n.a.
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**5.35**			
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	0.11	20.0	2021	2041
March 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
March 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
March 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**0.89**			
Total New Long Term LNG Contracts since Jul/21				**6.24**			
*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, Company Reports							
Prepared by SAF Group https://safgroup.ca/news-insights/							

Source: Company reports, SAF Group

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

On Monday, Pemex reported its oil and gas data for February. Pemex reported natural gas production of 4.646 bcf/d, which was down -4.3% YoY and down slightly -1.42% MoM, from January. For the past 3 years, an ongoing theme of the Mexican energy sector, has been their inability to grow domestic natural gas production. As a result, Mexico has relied on imports from the US which are reaching record levels; US pipeline exports to Mexico have increased ~2 bcf/d since Jan 1, 2018. Pemex does not provide any commentary along with its production data. Below is our ongoing table of Pemex reported monthly natural gas production.

Mexico natural gas still stuck below 5 bcf/d

Figure 9: 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%	4.646	-4.3%
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	4.751	-0.4%		
Dec	5.380	4.811	4.881	5.024	4.846	4.697	-3.1%		

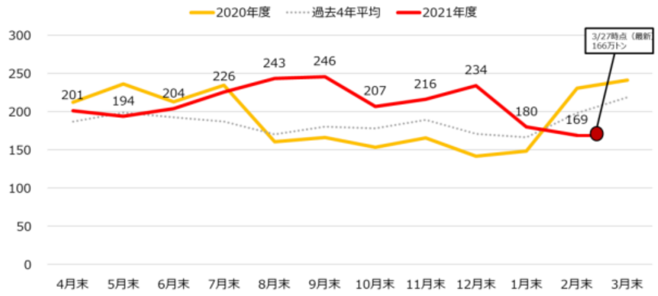
Source: Pemex

Natural Gas – Japan's LNG stocks -30% YoY

Japan LNG stocks -30% YoY

The cooler March temperatures and the continued offline of some thermal coal plants following the earthquake have helped keep Japan's LNG stocks down YoY. Japan's METI weekly LNG stocks data was released on Wednesday morning local time [LINK]. LNG stocks at March 27 were ~80 bcf, which is -30% YoY and -24% vs the 4-yr average. Below is the LNG stocks graph from the METI weekly report.

Figure 10: Japan's LNG Stocks



Source: METI

Natural Gas – How far will Putin go to implement pay in rubles for natural gas?

Putin's pay in rubles decree

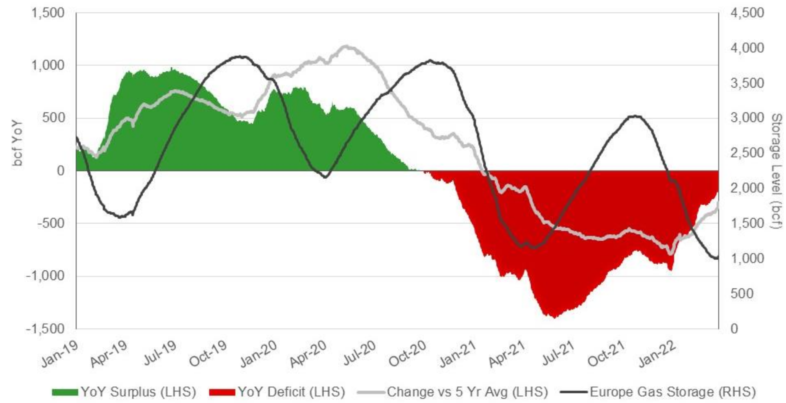
So far, all we have seen is the European countries saying no, they will not pay for Russian natural gas in rubles instead of euros and US$. Surely no one believes Putin will take no means no. Rather we think the question is how far will Putin go to implement or try to force European countries to do this? Especially the focus will be on Germany given Germany openly acknowledges it needs Russia pipeline natural gas or else it will be extremely hard on the economy. There is a big difference in how much/long countries can resist depending if there real only option is Russian gas via pipeline vs those that can increase, albeit at much higher cost, LNG imports. It's a good thing it isn't winter or else Putin's leverage would be on all countries. On Wednesday, TASS posted [LINK] the "*Decree of the President of Russia on the rules of gas trade with unfriendly countries. Full text*". "*1. Establish that from April 1, 2022: a) payment for the supply of natural gas in a gaseous state (hereinafter referred to as natural gas) carried out after April 1, 2022 by residents participating in foreign economic activity who, in accordance with Federal Law No. 117-FZ of July 18, 2006 "On Gas Export" the exclusive right to export natural gas in a gaseous state (hereinafter referred to as Russian suppliers), is* *made in rubles: under foreign trade contracts for the supply of natural gas (hereinafter referred to as contracts for the supply of natural gas) concluded with foreign persons, if the supply of natural gas is carried out to foreign states that commit unfriendly actions in relation to the Russian Federation, Russian legal entities and individuals; under contracts for the supply of natural gas concluded with foreign persons whose place of registration is foreign states that commit unfriendly actions against the Russian Federation, Russian legal entities and individuals".* Our Supplemental Documents includes the TASS report.

Natural Gas – Europe storage YoY deficit is now only 3.75% ie. 26.31% full vs 30.06%

Europe avoided natural gas shortages this winter with the combination of warmer weather, strong wind generation and a massive increase in US LNG imports. As a result, 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 to a YoY deficit of 3.75%. Draws to European gas storage units ended this week with the second observed build. It was a small injection but signals the beginning of the injection season as Europe exits the heating season. The YoY deficit is narrowing but, even still, 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 Mar 31 is still only at 26.31%, which is -3.75% less than last year levels of 29.98% and are -7.57% below the 5-year average of 33.88%. As winter draws come to an end we expect to see a decline in demand for LNG as less is used to heat homes as we enter the injection season. Below is our graph of Europe Gas Storage Level.

Europe storage now 26.31% full

Figure 11: Europe Gas Storage Level



Source: Bloomberg
Prepared by SAF Group https://safgroup.ca/news-insights/

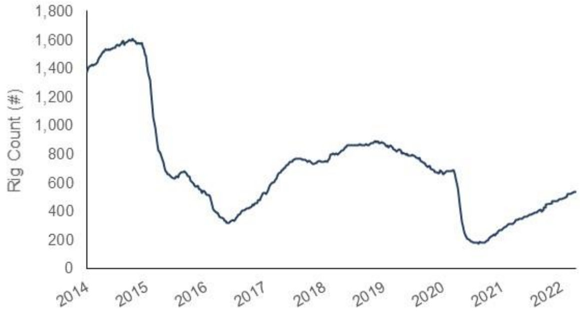
Oil – US oil rigs +2 WoW at 533 oil rigs at Apr 1

Baker Hughes released its weekly North American drilling activity data on Friday. We expected another increase given the ~$100/bbl WTI and producers have ramped up production with the elevated prices. There is still strong oil, NGLs and natural gas prices and

US oil rigs +2 WoW

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 +2 WoW at 533 oil rigs, with all major oil and gas basins up slightly. Oil rigs are +361 off the bottom of 172 in Aug14/2020 week. There were modest basin changes this week; Permian was up 4 at 322 rigs this week while Bakken was -1 at 32 rigs after increasing last week. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 155 to 531 oil rigs (-14%). US gas rigs were +1 WoW though still higher than normal with increases in the Marcellus basin reflecting the heightened $4 HH. Below is our graph of US oil rigs since January 1, 2014.

Figure 12: Baker Hughes Total US Oil Rigs



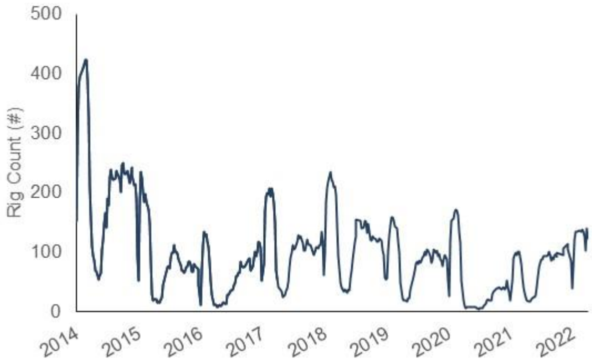
Source: Baker Hughes

Oil – Total Cdn rigs -16 to 124 total rigs, +65 rigs YoY

Cdn rigs -16 WoW

Total Cdn rigs were down -16 this week to 124 total rigs as the winter drilling season comes to an end. Cdn oil rigs were -12 at 64 rigs. Cdn gas rigs were -4 at 60 gas rigs. We should still declines in the coming weeks. Total rigs are now +111 since the June 26, 2020 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 24 and Cdn gas rigs were 45 for a total Cdn rigs of 69, meaning total Cdn rigs are +65 YoY and total rigs are +36 vs 2019.

Figure 13: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production up +0.100 at 11.7 mmb/d

It was the first increase in production after 7 consecutive weeks of flat US weekly oil production, at 11.7 mmb/d for the week ended Mar 25. Lower 48 production drove total production and was flat from last weeks level at 11.3 mmb/d this week, Alaska was also basically flat this week. US oil production is up YoY at +0.6 mmb/d from last year's February freeze and is still down significantly at -1.4 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. Absent weather impacts, we would expect US oil production to remain relatively flat if not inch up a little higher in Q1/22.

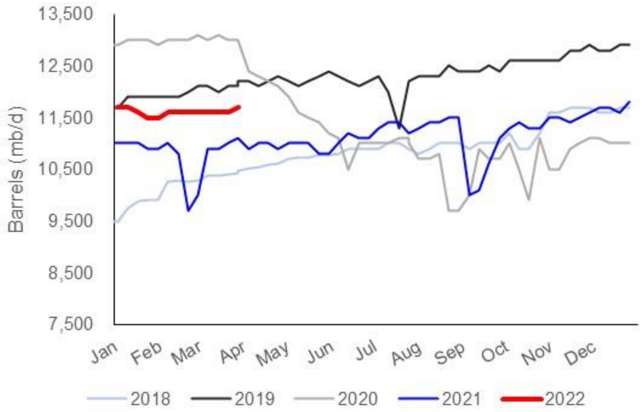
US oil production up WoW

Figure 14: EIA's Estimated Weekly US Oil Production

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2019-Jan	01/04	11,700	01/11	11,900	01/18	11,900	01/25	11,900		
2019-Feb	02/01	11,900	02/08	11,900	02/15	12,000	02/22	12,100		
2019-Mar	03/01	12,100	03/08	12,000	03/15	12,100	03/22	12,100	03/29	12,200
2019-Apr	04/05	12,200	04/12	12,100	04/19	12,200	04/26	12,300		
2019-May	05/03	12,200	05/10	12,100	05/17	12,200	05/24	12,300	05/31	12,400
2019-Jun	06/07	12,300	06/14	12,200	06/21	12,100	06/28	12,200		
2019-Jul	07/05	12,300	07/12	12,000	07/19	11,300	07/26	12,200		
2019-Aug	08/02	12,300	08/09	12,300	08/16	12,300	08/23	12,500	08/30	12,400
2019-Sep	09/06	12,400	09/13	12,400	09/20	12,500	09/27	12,400		
2019-Oct	10/04	12,600	10/11	12,600	10/18	12,600	10/25	12,600		
2019-Nov	11/01	12,600	11/08	12,800	11/15	12,800	11/22	12,900	11/29	12,900
2019-Dec	12/06	12,800	12/13	12,800	12/20	12,900	12/27	12,900		
2020-Jan	01/03	12,900	01/10	13,000	01/17	13,000	01/24	13,000	01/31	12,900
2020-Feb	02/07	13,000	02/14	13,000	02/21	13,000	02/28	13,100		
2020-Mar	03/06	13,000	03/13	13,100	03/20	13,000	03/27	13,000		
2020-Apr	04/03	12,400	04/10	12,300	04/17	12,200	04/24	12,100		
2020-May	05/01	11,900	05/08	11,600	05/15	11,500	05/22	11,400	05/29	11,200
2020-Jun	06/05	11,100	06/12	10,500	06/19	11,000	06/26	11,000		
2020-Jul	07/03	11,000	07/10	11,000	07/17	11,100	07/24	11,100	07/31	11,000
2020-Aug	08/07	10,700	08/14	10,700	08/21	10,800	08/28	9,700		
2020-Sep	09/04	10,000	09/11	10,900	09/18	10,700	09/25	10,700		
2020-Oct	10/02	11,000	10/09	10,500	10/16	9,900	10/23	11,100	10/30	10,500
2020-Nov	11/06	10,500	11/13	10,900	11/20	11,000	11/27	11,100		
2020-Dec	12/04	11,100	12/11	11,000	12/18	11,000	12/25	11,000		
2021-Jan	01/01	11,000	01/08	11,000	01/15	11,000	01/22	10,900	01/29	10,900
2021-Feb	02/05	11,000	02/12	10,800	02/19	9,700	02/26	10,000		
2021-Mar	03/05	10,900	03/12	10,900	03/19	11,000	03/26	11,100		
2021-Apr	04/02	10,900	04/09	11,000	04/16	11,000	04/23	10,900	04/30	10,900
2021-May	05/07	11,000	05/14	11,000	05/21	11,000	05/28	10,800		
2021-Jun	06/04	11,000	06/11	11,200	06/18	11,100	06/25	11,100		
2021-Jul	07/02	11,300	07/09	11,400	07/16	11,400	07/23	11,200	07/30	11,200
2021-Aug	08/06	11,300	08/13	11,400	08/20	11,400	08/27	11,500		
2021-Sep	09/03	10,000	09/10	10,100	09/17	10,600	09/24	11,100		
2021-Oct	10/01	11,300	10/08	11,400	10/15	11,300	10/22	11,300	10/29	11,500
2021-Nov	11/05	11,500	11/12	11,400	11/19	11,500	11/26	11,600		
2021-Dec	12/03	11,700	12/10	11,700	12/17	11,600	12/24	11,800	12/31	11,800
2022-Jan	01/07	11,700	01/14	11,700	01/21	11,600	01/28	11,500		
2022-Feb	02/04	11,600	02/11	11,600	02/18	11,600	02/25	11,600		
2022-Mar	03/04	11,600	03/11	11,600	03/18	11,600				

Source: EIA

Figure 15: US Weekly Oil Production



Source: EIA, SAF

Oil – EIA Form 914 January actuals up vs weekly production estimates

EIA Form 914 January

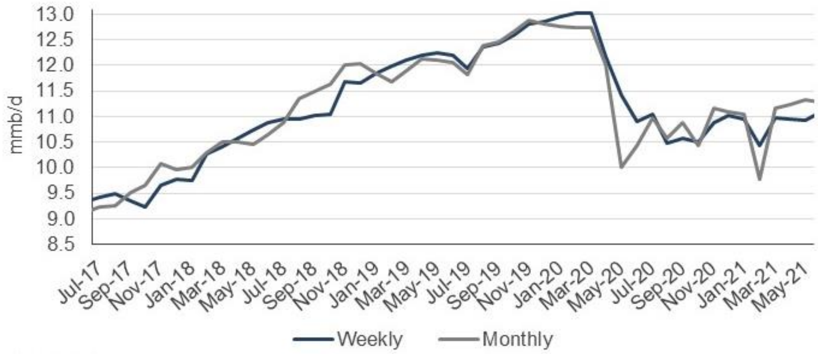
The EIA released its Form 914 data [LINK] on Thursday, which is the EIA's "actuals" for January US oil and natural gas production. Form 914 shows January production of 11.371 mmb/d, down from December production of 11.587 mmb/d after being revised down +20,000 b/d, and up 0.315 mmb/d YoY from January 2021 of 11.10.95 mmb/d. Three key items to highlight. (i) The actuals for January were below the EIA weekly estimates and also a little below, 0.025 mmb/d lower, than the EIA STEO February had for January. (ii) This is the first decline after seven consecutive months with YoY increases, and we expect to see this continue through the remainder of the year. (iii) With the beginning of the seasonal decline operations, the Texas had the largest MoM decrease, down -120,000 as oil rigs were slow to ramp up production after the holiday season and some colder weather towards the end of the month. The January actuals were -254,000 b/d above the weekly estimates average of 11.6 mmb/d for January, decreasing for the consecutive month.

Figure 16: EIA Form 914 US Oil Production

State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2022	11,371											
2021	11,056	9,773	11,160	11,230	11,334	11,288	11,330	11,206	10,851	11,526	11,769	11,587
2020	12,785	12,826	12,816	11,911	9,711	10,420	10,956	10,558	10,868	10,413	11,121	11,084
2019	11,848	11,653	11,899	12,125	12,141	12,179	11,896	12,475	12,572	12,771	12,966	12,910
2018	9,996	10,276	10,461	10,493	10,424	10,628	10,888	11,373	11,422	11,488	11,868	11,924
2017	8,873	9,109	9,168	9,103	9,184	9,110	9,246	9,245	9,516	9,659	10,077	9,979
2016	9,201	9,063	9,088	8,871	8,832	8,672	8,660	8,688	8,542	8,802	8,901	8,814

Source: EIA

Figure 17: EIA Form 914 US Oil Production vs Weekly Estimate



Source: EIA

US "sale" of 160 mmb from SPR

Oil – Biden's 160 mmb "sale", not "exchange" of oil from Strategic Petroleum Reserve

Note we put 160 mmb in the header above as that was the actual volume being sold, not 180 mmb. There was another good example of very careful drafting from politicians this week and the need to check the detailed documents if available. (i) There is a difference a "sale" of Strategic Petroleum Reserves SPR oil and an "exchange" of oil from the SPR. (ii) The big oil market news on Thursday was Biden's announcement of the release of oil from the SPR. Biden is careful to not use the word sale or the word exchange, especially exchange. But we believe the Biden wanted to leave the impression of an exchange type deal. However, this is a sale of oil reserves and not the old style exchange where the purchase is obligated to return the barrels at a planned future data. This is a sale or as he calls it "release". There is no obligation to restock the SPR although Biden says that is what they will do.The White House transcript for Biden's remarks read "*Today, I'm authorizing the release of 1 million barrels per day for the next six months — over 180 million barrels — for the Strategic — from the — from the Strategic Petroleum Reserve. This is a wartime bridge to increase oil supply until production ramps up later this year. And it is by far the largest release from our national reserve in our history. It will provide a historic amount of supply for a historic amount of time — a six-month bridge to the fall. And we'll use the revenue from selling the oil now to restock the Strategic Petroleum Reserve when prices are lower so we'll be ready — we'll be ready for future emergencies."* (iii) Note that the 180 million barrels was actually 160 million barrels from a new "sale" and 20 million barrels from a previously approved "exchange". (iv) A "sale" is clear when reading the US Dept of Energy Friday release [LINK]. We wanted to see it before writing up today's memo. The DOE release "*DOE Announces Second Emergency Notice of Sale of Crude Oil From The Strategic Petroleum Reserve to Address Putin's Energy Price Hike"* says "*announced a Notice of Sale of crude oil from the Strategic Petroleum Reserve (SPR). This Notice of Sale follows President Biden's announcement yesterday authorizing the sale of crude oil from the SPR to address the significant market supply disruption caused by Putin's war on Ukraine and aid in lowering energy costs for American families. The SPR will release approximately one million barrels of crude oil per day over the next six months. Crude oil in this emergency sale will enter the market in two releases. The first 90 million barrels will be released between May and July, through two notices of sale totaling 70 million barrels, and 20 million barrels already scheduled to be released in May*

2022. The remaining 90 million barrels will be released between August and October 2022. DOE must receive bids for the first notice of sale no later than 10:00 a.m. Central Time on April 12, 2022, and will award contracts to successful offerors no later than April 21, 2022. The May through July sales will be conducted with crude oil from the following four SPR sites:" (vi) The DOE calls exchanges an "exchange" not a sale. For comparison, the DOE March 7, 2022 release [LINK] "*DOE Awards Additional Strategic Petroleum Reserve Exchange. The U.S. Department of Energy (DOE) has approved a twelfth exchange of 2,700,000 barrels of crude oil for release to ExxonMobil from the Strategic Petroleum Reserve (SPR). This release falls under the authorization published in the DOE announcement on November 23, 2021. Combined, DOE has provided 24.4 million barrels of SPR crude oil available for exchange to boost the nation's fuel supply. As with all exchanges, companies that receive SPR crude oil through the exchange agree to return the amount of crude oil received, as well as an additional amount, dependent upon the length of time in which they hold the oil*." Our Supplemental Documents package includes the DOE's April 1 announcements of the 160 mmb sale and 20 mmb exchange and the March 7 exchange release.

Oil – Pioneer CEO Sheffield was the CEO Biden shaded on Thursday

Biden shades Pioneer CEO Sheffield

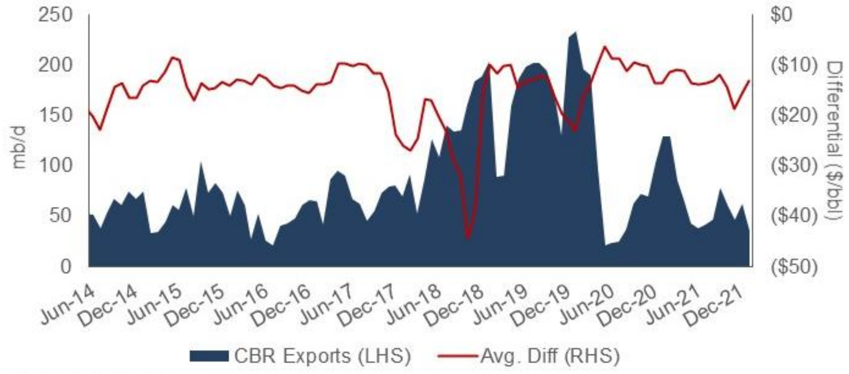
In his press conference on Thursday, Biden threw shade at some unnamed oil CEO. Biden said "*They have everything they need. Nothing is standing in their way. And they've indicated they will be producing an extra 1 million barrels of oil per day, probably starting as early as this fall. That's progress. But some companies have been pretty blunt. They don't want to increase supply because Putin's price hike means higher profits. One CEO even acknowledged that they don't care if the price of a barrel of oil goes to $200 a barrel. They're not going to step up the production. I say: Enough. Enough of lavishing excessive profits on investors and payouts and buybacks when the American people are watching, the world is watching."* We then tweeted [LINK] "*ICYMI, the unnamed CEO being shaded by #Biden Admin "One CEO even acknowledged that, even if the price goes to $200 a barrel, they're not going to step up production" is @PXDtweets CEO Sheffield. See below for his 02/18 comments to @kaileyleinz."* Our tweet included the transcript we made of the excerpt Bloomberg's Kailey Leinz and Guy Johnson interview with Pioneer Natural Resources CEO Scott Sheffield on Feb 17. [LINK]. At 2:15 min mark, Leinz on potential Russian action against Ukraine, "*should there actually be armed conflict, should that result in a disrupt in energy flows, would Pioneer, in that scenario, potentially increase production to help make up any potential shortfall*?" Sheffield "*No, Pioneer will stay with our plan. We announced a capex plan. As I said, regardless of whether its $150 , $200 oil, or $100 oil, we're not going to change our growth plans. It's going to be up to Saudi and UAE, they have a pact with OPEC+. They probably are about the only two countries than can change that and they will have to decide what to do under that scenario. If Russian oil is sanctioned or if Russia decides to stop exporting , then its going to be up to the Saudis and UAE to decide whether or not to break the pact and increase production under those guidelines*."

Oil – Cdn crude by rail imports to Gulf Coast down 93,000 b/d YoY in January to 36,000 b/d

Cdn crude by rail imports to Gulf Coast down 93,000 b/d YoY

The EIA posted its monthly "U.S. Movements of Crude Oil by Rail" [LINK] on Thursday, which also had good insights on Cdn crude by rail. Canadian CBR volumes to PADD 3 (Gulf Coast) were 36,000 b/d in January, which is down 27,000 b/d MoM from December, and down 93,000 b/d YoY vs January2021. There were no revisions to last months data. The startup of Enbridge Line 3 has been the key reason for the decrease in exports by rail and tighter YoY WCS to WTI differentials were the key factor in the lower crude by rail volumes since January. Below is our graph of Cdn CBR exports to the Gulf Coast.

Figure 18: Canada CBR Exports to US Gulf Coast vs WCS Differential



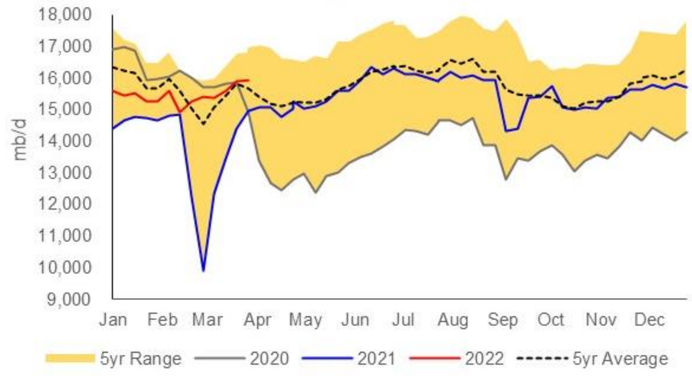
Source: EIA, Bloomberg

Oil – Refinery inputs +0.035 mmb/d WoW at 15.913 mmb/d

Refinery inputs +0.035 mmb/d WoW

The EIA crude oil input to refinery data is for the week ended Mar 25. This is normally the seasonal period when crude oil inputs to refineries starts to come out of seasonal turnarounds and moves to increasing seasonal crude throughput. 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 0.035 mmb/d this week to 15.913 mmb/d for the week ended Mar 25 and are +0.972 mmb/d YoY from last years February Freeze in the Permian. Refinery utilization was up at 92.1%, which is +9.5% YoY though is still below 5-year average utilization levels. Total products supplied (i.e., demand) decreased WoW, down 1.250 mmb/d to 19.874 mmb/d. Motor gasoline was down 0.138 mmb/d at 8.499 mmb/d from 8.367 mmb/d last week. Gasoline supplied, a proxy for demand, was up last week. Gasoline stockpiles are at their lowest levels with demand for gasoline at a 4-week high. The four-week average of production supplied decreased to 20.715 mmb/d, up from last year.

Figure 19: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA

Oil – Syncrude 8-1 coker planned maintenance is set for mid July

Syncrude turnaround event announced

Last week, Syncrude posted the announcement that the planned maintenance event for the 8-1 coker. Syncrude announced on Mar 24 [LINK] that Project Mamawi wil require 2,200 personnel to execute the panned maintenance. The release noted *"Pre-work and related events commenced in March 2022 for select trades with the main event taking place mid-July, 2022. Craft personnel will be working 10-hour shifts, while those supporting the Critical Path will be on 12-hour shifts; unless otherwise required."*

Oil – US "net" oil imports up +0.629 mmb/d WoW at 3.271 mmb/d

US "net" oil imports up WoW

US "NET" imports were up +0.629 mmb/d to 3.271 mmb/d for the Mar 25 week. US imports were down +0.227 mmb/d to 6.259 mmb/d. US exports were down 0.856 mmb/d to 2.988 mmb/d. The WoW decrease in US oil imports was driven by US's Top 10 imports by country were down by 0.361 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was down this week by -0.194 mmb/d to 3.612 mmb/d, which is now ~0.1 mmb/d above the average levels in Jan/Feb of 2020. (ii) Saudi Arabia was down 201,000 b/d to 0.333 mmb/d this week. (iii) Colombia was up +0.212 mmb/d to 0.284 mmb/d. (iv) Ecuador was down -0.07 at 0.096 mmb/d. (v) Iraq was down 407,000 b/d to 82,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico was up by 90,000 b/d to 0.731 mmb/d.

Figure 20: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d)	Jan 14/22	Jan 21/22	Jan 28/22	Feb 4/22	Feb 11/22	Feb 18/22	Feb 25/22	Mar 4/22	Mar 11/22	Mar 18/22	Mar 25/22	WoW
Canada	3,556	3,752	3,953	3,631	3,342	3,869	3,630	3,731	3,398	3,806	3,612	-194
Saudi Arabia	381	596	613	383	250	358	520	701	562	534	333	-201
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	902	321	383	958	510	768	497	412	645	641	731	90
Colombia	193	143	286	258	234	332	144	71	279	72	284	212
Iraq	434	133	412	226	225	285	295	188	161	489	82	-407
Ecuador	0	0	236	101	98	98	0	160	205	103	96	-7
Nigeria	0	43	9	144	182	25	43	96	0	2	148	146
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	5,466	4,988	5,892	5,701	4,841	5,735	5,129	5,359	5,250	5,647	5,286	-361
Others	1,279	1,248	1,193	688	949	1,093	638	960	1,145	839	973	134
Total US	6,745	6,236	7,085	6,389	5,790	6,828	5,767	6,319	6,395	6,486	6,259	-227

Source: EIA, SAF

Oil – Pemex oil production still stuck around 1.7 mmb/d, but partners now 59,000 b/d

On Monday, Pemex released its February production for its interests, it was 1.684 mmb/d of oil, which is basically unchanged for all of 2021 and down slightly MoM. Mexico's announced their goal of producing 2 mmb/d by the end of 2024 though noted a MoM decline in February due to financial constraints and high capital spending. Pemex's interest YTD Feb 28 production is 1.684 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 59,000 b/d and has averaged 49,000 b/d for YTD Dec 30. As a result, total Mexico oil production (Pemex and non-Pemex) was 1.762 mmb/d for Jan and 1.743 mmb/d for YTD Feb 28. Below is our chart tracking Pemex oil production.

Figure 21: Pemex Mexico Oil Production

Oil Production (thousand b/d	2015	2016	2017	2018	2019	2020	2021	2022	22/21
Jan	2,251	2,259	2,020	1,909	1,623	1,724	1,651	1,705	3.3%
Feb	2,332	2,214	2,016	1,876	1,701	1,729	1,669	1,684	0.9%
Mar	2,319	2,217	2,018	1,846	1,691	1,745	1,697		
Apr	2,201	2,177	2,012	1,868	1,675	1,703	1,693		
May	2,227	2,174	2,020	1,850	1,663	1,633	1,688		
June	2,247	2,178	2,008	1,828	1,671	1,605	1,698		
July	2,272	2,157	1,986	1,823	1,671	1,595	1,701		
Aug	2,255	2,144	1,930	1,798	1,683	1,632	1,657		
Sept	2,271	2,113	1,730	1,808	1,705	1,643	1,709		
Oct	2,279	2,103	1,902	1,747	1,655	1,627	1,692		
Nov	2,277	2,072	1,867	1,697	1,696	1,633	1,691		
Dec	2,275	2,035	1,873	1,710	1,706	1,650	1,694		

Source: Pemex

AMLO changes Mexico oil export plan

Oil – AMLO's "plan emergente" means Mexico oil exports not going down in 2022

There is a big change in Mexico's 2022 oil plans that will impact Cdn heavy/medium crude oil. One of the big 2022 oil themes for Cdn medium/heavy oil was supposed to be the ramp up in Pemex refinery capacity and Mexico's move to drastically cut oil exports in 2022 and then eliminate oil exports in 2023. This would have been a win for Cdn medium/heavy oil as it would create more demand in PADD 3 Gulf Coast refineries This would be a big win for Cdn medium/heavy oil as it would create more demand in PADD 3 Gulf Coast refineries We have been highlighting how Pemex was behind on its refinery construction at the new Dos Bocas refinery and that they weren't seeing the big ramp up in existing oil refineries so there were behind and not likely to hit their reduced oil export targets. However, there has been no indication that Mexico would not be trying to dramatically reduce exports in 2022. But AMLO indicated a big shift in strategy on Thursday. Cutting out oil exports was one of AMLO's key election themes and he has been insistent that this was going to happen. That is, until Thursday, when he announced his "plan emergente" that would see Mexico oil exports would be relatively flat YoY in 2022, and not down huge as has been the plan. Bloomberg reported ""*We launched a new plan because the price of crude oil is high and we are in the process of modernizing the refineries, so we are taking advantage now that the price is high to dedicate more resources and time to the rehabilitation of the plants," President Andres Manuel Lopez Obrador said during his daily press conference on Thursday. Mexico will reduce its crude processing to 850,000 barrels a day from a goal of about one million barrels a day, he said. The country processed 846,329 barrels a day of crude in February, and it averaged 711,612 barrels a day last year, according to data from Pemex."* For the moment, if you believe the rationale here, he is saying that it is better economically for them to export more crude/import more fuels versus exporting less crude/importing less fuels. At $100+ oil, it could make sense that the margin for the production is likely better than the margin to produce fuels given Pemex refineries have consistently produced at much lower than expected rates. So if refineries have poor margins, there could well be a net margin pickup. However, the real question is that is this the strategy or the result of slower than expected construction at the new Dos Bocas refinery that was supposed to be ready on July 1 and also not making progress on improving efficiency at existing refineries. We suspect its more a question that they are behind on their refineries. Regardless, continued oil exports means that Mexico should continue to get more oil to PADD 3 Gulf Coast. Our Supplemental Documents package includes the Bloomberg report.

In Jan, Pemex CEO said Mexico oil exports down big in 2022, 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 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."*

Oil – Mexico February oil exports up to 925,000 b/d

Pemex February oil exports

This change in export plans is being reflected in the new Pemex oil export data. On Friday, Pemex reported February oil exports were 0.925 mmb/d, which was up MoM vs January of 0.832 mmb/d, but down 8.1% YoY vs February 2021 of 1.006 mmb/d. February oil exports of 925,000 b/d is up from the likely the lowest month of exports in decades. Pemex oil exports to US were 0.683 mmb/d in February, which was in line with the average of the prior few months. Below is our table of the Pemex oil export data.

Figure 22: Pemex Mexico Oil Export

Oil Exports (thousand b/d)	2016	2017	2018	2019	2020	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%	925	-8.1%
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

Oil – Russia's oil production decreased MoM in Mar

We believe there isn't good data out of Russia so it's hard to figure out exactly how much Russia oil and natural gas production is down in the past 5 weeks. On Friday morning, TASS reported [LINK] "*The Russian oil industry currently undergoes restructuring and a temporary drop in oil production can be observed, Deputy Prime Minister Alexander Novak told reporters "There is a very serious situation at present with restructuring, considering evolving market situation: logistics and financing issues. Certainly, some volatility is in place," Novak said. According to statistics, Russia's average daily oil production in March lost 0.3% to 1.506 mln tonnes. The slowdown can be attributed to US, EU and UK sanctions against Russia since early March because of the Russian special military operation in Ukraine.*" If the nation's condensate output last month was close to February's level of some 11.5 million barrels a day, crude-only daily production was around 10.76 million barrels, some 135,000 below its quota for the month. Russia's compliance with the OPEC+ deal rose to 109% in January from 107% in December in which Russia pumped below its quota for the second time since the record OPEC+ cuts.

Russia 10.757 mmb/d in Feb, up MoM

Oil – Russia bombs Ukraine's only oil refinery at Kremenchuk

The morning Russia bombing reports are on how Russia has hit at major fuel storage terminals in the major Black Sea port city Odesa. One of the good video tweets on the Odesa attacks is at [LINK]. Earlier this morning, we tweeted [LINK] on an overlooked story this morning – Russia has bombed Ukraine's only oil refinery, Kremenchuk, in Poltava province. We tweeted "*Plus Poltava Governor Dmytro Lunin reportedly saying Ukraine's only operating refinery, Kremenchuk, is out of commission post missile attacks Sat. #OOTT*." No one knows what Putin's war strategy is today or tomorrow, but we have to wonder why he would destroy fuel tanks if he was planning to be there long term? Russia will need fuel supply for as long as they occupy any area.

Russia bombs Ukraine oil refinery

Oil – OPEC+ reconfirms July 18 production plan to add 432,000 b/d in May

OPEC+ had it's 27th ministerial meeting which was another quick (12 minute) meeting with no major updates. (i) The Russian-Ukraine conflict had a few questioning whether OPEC+ would make any changes to their planned production increases, but OPEC+ [LINK] stayed with its revised planned +432,000 b/d monthly increase for April. OPEC stated, "*Reconfirm the baseline adjustment, the production adjustment plan and the monthly production adjustment mechanism approved at the 19th OPEC and non-OPEC Ministerial Meeting and the decision to adjust upward the monthly overall production by 0.432 mb/d for the month of May 2022, as per the attached schedule.*" (ii) In addition, OPEC+ announced "*Reconfirm the baseline adjustment, the production adjustment plan and the monthly production adjustment mechanism approved at the 19th OPEC and non-OPEC Ministerial Meeting and the decision to adjust upward the monthly overall production by 0.432 mb/d for the month of May 2022, as per the attached schedule.*" OPEC Our Supplemental Documents package includes the OPEC+ Mar 31 release.

OPEC+ sticks to July 18 plan

Figure 23: OPEC+ Cut Schedule

OPEC (mmb/d)	Reference Level Production	July 2021	Aug 2021	Sept 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	May/22 per July/21 Agreement -	Change in Ref. Level Post May/22	EIA STEO 2022E Production Avg
Algeria	1,057	912	922	932	942	952	962	972	982	992	1,002	1,013	1,057	-	n.a.
Angola	1,528	1,319	1,334	1,348	1,363	1,377	1,392	1,406	1,421	1,435	1,450	1,465	1,528	-	n.a.
Congo	325	281	284	287	290	293	296	300	303	306	309	312	325	-	n.a.
Equatorial G.	127	110	111	112	114	115	116	117	118	120	121	122	127	-	n.a.
Gabon	187	161	163	165	166	168	170	172	173	175	177	179	187	-	n.a.
Iran	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4,370	n.a.	n.a.	n.a.	n.a.	n.a.
Iraq	4,653	4,016	4,060	4,104	4,149	4,193	4,237	4,281	4,325	2,639	4,414	4,461	4,803	150	n.a.
Kuwait	2,809	2,425	2,452	2,478	2,505	2,532	2,558	2,585	2,612	1,718	2,665	2,694	2,959	150	n.a.
Libya	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Nigeria	1,829	1,579	1,596	1,614	1,631	1,649	1,666	1,683	1,701	1,718	1,735	1,713	1,829	-	n.a.
Saudi Arabia*	11,000	9,495	9,600	9,704	9,809	9,913	10,018	10,122	10,227	10,331	10,436	10,549	11,500	-	n.a.
UAE	3,168	2,735	2,765	2,795	2,825	2,855	2,885	2,916	2,946	2,976	3,006	3,040	3,500	332	n.a.
Venezuela	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total OPEC	26,683	23,033	23,287	23,539	23,794	24,047	24,300	24,554	24,808	26,780	25,315	25,548	27,815	1,132	24,390
OPEC vs. ref.	**0**	**-3,650**	**-3,396**	**-3,144**	**-2,889**	**-2,636**	**-2,383**	**-2,129**	**-1,875**	**97**	**-1,368**	**-1,135**	**0**	**0**	**-2,293**

*Saudi Arabia quota for Feb-Apr 2021 includes voluntary 1mmb/d cut; May-July includes wind down of voluntary cut

Non-OPEC	Reference Level Production	July 2021	August 2021	Sept 2021	Oct 2021	Nov 2021	Dec 2021	January 2022	February 2022	March 2022			May/22 per July/21 Agreement -	Change in Ref. Level Post May/22	EIA STEO 2022E Production Avg
Russia	11,000	9,495	9,495	9,495	9,495	9,913	10,018	10,122	10,227	10,331	10,436	10,549	11,500	500	n.a.
Kazakhstan	1,709	1,475	1,475	1,475	1,475	1,540	1,556	1,572	1,589	1,605	1,621	1,638	1,709	-	n.a.
Oman	883	762	762	762	762	796	804	812	821	829	838	846	883	-	n.a.
Azerbaijan	718	620	620	620	620	647	654	661	668	675	681	688	718	-	n.a.
Malaysia	595	514	514	514	514	537	542	548	554	559	565	571	595	-	n.a.
Bahrain	205	177	177	177	177	185	187	189	191	193	195	197	205	-	n.a.
Sudan	75	65	65	65	65	68	69	69	70	71	71	72	75	-	n.a.
South Sudan	130	112	112	112	112	117	118	119	121	122	123	124	130	-	n.a.
Brunei	102	88	88	88	88	92	93	94	95	96	97	98	102	-	n.a.
Total Non-OPEC	15,417	13,308	13,308	13,308	13,308	13,895	14,041	14,186	14,336	14,481	14,627	14,783	15,917	500	n.a.
Non-OPEC vs. ref.	**0**	**-2,109**	**-2,109**	**-2,109**	**-2,109**	**-1,522**	**-1,376**	**-1,231**	**-1,081**	**-936**	**-790**	**-634**	**0**	**0**	**n.a.**
Total OPEC+	42,100	36,341	36,595	36,847	37,102	37,942	38,341	38,740	39,144	41,261	39,942	40,331	43,732	1,632	n.a.
OPEC+ vs ref.	**0**	**-5,759**	**-5,505**	**-5,253**	**-4,998**	**-4,158**	**-3,759**	**-3,360**	**-2,956**	**-839**	**-2,158**	**-1,769**	**0**	**0**	**n.a.**

Source: OPEC

Figure 24: OPEC+ Revised Reference Production Effective May 2022

	Reference Production up to end of April 2022	Reference Production effective May 2022
Algeria	1057	1057
Angola	1528	1528
Congo	325	325
Eq.Guinea	127	127
Gabon	187	187
Iraq	4653	4803
Kuwait	2809	2959
Nigeria	1829	1829
Saudi Arabia	11000	11500
UAE	3168	3500
Azerbaijan	718	718
Bahrain	205	205
Brunei	102	102
Kazakhstan	1709	1709
Malaysia	595	595
Mexico*	1753	1753
Oman	883	883
Russia	11000	11500
Sudan	75	75
South Sudan	130	130
OPEC 10	26683	27815
Non-OPEC	17170	17670
OPEC+	43853	45485

Source: OPEC

Oil – Next OPEC and non-OPEC ministerial meeting (ONOMM) is Thurs May 5

OPEC+ meeting is May 5

The short press release on the 27th OPEC and non-OPEC Ministerial Meeting (ONOMM) noted that the next ONOMM meeting will be held on Thursday May 5, 2022. We assume it will still be via teleconference given the Russia/Ukraine conflict and closing of Ukraine airspace.

Oil – OPEC replacing IEA with Wood Mackenzie and Rystad in Secondary Sources

There was also a separate short OPEC announcement [LINK] "*At the Extraordinary 183rd Meeting of the OPEC Conference held via videoconference today, the Conference, in a short meeting, approved with immediate effect, the replacement of the International Energy Agency (IEA) with Wood Mackenzie and Rystad Energy as secondary sources used to assess OPEC Member Countries crude oil production*." Every month, the OPEC MOMR includes a Secondary Sources table of OPEC production for the just completed month. OPEC is taking IEA out of the Secondary Sources group. This was viewed as a political move with OPEC viewing the IEA as biased in their view. We think there is some validity to why OPEC is doing this. Recall the IEA Oil Market Report February that included a massive revision to historical OPEC oil demand. The IEA said "*A reassessment of historical data has resulted in a significant upgrade to our demand estimates*." The revisions were big and it showed that, for more than a decade, the IEA's demand forecasts were understated. Bloomberg then wrote "*Oil demand was higher than previously thought in each of the past 15 years, with estimates driven up by new assessments of consumption in Saudi Arabia and China, the IEA said in its latest monthly report. * As a result of the changes, the IEA has raised its estimates of global oil demand by 0.6m b/d in 2018, 0.8m in 2019, 0.9m in 2020, 1m in 2021 and increased its forecast for 2022 by 0.9m b/d.*"

OPEC drops IEA from secondary sources

Oil – Saudi coalition & Houthis have a truce thru Ramadan

On Friday, the UN Special Envoy for Yemen announced [LINK] that the Saudi coalition and the Houthis had entered into a two-month truce, which would continue ~1 month past the end of the 1-month Ramadan. The UN wrote "*Armistice terms and concessions from the parties. In the statement, Mr. Grundberg affirmed the parties' agreement to halt all offensive air, land and naval military operations inside Yemen and across its borders; It also approved the entry of fuel ships to the ports of Hodeidah and the operation of commercial flights inside and outside Sanaa airport to predetermined destinations in the region; And it agreed to meet under his auspices to open roads in Taiz and other governorates in Yemen. I call on the parties to fully observe and respect the armistice and its elements, and to take all necessary steps to implement it immediately He continued, "I thank the parties for working with me and my office in good faith and making the necessary.*"

Saudi/Houtis 2-month truce thru Ramadan

Ramadan started yesterday, only terrorism warning so far is in Kenyz

On Friday, the Saudi Press Agency [LINK] announced "*The Royal Court said in a statement issued today that the Moon Sighting Committee of the Supreme Court decided that tomorrow, Saturday, April 2, 2022 is the first day of the blessed month of Ramadan*." We check the US Overseas Security Advisory Council "OSAC" alerts [LINK] most days at this time of the year and, on Thursday, we finally saw the first Ramadan terrorist warning. Normally, every year, there is a heightened alert for terrorism during Ramadan and, normally, we start to see warnings by the US Overseas Security Advisory Council in the week ahead of Ramadan. The OSAC normally warns of the increased potential for terrorism attacks during this period. It's not just for countries like Israel, but within African countries like Kenya and Niger, and for an overall warning of terrorist attacks in many parts of the Middle East. The OSAC Thursday warning [LINK] was on Kenya "*Security Alert: Kenya, Heightened Awareness During Ramadan and Easter Security Alert for U.S. Citizens. Event:*

Terrorist groups have a history of carrying out attacks in Kenya during Ramadan (April 2-May 2) and Easter (April 17). U.S. citizens are reminded of the need for heightened awareness and caution during this time of increased personal safety and security concerns. "

Oil – Saudi Energy Minister Abdulaziz on the state of the Biden support for Saudi

If anyone has any doubt of the state of relations between Saudi Arabia and the US, it's worth taking a look at a short clip of Saudi Energy Minister Abdulaziz take a question the moderator, CNBC's Hadley Gamble, at the World Government Summit on Tuesday. It was a classic Abdulaziz comment, which is why we tweeted [LINK] "*it's like a picture is worth a thousand words, but in this case, a non-answer says it all. #Abdulaziz is The Man. #OOTT.*" Gamble asks there is an agreement that the Biden administration has abandoned Saudi Arabia, do you agree with that. Abdulaziz says my 39 years in government allows me to say "ditch the question" and focus. He didn't finish the sentence as the response was clear with Gamble laughing. We think his answer says it all. The sort 33-second clip is worth a quick view [LINK].

Abdulaziz on Biden support for Saudi

Oil – Saudi nest egg, its net foreign assets down $22.8b since Nov 30

We continue to believe the #1 financial theme for Saudi Arabia in the 2020s will be their continued, and likely increasing, use of Other People's Money as they try to transition their country to MBS's Vision 2030. We were surprised that there really wasn't' any attention given to the Saudi net foreign assets data for Feb. Saudi Arabia's net foreign assets are what we call their nest egg to help them thru the Energy Transition. Saudi Arabia's net foreign assets are down $22.8b from Nov 30 to Feb 28, which is surprising given oil prices have been over $100. But it reinforces that there is a lot more on the cost side to Saudi Arabia. Saudi Arabia is far from going broke but there has been a huge decline in the last 7 years, but it is still a very big nest egg. This net foreign asset depletion is why we have been highlighting that the primary financial theme for Saudi Arabia in the 2020s is getting Other People's Money (OPM) to fund as much of their Vision 2030 as possible. And no question, accessing OPM has helped to slow down and temporarily pause the decline in net foreign assets, at least up until the past few months. Saudi's net foreign assets at Feb 28 were $424.1b, which was down $5.3b MoM from $429.4b in Jan and down $22.8b from $446.9b in Nov. Saudi Arabia's central bank (SAMA) doesn't provide explanations for the monthly swings. But it looks like Dec is back to normal after November being an outlier increase month. Saudi net foreign assets at Feb 28 of $424.1b are down $12.59b YoY from $436.7b at Feb 28, 2021. The peak in Saudi net foreign assets was $737.0b on Aug 31, 2014, which means there has been a decline in the 86 months of 300.0b, or approx. $3.5b per month for that period. We believe this is why there has been such a big push in the last few use to get OPM so Saudi doesn't keep depleting its nest egg. And why we call this the #1 financial theme for Saudi Arabia in the 2020s – the increasing use of Other People's Money. And not just in Saudi Aramco, although we do expect to see more equity and bond sales from Aramco. Below is our graph of Saudi Arabia net foreign assets updated for the Feb 28 data.

Saudi net foreign assets down $22.8b since Nov 30

Figure 25: Saudi Arabia Net Foreign Assets

Source: Bloomberg

Oil – Big surprise, US hasn't asked UAE to supply more oil

US didn't ask UAE for more oil supply

One of the big US messaging points for months has been how they have trying to get OPEC+ to get more oil on the market. We suspect that everyone in the market assumed, as we did, that the US was doing that, which had to mean asking the only two OPEC+ countries with any significant surplus capacity, Saudi Arabia and UAE. (I) That assumption was busted on Thursday with CNBC's interview with UAE Energy Minister al Marzouei. We tweeted [LINK] "*Busted, wasn't US asking #OPEC for oil? #UAEEnergyMinister "I haven't received any call or any request for a call from the Secretary of Energy [Granholm]" Gamble "nothing?" Al Marzouei "No, she didn't call me, she didn't approach me" Another great @_HadleyGamble interview. #OOTT*". Amazing. (ii) But the US not asking UAE for more oil to world markets was reinforced on Friday with Blinken saying he didn't bring it up in his meeting with the UAE crown prince. We teeted [LINK] "*If not asking UAE for more #Oil, who in #OPEC is #Biden asking? @SecBlinken says its critical to have abundant energy supplies on market now "but as it happens, we didn't focus on that issue specifically" in his meet with UAE @MohamedBinZayed. Thx @PeterMartin_PCM #OOTT.*" Bloomberg wrote ""*We believe it's critical that there be abundant supplies of energy on markets now and that there should also be a steady supply, but as it happens, we didn't focus on that issue specifically," Blinken tells reporters in Algiers about his meeting this week with Abu Dhabi Crown Prince Mohammed bin Zayed".* No one would have expected to see that the US didn't ask the UAE given they have said for months on how they were asking OPEC+ to supply more oil to world markets. Don't know why they would not ask the UAE given their supposed push for more oil supply. They either don't know the UAE is one of the only two OPEC+ countries to have any significant OPEC+ supply capacity or they are playing some sort of sneaky game to actually want higher oil prices to encourage more renewables. We have trouble believing the latter because if that was the case, it would be a very dangerous game in the run up to the mid terms if their actions were leading to the high gasoline prices. Our Supplemental Documents package includes the transcript we made of al Marzouei's comments to CNBC.

Oil – US still seems set on getting a return to JCPOA, doesn't say running out of time

US stills seems set to get a JCPOA

There is no question that Russia threw a wrench into the JCPOA, but it still seems that the US is set on getting a return to the JCPOA. It feels like Groundhog Day and that the parties are close but not yet closing the gap. But from the US side, it just seems that their comments reinforce that they are set on a return to the JCPOA. In particular, their warnings of a couple months ago that they were running out of time seem to have gone away from that running out of time threat. The last real comments were from the State Dept briefing on Thursday. We tweeted [LINK] "*#JCPOA status. "There are a small number of outstanding issues. The onus is now on Tehran to make those decisions" says @StateDeptSpox. #OOTT.*" The most significant item in Ned Price's response was what wasn't said – Price did not give the update on it's up to Iran and then say time is running out. Rather, he did not mention time running out. Our tweet included the transcript of Price's comments "*Now, in terms of where we are, we've spoken before of the progress that had been achieved in recent weeks. There are a small number of outstanding issues. The onus is now on Tehran to make those decisions. We continue to believe that, at least for the time being, a mutual return to compliance would bring with it non-proliferation benefits that would be in our interest, in the interests of our allies and partners – our allies in Europe, the E3 that's part of the P5+1, our allies and partners around the world who are not part of the P5+1*."

Oil – India foreign minister says its "natural" to buy cheaper Russian oil

India purchases cheap Russian oil

India's Foreign Minister says it is only natural for a country to seek cheap oil, amid criticisms that India is exploiting bargains offered by Moscow and undermining Western sanctions to stop Russia's war on Ukraine. We tweeted [LINK] *"Pretty simple why #IN is buying more RUS crude. "When #Oil prices go up, I think it's natural for countries to go out into the market and look for what are good deals for their people" says India's FM @DrSJaishankar. Thx @latikambourke. #OOTT."* The Sydney Morning Herald reported on Thursday [LINK], that India has not implemented the same policy as the UK, Australia , Canada and the US in banning Russian imports. The EU has also stopped short of banning Russian imports of oil since many member countries are dependant on Russia to meet their energy needs. India also receives the bulk of its defence weapons from Russia and has refused to condemn the actions taken by Putin throughout the conflict and has taken favourable bargains offered by Russia. According to Bloomberg, Russia is offering India discounts of as much as $US35 a barrel on prices before the war. India imported at least 13 mmb of crude since Russia's invasion in late February. The foreign minister noted in the article that "*criticism of India looked "almost like a campaign" as the biggest buyers of Russian oil and gas were in Europe and that it had increased its purchases by 15 per cent compared to the month prior."* The Foreign minister believes it still will not be a top 10 importer of Russian crude 2-3 months down the road, implying that criticisms of India are hypocritical and that taking cheapo energy deals was only natural.

India accelerated purchases of cheap Russian oil post White House comments

No one should be surprised to see India has been cranking up its Russia energy imports post the White House giving a tacit approval to do so. Our March 20, 2022 Energy Tidbits wrote "*It looks like India is accelerating its purchases of cheap Russian oil after the White House publicly stated any purchases would not be violating any US sanctions. Note that we did not see any confirming details if the India oil purchases were in rupees and not US$. Yesterday, we tweeted [LINK] "ICYMI. Why Hindustran Petroleum Corp is following India Oil Corp in buying cheap Russian #Oil - On Mar 15, #Biden admin referring to IOC buying Russian oil said "I don't believe this would be violating that." See transcript of @PressSec comments. #OOTT." At the March 15 press briefing [LINK]. Press Secretary Psaki was asked*

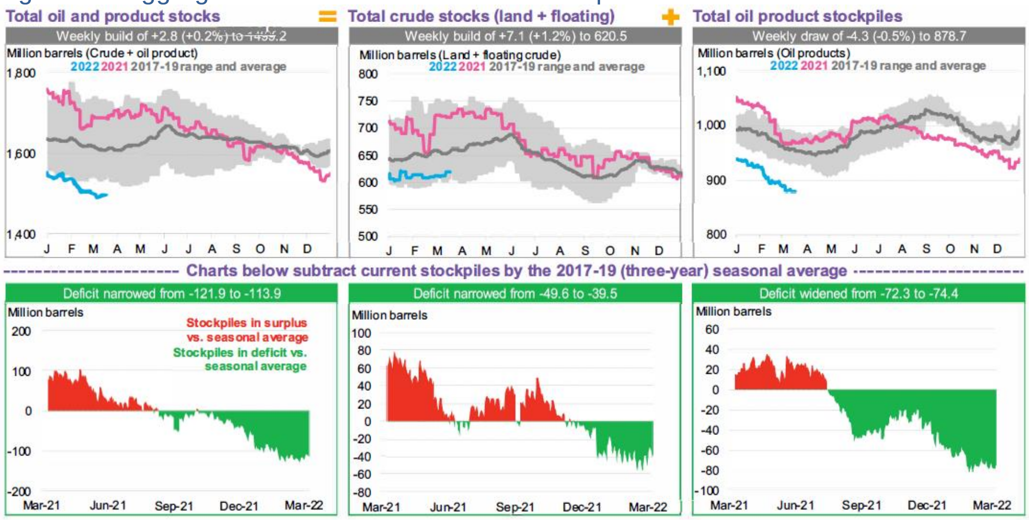
"And there's been a report yesterday about the possibility that India could take up an Russian offer of discounted crude oil. What would be your message to India or any other country tempted by such an offer?" MS. PSAKI: Well, our message to any country continues to be that, obviously, abide by the sanctions, but — that we have put in place and recommended. I don't believe this would be violating that. But also think about where you want to stand when the history books are written in this moment in time. And support for Ru- — the Russian leadership is support for an invasion that obviously is having a devastating impact." The question was on the reports that India Oil Corporation was looking to buy 3 million barrels of Russian oil at a steep discount. No surprise that, post the press conference, the reports came out confirming that purchase. And then to see the reports Hindustan Petroleum Corporation bought 2 million barrels of Russian at a deep discount. And that Mangalore Refinery and Petrochemicals was looking to buy 1 million barrels of Russian oil."

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

BNEF's global oil inventories

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 narrowing from 121.5 mmb to 113.9 mmb compared to the 2017-2019 average. For the week ended Mar 18, land crude oil storage in tracked regions were basically flat WoW to 522.6 mmb. The stockpile deficit against the 5 yr average (2015-2019) widened from 83.1 mmb to 84.2 mmb. Total crude inventories increased by 1.2% to 620.5 mmb, including global floating inventories. Product stocks were up 0.2% WoW with the stockpile deficit against the 3-year average widening from 72.3 mmb to 74.4 mmb. Gas oil and middle distillate stocks have widened against their three-year average deficit (2017-2019) of 40.5 mmb to 41.2 mmb. Jet fuel consumption by international departures decreased by 16,100 b/d WoW while consumption by domestic passenger departures declined by 4,600 b/d, a consecutive week of declines. Global mobility indices were up over the week after a decline last week with declines in Asia nullifying growth in western Europe. 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.

Figure 26: Aggregate Global Oil and Product Stockpiles



Source: Bloomberg

Oil – Vortexa crude oil floating storage 89.50 mmb as of April 1, -0.69 mmb WoW

Vortexa crude oil floating storage

We are referencing the Vortexa global crude oil floating storage data posted on the Bloomberg terminal as of 1pm MT yesterday. And we note that these estimates get revised over the course of the week. Note we do not check daily for the revisions, so our comments are compared to the March 25 and March 18 posted on Bloomberg on March 26 at 1pm MT. (i) As of 1pm MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate as of April 1 was 89.50 mmb, which was -0.69 mmb WoW vs revised down March 25 of 90.19 mmb. Note March 25 was revised -1.25 mmb from the Bloomberg estimate of 91.44 mmb posted as of 1pm on March 26. (ii) The weekly storage fits the general trend over the past few months with crude oil floating storage generally being in the 90 to 100 mmb range. (iii) There were only minor revisions to the prior two week's estimates. As a reminder, Vortexa estimates get revised over the weekend, next week and even weeks later. Yesterday's March 25 estimate of 90.19 mmb was revised -1.25 mmb from the Bloomberg estimate of 91.44 mmb posted as of 1pm on March 26. Yesterday's March 18 estimate of 96.09 mmb was revised +0.47 mmb from the Bloomberg estimate of 95.62 mmb posted as of 1pm on March 26. (iv) April 1 estimate of 89.50 mmb is -133.97 mmb vs June 26, 2020 peak of 223.47 mmb. (v) Note that the below graph now goes back 3 years and not just 2 years as floating oil storage was in the big ramp up period in late March as Covid started to have a huge impact. April 1 estimate of 89.50 mmb is +37.82 mmb vs pre-Covid April 1, 2019 of 51.68 mmb. Note April 3, 2020 was 80.72 mmb and it had ramped up from 63.40 mmb the prior week of March 27. (vi) Below are the last several weeks' estimates made as of today at 1pm MT, March 26 at 1pm MT, and March 19 at 1pm MT.

Figure 27: Vortexa Floating Storage as of April 1 Posted on Bloomberg 1pm MT Sat

Source: Bloomberg, Vortexa

Figure 28: Vortexa Estimates Apr 2 1pm MT, Mar 26 1pm MT, and Mar 19 1pm MT

Est as of Apr 2, 1pm MT

FZWWFST VTXA Inde — 03/31/2019 - 04/01/2022

	Date	FZWWFST V... Mid Px
Fr	04/01/2022	89501
Fr	03/25/2022	90194
Fr	03/18/2022	96062
Fr	03/11/2022	90367
Fr	03/04/2022	96009
Fr	02/25/2022	94149
Fr	02/18/2022	85687
Fr	02/11/2022	99352
Fr	02/04/2022	100.9k
Fr	01/28/2022	95887
Fr	01/21/2022	98802

Est as of Mar 26, 1pm MT

FZWWFST VTXA Inde — 03/24/2020 - 03/25/2022

	Date	FZWWFST V... Mid Px
Fr	03/25/2022	91443
Fr	03/18/2022	95618
Fr	03/11/2022	89990
Fr	03/04/2022	96966
Fr	02/25/2022	93293
Fr	02/18/2022	85019
Fr	02/11/2022	97292
Fr	02/04/2022	98869
Fr	01/28/2022	94032
Fr	01/21/2022	98387
Fr	01/14/2022	84689

Est as of Mar 19, 1pm MT

FZWWFST VTXA Inde — 03/17/2020 - 03/18/2022

	Date	FZWWFST V... Mid Px
Fr	03/18/2022	87894
Fr	03/11/2022	92535
Fr	03/04/2022	98407
Fr	02/25/2022	94289
Fr	02/18/2022	84645
Fr	02/11/2022	98207
Fr	02/04/2022	101.946k
Fr	01/28/2022	95109
Fr	01/21/2022	101.164k
Fr	01/14/2022	86550
Fr	01/07/2022	92922

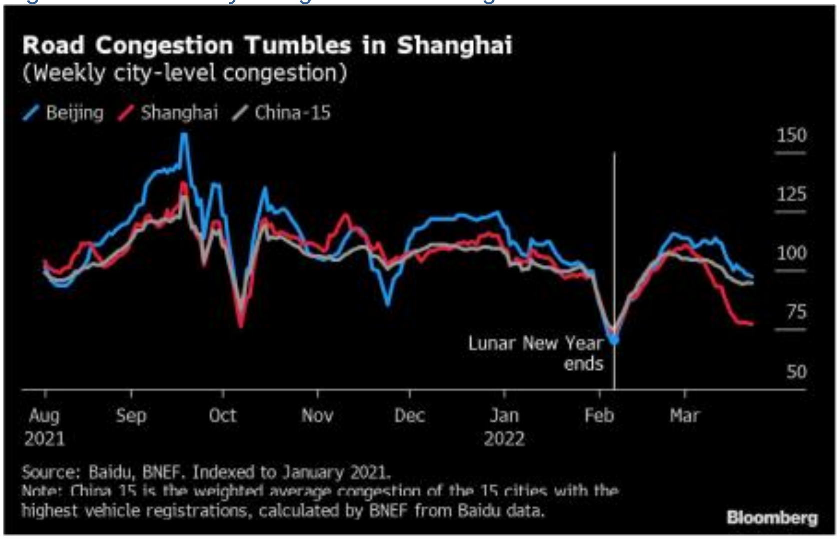
Source: Bloomberg, Vortexa

Oil – Bloomberg Oil Demand Monitor: Roadway fuel demand declines

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. The key takeaway is that road fuel sales continue to slip around the world amid the high pricing environment and a resurgence of covid cases in Asia and air travel continues to improve in Europe. UK Road fuel prices have slipped to 15% below the pre-pandemic average for the week ended March 20. US gasoline demand was 8% below the equivalent week from 2019moving towards the bottom of its 5-year range – estimates from the EIA have total oil products demand near the top of its 5-year range though is often subject to extreme volatility in their estimates. Gasoline prices remain high in most countries around the world with the US avg pump price at $4.24/gal. Consumers have begun to respond to these high prices with as evidenced buy the recent protest in Apain in which Truckers were offered financial aid to end the protests over expensive fuels. Congestion data in China shows a recent decline across the biggest cities with a steep drop in Shanghai; decline resembles the drop in congestion at the onset of the Lunar Holiday as covid cases have spiked over the past week. The elevated prices have not had as adverse an impact on oil demand as the war in Ukraine, sanctions against Russia and increased infections in China. JP Morgan has cut their Q2 forecasted oil demand by 1.1 mmb/d. Of the 13 tracked cities for congestion it was only Tapai that showed more congestion than the equivalent week in 2019, up 41%. 4 of 5 tracked European cities saw a decline in roadway congestion levels while Berlin was the only one remaining flat for the week, down 21% from 2019. This is the first time in the last 6 weeks that London has been below the equivalent week from 2019, down 5%. Air travel has continued to improve, though according to most measures the global number of commercial flights has remained flat since mid-March. Global seat capacity for both domestic and international flights has recovered to 83.4 million this past week, up from 80.8 million, still down 23% from 2019; OAG notes that the overall number masks the increase in western Europe as China flights have declined due to lockdown measures being implemented in Shanghai. Seat capacity in western Europe was up 20% though there was an offset of -8% due to flights decreasing in Asia. Refinery utilization in the US was up 2/2% vs 2019 led by US GoM refineries that were up 4.3%. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Figure 29: Roadway Congestion in Shanghai



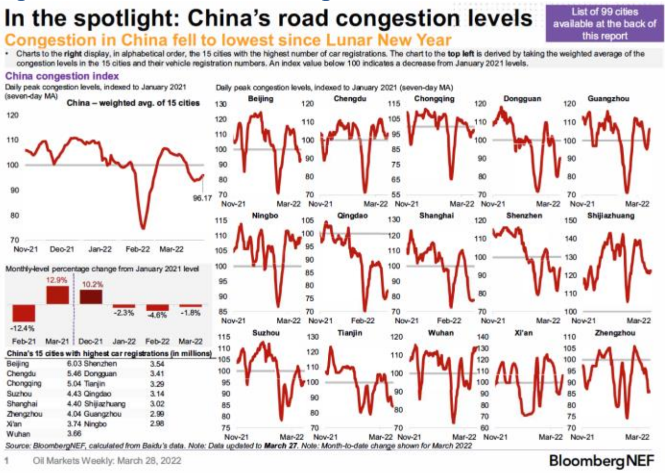
Source: Bloomberg

Oil – China's road congestion at lowest levels since Lunar New Year

China road congestion

One of the big market stories this week was the shut down in Shanghai to stem Covid, and the uncertainty Covid is placing on China's economic activity. Earlier, we noted the oil and products storage graphs from BloombergNEF's "Oil Price Indicators" weekly that comes out on Mondays. BNEF also featured the below chart on China given the apparent big slowdown in China from Covid. BNEF highlighted how China's congestion levels have fallen to the lowest levels since Lunar New Year.

Figure 30: China's road congestion levels



Source: BloombergNEF

Oil – Caixin PMI for Mar is down at 48.1 after last month 50.4

Caixin PMI down in Mar

The return of Covid in China continues to be a wildcard on markets and for oil. And within China, it looks like its impact is greater than most expected, at least in the near term. On Thursday evening, we tweeted [LINK] on the just released Caixin China Manufacturing PMI data for March. We tweeted "*China Caixin PMI for Mar 48.1 vs Est 49.9 & Feb 50.4. COVID-19 in China weighed heavily on manufacturing performance in March. Companies registered the quickest falls in output and new business since the initial onset of the pandemic in February 2020" Thx @IHSMarkitPMI #OOTT.*" IHS highlighted that the index, in March, declined at the quickest rate since the onset of the pandemic in February of 2020. It was down after Feb recorded a positive PMI reading after recording the lowest PMI reading in the last 23 months in Jan; the increase was linked to a boost in output amid the fastest total sales increase since June. Cost pressures intensified with rising input prices and output charges increasing at the fastest rate in the last five months. The Caixin China General Manufacturing PMI data decreased to 48.1 in Mar (vs estimate of 49.9) from 50.4 in February. Firms remained cautious with regards to their staffing levels, which fell for the sixth consecutive month, though job shedding has eased since January while capacity pressures remained present as backlogs across firms increased. We recommend reading the short release as opposed to just seeing the headlines as there is more color on China. The press release said *"Overall, impacted by factors including the Covid-19 outbreaks in multiple parts of China, manufacturing activity largely weakened in March. Supply contracted. Demand was also under pressure, and external demand worsened. The job market was more or less stable. Inflationary pressure continued to rise. And market optimism weakened. At present, China is facing the most severe wave of outbreaks since the beginning of 2020. Meanwhile, uncertainty increased abroad. The prospect of the war between Russia and Ukraine is uncertain, and the commodity market convulsed. A variety of factors resonate, aggravating the downward pressure on China's economy and underscoring the risk of stagflation."* Our Supplement Documents package includes the Caixin release. [LINK]

Oil – Bloomberg: Mass flight cancellations lead to lower jet fuel demand in Asia

BNEF Aviation Indicators weekly

The other clear evidence of Covid in China is showing up in Asia flight data. BloombergNEF posted their "Aviation Indicators Weekly" on Tuesday which tracks the evolution of passenger flight schedules and gives insight onto the demand for aviation fuel. Global passenger jet fuel demand decreased by 0.5% WoW, led by Asia Pacific and the heavy flight cancellations after the tragic China Eastern Airlines Boeing 737-800 plane crash noted in last week's (March 27) Energy Tidbits. Based on the number of passenger flights scheduled, jet fuel demand over the next four weeks will average 4.95 mmb/d. Cancellations have removed an average of 230,522 b/d of jet fuel demand compared to the previous four weeks of the same period. Both international and domestic flights decreased for the week ended March 23. Globally passenger flights 12 weeks ahead are down 2.5% WoW with cuts remaining minimal for almost 2 months. The Russia-Ukraine conflict continues to have an impact as the number of Russian flights scheduled to leave airports this week was down 3.8% as global; sanctions hit the Russian aviation market. The number of flights scheduled to depart Chinese airports decreased 17.9% as a result of the mass cancellations and local level lockdowns across the nation. US passenger numbers fell by 1% WoW due to flights cut by major airlines; passenger levels remain at 89% of 2019 numbers. Both Europe and the Americas noted jet fuel demand increases WoW for the week ended Mar 23. Jet fuel demand is expected to average 4.95 mmb/d over the next four weeks. Our Supplemental Documents package includes the BloombergNEF report.

Oil – US announces new vehicle fuel economy standards, what took so long?

New US vehicle fuel economy standards

Finally, we saw the Biden Administration move on the no brainer to help reduce oil consumption – put in higher standard for vehicle fuel economy. This is a no-brainer and is a proven way to reduce oil consumption. On Friday, the US Dept of Transportation announced "*new, landmark fuel economy standards which follow President Biden's executive order to drive American leadership forward on clean cars. The new standards will make vehicle miles per gallon more efficient, save consumers money at the pump, and reduce transportation emissions. The new Corporate Average Fuel Economy standards require an industry-wide fleet average of approximately 49 mpg for passenger cars and light trucks in model year 2026, the strongest cost savings and fuel efficiency standards to date. The new standards will increase fuel efficiency 8% annually for model years 2024-2025 and 10% annually for model year 2026. They will also increase the estimated fleetwide average by nearly 10 miles per gallon for model year 2026, relative to model year 2021."* We did not review the 2,000 pages of backup. Our Supplemental Documents package includes the DOT announcement. [LINK]

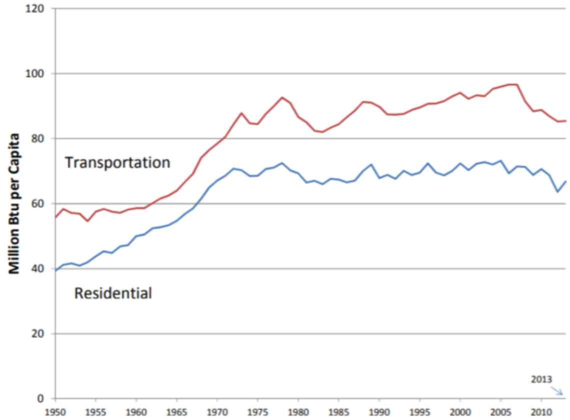
Surprised conservation/efficiency hasn't been a bigger Biden priority

The Corporate Average Fuel Economy (CAFÉ) standards were one of the key ways the US moved to reduce oil consumption after the Arab Oil Embargo 1973-74. It is often overlooked that this was put in place by President Ford and not President Carter. It was one of the key efficiency/conservation items along with items like the 55 mph speed limit on interstate highways. Our surprise is that it has taken Biden 14 months to get to changes to CAFÉ. One year ago, our April 4, 2021 Energy Tidbits wrote "*One of the surprises to us in the Biden infrastructure plan was that there wasn't a huge priority placed on energy conservation and efficiency of energy use. Note in mentioning conservation here, we are also including improving efficiency of* *energy use. It was there for buildings and homes, but we have always wondered if there would be a separate category push on energy conservation as a priority in all energy uses. Its one thing we don't see in the push for a renewable energy world, how much emissions could be reduced by energy conservation. We have always believed it's a big number and one that isn't a politically touchy subject. But it probably doesn't get the attention as it isn't a great headline item. But we thought Biden might elevate it as a priority because Biden is lived thru the period where the US priority was on energy conservation and it worked. Biden became a US Senator in 1973, just in time for the Arab Oil Embargo in Oct 1973 that changed the world of energy and led to the election of Jimmy Carter in 1976. Interestingly, Biden's Wikipedia page features a picture of Biden and Carter in the section on Biden's senate career. The reality is that if Biden wants to make a huge dent in emissions, he should have a priority on conservation and efficiency as a key focus area. Again this is another thing that jumps out at us from not being in Biden's plan – this priority on conservation as an area, because we remember Jimmy's Carter's first major address after taking office in 1977. His famous sitting by the fireplace wearing a cardigan speech to the nation. [LINK] Carter says "our program will emphasize conservation. The amount of energy being wasted, which could be saved is greater than the total energy we are importing from foreign countries". For those who also saw the speech then, it's worth a second listen.*"

It worked, conservation led to big reductions in energy consumption

Our April 4, 2021 Energy Tidbits also wrote "*The push on energy conservation worked as it led to less energy consumption per capita. Carter won the Nov 1976 election and took office in Jan 1977. Carter's big push was on energy efficiency and conservation, and its also forgotten that he was the one who led to big expansion in coal and in the first substantial tax incentives for shale oil that set the stage for US shale/tight oil and gas growth in the last decade. To be fair, Nixon/Ford also started some energy conservation such as implementing a national high speed limit of 55 mph whereas prior to that there wasn't a national standard, but most states were 70 or 75 mph. But the point is that it worked. And we would expect lower consumption would have led to lower emissions. Biden lived thru this as a senator, which is why we are surprised that it wasn't a bigger priority in itself."*

Figure 31: Per Capital Energy Consumption in Transportation & Residential Sectors



Source: Congressional Research Service

Oil – If Dems are looking for other proven gasoline saving ideas, ban left turns in cities

Yesterday, we tweeted [LINK] on a way for municipal politicians to cut gasoline consumption within their cities – ban left turns. Here is the challenge for politicians – how to drive ahead on cutting emissions without losing their voter support or inconvenience their own lives. But one proven way to reduce gasoline consumption of their residents is to ban left turns in cities. In reality, this is becoming more doable as most recent new cars have some sort of mapping system. On that note, we wonder if these software programs are already programmed to do some of this ie. always favor right turns? We were reminded of this by yesterday's UK Express report *"Drivers should avoid turning right to save on petrol and diesel costs - 'innovative".* [LINK] The Express wrote *"DRIVERS are being told to avoid turning right in their car, as it could help them cut down on petrol and diesel costs, as prices continue to remain high. Peter Harris, Vice President, International Sustainability at UPS, said they give their drivers specific routes to follow, helping them save fuel. He told Express.co.uk: "Our innovative last-mile optimisation technology uses package capacity and customised mapping data to create the most efficient delivery routes for our drivers. "The technology goes beyond minimising left turns, it supports the reduction of driver mileage by 100 million miles, fuel consumption by 10 million gallons, and emissions by 100,000 metric tonnes globally each year."* It turns out this is not new. We found a Dec 16, 20210 video [LINK] of a Fortune interview with then UPS Senior VP Bob Stoffel, who explained about how the UPS drivers map routes in cities is mapped out to minimize left turns. The rationale makes sense, there is way more waiting time trying to find gaps to turn left so that the idling time wastes driver time and burns fuel. He also noted there is a safety aspect by avoiding left turns.

Ban left turns in cities to save gasoline

Oil – New Jersian self service gas bill stalls from public preference

It looks like self service gas stations are still at least years away in New Jersey, which is the only state in the US that requires a gas station attendant to pump gas for all customers looking to fill their tanks. Bloomberg reported [LINK] that the bill set to amend the 73 year old law has hit a significant speed bump as public opinion favours the attendants filling the customers cars. Nicholas Scutari, the Democratic president of the State Senate whose backing would be crucial to any law change, put an end to speculation earlier this

New Jersians to oppose self service gas bill

month when he said he did not support changing the state's unique policy. Supporters of self-service gasoline are frustrated by a push back against a law that every state allows, believing that it could alleviate the already high gasoline price burden bared by consumers. New Jersey voters disagree; Bloomberg notes "*A recent Rutgers Eagleton poll found that 73 percent of people surveyed said they preferred having someone else pump their gas. Roughly 82 percent of Democrats preferred full-service, compared with 64 percent of Republicans. And nearly 90 percent of women said they would rather have an attendant pump their gas, compared with 55 percent of men, the poll found."* The bill would require owners of stations with more than four pumps to offer a full-service option between 8 a.m. and 8 p.m. It was introduced in the Assembly but is unlikely to advance in the Senate without Scutari's support. Scutari noted "*The people of New Jersey are very clear in wanting to keep the system we have now."* Our Supplemental Documents package includes the Bloomberg report.

Oil & Natural Gas– Biden 's budget proposals are a big negative to oil and gas

Biden's budget a big negative to oil and gas

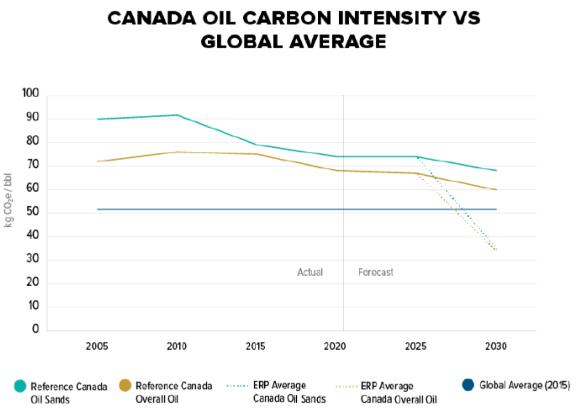
We have to wonder if there are any remaining US oil and gas sector players who still believe the Biden administration wants to work with them. Recall the positive views on Energy Secretary Granholm's CERAWeek speech. We didn't think people really heard or read what she then said, which is why we tweeted [LINK] "*2/2. But note the end of the sentence that got all the headlines "I'm here to tell you that the Department of Energy, and the entire Biden administration, is ready to work with you to seize the opportunity of clean energy." plus there was other crafty drafting. #OOTT".* But even for those that saw this as her reaching out, surely they must no longer believe that if they read Biden's Greenbook of his budget proposals and not just his press release. (i) The press release [LINK] said "• *Modify Fossil Fuel Taxation o Eliminate Fossil Fuel Tax Preferences o Modify Oil Spill Liability Trust Fund Financing and Superfund Excise Taxes".* (ii) We went to detail in the Greenbook and then tweeted [LINK] "*Buckle up! #Biden FY23 "proposals would also elminate all fossil fuel subsidies". Take a flip thru pgs 22-26. nice timing given #Biden #Granholm trying to get US to produce more oil & gas. good thing $100 #Oil and $5 #NatGas. #OOTT*". We recommend going thru the pgs 22-26, but they basically eliminate anything that could be considered an incentive or subsidy. And they reinforce that the Administration is actually taking actions to dissuade drilling and shut in production. They are removing any deductions for intangible drilling costs. And removing any credits for low rate producing wells ie. making them more likely to be permanently shut in sooner than expected. Our Supplemental Documents packages includes pgs 22-26 from the Greenbook.

Oil & Natural Gas – Liberals emissions reduction sets up oil & gas for failure

Liberals Emissions Reduction Plan

We are surprised that we didn't see outrage from the oil and gas sector after the Liberals released the 2030 Emissions Reduction Plan on Tuesday, the 271-page report is found at: [LINK]. The plan sets up the oil and gas sector for failure. (i) Our comments are based on the 271-pg report and not just the press release. (ii) There is still bad news to come as the plan specifically doesn't include key details. (iii) No details on what is being eliminated in the Liberals statement of eliminating subsidies for fossil fuel. Pg 53. Note this is for 2023. If this is like Biden's elimination of fossil fuels, this would hit things like CDE and much more. We suspect that people just didn't read the Biden Greenbook. It just seems like the same angle on "subsidies" for fossil fuels. "*Eliminating subsidies for fossil fuel. The Government has committed to eliminating inefficient fossil fuel subsidies, and developing a plan to phase-out* *public financing for the fossil fuel sector, including by federal Crown corporations."* Pg 102 "..*Canada recently accelerated this commitment from 2025 to 2023*". (iv) We were disappointed to see that the Liberals announcement on its new emissions reduction plan did not, as expected, include the hard targets for emissions reduction for the oil and gas sector. We are still waiting for the targets for 2025. Pg 8, No change to the big picture target of oil and gas reductions, but still haven't defined the specific 2025 target. "*The Plan presents modelling of the most economically efficient pathway to meeting Canada's 2030 target. Drawing on that modelling, the Plan includes a projected contribution from the oil and gas sector of emission reductions to 31% below 2005 levels in 2030 (or to 42% below 2019 levels). This will guide the Government of Canada's work with industry, provinces, Indigenous partners, and civil society to define and implement the cap on oil and gas sector emissions. Following consultations, the cap will be designed to lower emissions at a pace and scale needed to achieve net-zero by 2050."* (v) Our concern remains that the Liberals are setting a 2025 hard target that keeps the oil and gas sector on track for the massive cut by 2030. Pg 50. Note this below graph on where it has to go. As noted on page 8 above, they haven't defined the exact dotted lines from 2022 to 2030, but they have set the end point in 2030. There is massive cutting required. (vi) Reminder there are checks in 2023 to make sure the oil and gas sector is on track to meet 2025 and 2030 emissions reduction targets. Pg 7. *There are progress checks so they can take more actions if behind the timelines. "Progress under the plan will be reviewed in progress reports produced in 2023, 2025, and 2027. Additional targets and plans will be developed for 2035 through to 2050".* (vii) Looks like the Liberals are setting up the oil and gas sector for failure and to be a bigger villain. The Liberals will be setting emissions reduction targets that rely upon items beyond proven reduction actions to hit targets including targets in 2025. They are basically setting up impossible to achieve targets. On Tuesday, it appears that most were commenting based on the short press release and not the 271-pg report. It's why we tweeted [LINK] "*Hmmm! One of the tidbits in 271-pg Liberals 2030 Emissions Reduction Plan. pg 197, #Oil #NatGas sector will need to develop new actions beyond existing proven solutions to meet still to be defined targets, even to meet 2025 & 2026 reduction targets. #OOTT"* and [LINK] "*Is #Trudeau #EmissionsReductionPlan setting up #Oil #NatGas #OilSands for failure and be the fall guy? See pg 197, how can they hit targets if Liberals plan says will need new actions/inventions beyond existing proven solutions to meet targets including 2025/26 targets?"* Pg 197. For anyone who thinks the emission reduction targets for oil and gas will be not too hard to attain, they should read this item. They are signaling their targets, even for 2025 and 2026, will be based on technologies, etc that aren't identifiable today to generate these targeted reductions. "*Drive new and more ambitious actions. Targets for the oil and gas sector should be ambitious and require new actions that go beyond what is already contemplated using existing proven solutions. Regulatory targets drive innovation. Targets should lead to a scale of emissions reductions that would not otherwise have occurred. At the same time, targets must be realistic and credible, while pushing the sector to go further than it would otherwise. Targets should result in visible leadership, innovation in technology and business models, and new investments. It is acceptable to set emissions reduction targets in the future for which there is not currently complete certainty on how to attain the target. The further away the target is (e.g., 2030 versus 2025 or 2026), the more this principle applies."* (viii) Pg 52. Oil and gas companies can afford it. Trudeau made this same comment in his speech. "*Canada's oil and gas industry is currently generating record cash flow. If deployed strategically, these funds could enhance carbon competiveness and enable the sector to do* *its fair share in contributing to the country's climate goals*." (ix) Pg 53: Note the "intent". "*The intent of the cap is not to bring reductions in production that are not driven by declines in global demand.* " Linked to this is Pg 196 "… *While the International Energy Agency (IEA) has forecasted that global demand for oil and gas over the next 5 years will decline".* They linked to the IEA forecast, which does not show this. Rather, the linked IEA forecast Here is the table from the linked IEA oil demand forecast is 99.4 mmb/d in 2022, 101.2 mmb/d in 2023, 102.3 mmb/d in 2024, 103.2 mmb/d in 2025 and 104.1 mmb/d in 2026. Our Supplemental Documents package includes excerpts from the plan.

Figure 32: Canada's Oil Carbon Intensity vs Global Average



Source: Government of Canada

Oil & Natural Gas– Look for record cash flows in Q1 for Cdn E&P companies

We are about a month away from Q1 reporting for the Cdn oil and gas companies and one thing is clear, there should be record cash flows. And that means the conference calls will all the analysts starting off with the "great quarter guys". The conference calls will be peppered with analysts On Friday, we tweeted [LINK] that Cdn E&P should report record Q1/22 cash flows. Cash flows will be up huge YoY and also big QoQ. Edmonton par oil prices in Q1/22 were If we use Ed Par oil prices, WCS oil prices and AECO natural gas prices, Q1/22 Ed Par prices of US$93.66/b were +72.9% YoY and +26.8% QoQ. Q1/22 WCS prices of US$82.51/b were +80.0% YoY and +35.3% QoQ. Q1/22 AECO prices of $4.51 were +43.9% YoY and +0.6% QoQ. Below is our updated table of quarterly oil and natural gas prices.

Expect record Q1 cash flows

Figure 33: Oil and Natural Gas Prices

Quarter	Brent US$	WTI US$	EdPar US$	WCS US$	HH US$	AECO C$
Q1/18	$67.00	$62.86	$57.19	$37.11	$3.09	$2.06
Q2/18	$74.41	$67.83	$60.78	$49.88	$2.84	$1.23
Q3/18	$75.27	$69.69	$59.81	$42.32	$2.92	$1.25
Q4/18	$68.18	$59.41	$36.53	$25.63	$3.78	$1.62
Q1/19	$62.91	$54.49	$50.28	$43.79	$2.92	$2.55
Q2/19	$68.58	$59.96	$54.41	$47.46	$2.55	$1.13
Q3/19	$61.95	$56.48	$52.43	$43.91	$2.37	$1.00
Q4/19	$62.51	$56.83	$50.61	$37.98	$2.36	$2.46
Q1/20	$51.28	$46.73	$39.75	$28.55	$1.91	$2.04
Q2/20	$31.14	$27.67	$21.84	$18.02	$1.70	$2.00
Q3/20	$42.70	$40.87	$36.83	$31.13	$1.98	$2.26
Q4/20	$44.47	$42.67	$37.92	$31.34	$2.47	$2.65
Q1/21	$60.51	$57.75	$54.17	$45.83	$3.39	$3.13
Q2/21	$68.44	$65.90	$61.94	$53.11	$2.89	$2.95
Q3/21	$72.95	$70.57	$66.90	$57.65	$4.28	$3.41
Q4/21	$79.43	$77.31	$73.84	$60.96	$4.74	$4.49
Q1/22	$99.08	$94.79	$93.66	$82.51	$4.61	$4.51

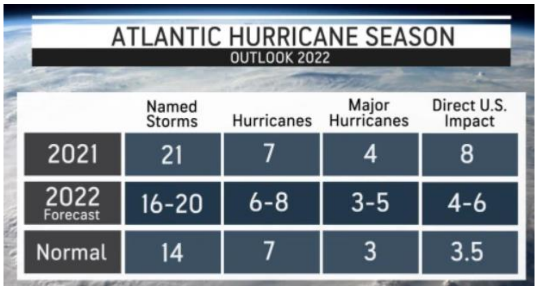
Source: Bloomberg

Oil & Natural Gas – AccuWeather forecasts above normal Atlantic hurricane season

Above normal hurricane season expected

While it may be early, the beginning of April is when we start to see hurricane forecast groups release their initial hurricane forecasts for upcoming Atlantic hurricane season which runs from Jun 1 – Nov 30. This week, it was AccuWeather, who forecast another above normal Atlantic hurricane season but less than last year's near record hurricane activity. AccuWeather wrote "*AccuWeather's team of tropical weather forecasters, led by veteran meteorologist and hurricane expert Dan Kottlowski, is once again predicting an above-normal season in terms of tropical activity in the Atlantic, as well as a higher-than-normal chance that a major hurricane could make landfall in the mainland United States, Puerto Rico and the U.S Virgin Islands. Specifically, Kottlowski's team is forecasting 16-20 named storms and six to eight hurricanes. Of those hurricanes, about three to five are forecast to reach major hurricane status, which occurs when a storm reaches Category 3 strength with winds exceeding 111 mph or higher. AccuWeather's forecast of 16-20 named storms is higher than the 30-year average of 14 per year, while the projection of six to eight hurricanes is about in line with the normal of seven. It's also nearly identical to how 2021 played out. Last year, the 21 named storms included seven hurricanes and four major hurricanes. Eight of those storms made a direct impact on the U.S. About four to six direct impacts are predicted for 2022."* Below is the AccuWeather forecast table. Our Supplemental Documents package includes the AccuWeather forecast. [LINK]

Figure 34: AccuWeather Forecast for 2022 Atlantic Hurricane Activity



ATLANTIC HURRICANE SEASON
OUTLOOK 2022

	Named Storms	Hurricanes	Major Hurricanes	Direct U.S. Impact
2021	21	7	4	8
2022 Forecast	16-20	6-8	3-5	4-6
Normal	14	7	3	3.5

Source: AccuWeather

AccuWeather says "*La Niña once again expected to play a key role*"
We regularly remind that La Nina conditions in the summer are more likely to have normal or above average Atlantic hurricane seasons. AccuWeather wrote "*La Niña once again expected to play a key role. The climatological phenomenon known as La Niña can help shape weather patterns worldwide, and in particular, play a major factor in how active a hurricane season can become. La Niña is part of a three-pronged climatological pattern known as the El Niño Southern Oscillation [ENSO], which is a short-term climate fluctuation that is determined by the warming or cooling of the waters in the equatorial Pacific Ocean. When sea-surface temperatures are anomalously warm in this part of the Pacific and stay that way over a period of 12-18 months, climate experts say an El Niño phase is underway. When the reverse is true, and water temperatures are lower than average, a La Niña phase is declared. The third phase, ENSO-neutral, is when water temperatures are around average. When a La Niña phase is present, as was the case in the past two extremely active years, the amount of vertical wind shear in the atmosphere can be limited as westerly winds typically stay farther to the north and away from the tropical Atlantic. An abundance of vertical wind shear, which typically occurs over the Atlantic during El Niño patterns, can often stymie burgeoning tropical cyclones or limit their development altogether.*

Actual hurricanes tend to be way more than early season hurricane forecasts
AccuWeather didn't note this, but, in our April 11, 2021 Energy Tidbits, we wrote "*We tweeted [LINK] on the new Klotzbach forecast because we know most tend to ignore the early April forecasts for the hurricane season with the rationale that they tend to be wrong. We don't disagree that they tend to be wrong. But what we always remind is that these early season April hurricane season forecasts tend to be light. Our tweet said "Well regarded @philklotzbach 1st forecast for 2021 Atlantic #hurricane is for above average season. Worth noting 4 of 5 last years, actual #hurricane activity significantly exceeded April forecasts, ie. Apr 20 was similar fcast & turned out to be well above average. #Oil #NatGas." This is overlooked because most don't read the full 34 pages of the forecast and included on page 34 is the below table that we included in our tweet*."

Figure 35: CSU Hurricane Season Forecast History

2016	18 April	Update 1 June	Update 1 July	Update 4 August	Obs.
Hurricanes	6	6	6	6	7
Named Storms	13	14	15	15	15
Hurricane Days	21	21	21	22	27.75
Named Storm Days	52	53	55	55	81.00
Major Hurricanes	2	2	2	2	4
Major Hurricane Days	4	4	4	5	10.25
Accumulated Cyclone Energy	93	94	95	100	141
Net Tropical Cyclone Activity	101	103	105	110	155

2017	6 April	Update 1 June	Update 5 July	Update 4 August	Obs.
Hurricanes	4	6	8	8	10
Named Storms	11	14	15	16	17
Hurricane Days	16	25	35	35	51.25
Named Storm Days	50	60	70	70	91.25
Major Hurricanes	2	2	3	3	6
Major Hurricane Days	4	5	7	7	19.25
Accumulated Cyclone Energy	75	100	135	135	226
Net Tropical Cyclone Activity	85	110	140	140	231

2018	5 April	Update 31 May	Update 2 July	Update 2 August	Obs.
Hurricanes	7	6	4	5	8
Named Storms	14	14	11	12	15
Hurricane Days	30	20	15	15	26.75
Named Storm Days	70	55	45	53	87.25
Major Hurricanes	3	2	1	1	2
Major Hurricane Days	7	4	2	2	5.00
Accumulated Cyclone Energy	130	90	60	64	129
Net Tropical Cyclone Activity	135	100	70	78	128

2019	4 April	Update 4 June	Update 9 July	Update 5 August	Obs.
Hurricanes	5	6	6	7	6
Named Storms	13	14	14	14	18
Hurricane Days	16	20	20	20	23.50
Named Storm Days	50	55	55	55	70.00
Major Hurricanes	2	2	2	2	3
Major Hurricane Days	4	5	5	5	9.50
Accumulated Cyclone Energy	80	100	100	105	132
Net Tropical Cyclone Activity	90	105	105	110	141

2020	2 April	Update 4 June	Update 7 July	Update 5 August	Obs.
Hurricanes	8	9	9	12	13
Named Storms	16	19	20	24	30
Hurricane Days	35	40	40	45	34.75
Named Storm Days	80	85	85	100	118
Major Hurricanes	4	4	4	5	6
Major Hurricane Days	9	9	9	11	8.75
Accumulated Cyclone Energy	150	160	160	200	180
Net Tropical Cyclone Activity	160	170	170	215	225

Source: CSU, Philip Klotzbach

Above normal hurricane season expected

Oil & Natural Gas – AccuWeather forecasts above average Tornado season

Hurricanes are the potential huge impact item on oil and natural gas, but tornadoes can impact oil and gas onshore operations in Oklahoma and Kansas. Most of the Texas oil and gas productions tends to be south of major tornado activity. However, the reason why we highlight the tornado forecast is that AccuWeather says "*One of the key characteristics of the 2022 severe weather season is that the worst of the storms may hit areas located outside of the traditional Tornado Alley*." March is really the first month for tornado activity and that normally increases in April and May. On March 9, AccuWeather wrote "*2022 predicted to spawn more tornadoes than recent years. Spring is almost here, but severe weather season is already ramping up -- and AccuWeather forecasters say that tornado activity will shift into high gear in one particular month across the central and eastern U.S. The arrival of meteorological spring on March 1 also marked the opening chapter of severe weather season across the central United States, a season that AccuWeather predicts could spin up a higher number of twisters and life-threatening storms than what has unfolded in recent years.*" Below is the AccuWeather forecast table. Our Supplemental Documents package includes the AccuWeather forecast. [LINK]

Figure 36: AccuWeather Forecast for 2022 Tornado Activity

TORNADO OUTLOOK
2022

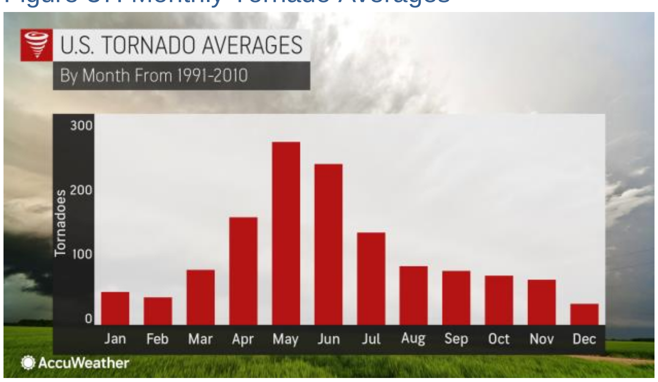
	AMOUNT	MARCH	APRIL	MAY
AVERAGE	1,253	80	155	276
2019	1,517	107	272	510
2020	1,075	83	271	126
2021	1,376	191	73	289
2022 FORECAST	1,350-1,475	120-170	200-275	140-190

Source: AccuWeather

Tornados happen throughout the year

We were a little surprised that AccuWeather didn't include a graph used in their 2021 tornado forecast that reminds tornado activity happens throughout the year. Our April 11, 2021 Energy Tidbits included AccuWeather's 2021 tornado forecast [LINK], which called for 1,350 to 1,500 tornadoes (vs 1,376 actual). AccuWeather also included the below graph that shows the tornado distribution throughout the year.

Figure 37: Monthly Tornado Averages



Source: AccuWeather

Oil & Natural Gas – Updated EIA Colombia country brief

EIA's country brief on Colombia

We continue to recommend adding the EIA's country analysis briefs to reference libraries as good quick references, in this case its new EIA country executive summary [LINK] on Colombia. In 2021 Colombia was the second largest producer of petroleum (behind Brazil) and the largest producer of coal in South America. Energy consumption in Colombia totalled 0.8 mmboe/d in 2020 with oil accounting for 31% of the country's total energy consumed. While one of the largest South American producers of coal, hydroelectricity has been used to meet most of Colombia's electricity needs, with most coal being exported. Colombia consumed 328,000 b/d of crude in 2021, up from 282,000 b/d as Covid restrictions slashed consumption. As of Jan 2022, Colombia reportedly has 1.2 bnb of proved oil reserves. Total production of oil and liquids fell from a 2020 average of 0.808 mmb/d to 0.760 mmb/d in 2021; production occurs at onshore sites mainly in the maturing Rubiales, Castilla and La Circa basins. The production declines are a result of the shut in of wells related to the Covid-19 pandemic and delayed exploration due to protests and attacks by guerilla groups. Colombia's oil industry continues to be the target of pipeline attacks with 30 reported incidents and infrastructure facilities in 2021 affecting 14,000 b/d according to IEA estimates. The country's national oil corporation, Ecopetrol, controls sub-soil non-renewable resources. While foreign investment exists, Ecopetrol controls over two thirds of Columbias total oil and natural production. Colombia's government has attempted to create an attractive investment environment for foreign companies, including implementing a more attractive fiscal and tax regime in offshore platforms. There are currently no offshore platforms in Colombia the this is expected to change as interest by foreign entities begins to pickup. Colombia had 378,600 b/d of crude oil refining capacity of mainly heavy-sour crude at two large refineries, the Barrancabermeja refinery and Cartagena refinery, both operated by Ecopetrol. Colombia is a net oil exporter with a reported 552,000 b/d of crude exported in 2020, down from 618,000 b/d in 2019; exports primarily go to the US who receives ~180,000 b/d. Colombia has ~ 3 tcf in natural gas reserves as of Jan 2022 from inland fields and unassociated gas from offshore sites. In 2020, Colombia produced 399 bcf of dry natural gas, and it consumed about 413 bcf. Colombia's oil production requires ~50% of the country's produced natural gas to be re-injected to bolster recovery efforts, which will become increasingly widespread as producers seek to enhance oil recovery amid declining exploration. Colombia imports a small amount of LNG to fill the gap between gas production and demand; concerns over supply reliability have allowed the first LNG import facility to be approved in 2014, coming online in 2016. Another LNG import facility was proposed in 2015 with an regasification capacity of 0.4 bcf/d. Our Supplemental Documents package includes the EIA country brief and background PDF.

Oil & Natural Gas – TIPRO Texas oil natural and gas jobs up for 10th straight month

TIPRO February jobs update

No one should be surprised that the expectation for continued high oil and natural gas prices is driving increasing Texas oil and gas employment. The Texas Independent Producers and Royalty Owners Association (TIPRO) updated their employment figures for the Texas upstream sector for February [LINK]. The release noted that employment for February totalled 181,900, marking an increase of 5,100 jobs from the revised January numbers. It was the 10th consecutive month of job growth in the industry since April. The release stated, *"Texas upstream employment for February 2022 totaled 181,900, an increase of 5,100 jobs from revised January numbers. Texas upstream employment in February 2022 represented an increase of 20,700 positions compared to February 2021, including an increase of 1,900 positions in oil and natural gas extraction and 18,800 jobs in the services sector."* There has been strong job posting data for February in upstream, midstream, and downstream sectors, showing a continued demand for talent in the Texas oil and natural gas industry. From the release *" Though the U.S. energy sector is not immune to supply chain challenges and workforce shortages presented by both COVID-19 and the unfolding conflict in Eastern Europe, Texas oil and natural gas operators stand ready to support growing energy demand here and around the world. To successfully meet this demand both today and tomorrow, we must encourage long-term investments in domestic production. This includes taking immediate action on all U.S. LNG export facility and gas pipeline applications, ending the moratorium on new leases on federal lands and putting a stop to the political rhetoric against our industry, including the inaccurate and irresponsible notion that the oil and natural gas* *sector is taking advantage of the global energy crisis to increase profits. It's time to work together and develop real strategies to address the energy challenges facing American citizens and our allies abroad."* Our Supplemental Documents package includes the TIPRO release.

Oil & Natural Gas – American energy worries surge with rising prices

Americans worried about energy prices

The US mid term elections are now six months away, which means an increased focus on inflation including energy prices. And the politicians are either hearing it or seeing how rising energy prices are a major concern for Americans. The recent surge in energy prices around the world has led to an increased number of Americans that are worried about the availability and affordability of energy. Gallup news reported Thursday [LINK], a survey inquiring on American's views of their energy security moving forward. 47% of Americans say they worry about the availability of Energy and affordability of energy moving forward, up from 37% a year ago and double the percentage from 2020. These levels are of similar worry that Americans had during the California rolling blackouts, and the Global Financial Crisis. The March 1-18 poll was conducted as gasoline prices reached record highs in the U.S., averaging more than $4.00 per gallon nationwide. High gas prices have often been a factor in prior years when energy concern was high, including 2006 through 2008 and 2012. The survey noted 44% of Americans indicating their view that current energy prices was a "very serious" matter. Americans still believe there will be an energy shortage within the next 5 years with 55% of respondents indicating this view, up 2% from last year. Americans are divided on issues concerning environmental protection and energy production; 50% indicated that environmental protection should be given higher priority while 46% said that energy production should be prioritized. American's identifying as a Republican are more likely to be worried about a potential energy shortage with 46% concerned about energy's availability compared to just 26% of democrats. Just 38% of Americans approve of President Joe Biden's handling of energy policy, and 36% approve of his handling of the economy. The twin issues of inflation and energy are contributing to his low overall job approval rating of 42%, overshadowing the improving coronavirus situation and his higher job approval rating on that issue.

Electricity – Shoulder season but RTE says France needs to conserve power

France power conservation tomorrow

RTE, the manager of the French electricity transmission network, got some headlines yesterday with their activation of the Orange national Ecowatt signal for Mon April 4. [LINK] "*RTE warns that the situation on Monday morning could be tense with regard to the balance between electricity consumption and production. RTE reminds that everyone (households, businesses or local authorities) can help reduce their electricity consumption by adopting the right actions during the peak consumption scheduled for this Monday, April 4, between 06:00 and 12:00*." But the headlines on the warning were because of the RTE tips on what people should do such as shift their dishwashing and laundry that they would do tomorrow to yesterday and today. Our immediate reaction was how can this happen during shoulder season. RTE noted the drop in temperatures, but this is April so it means that Paris is a low of 9c and a high of 12c. But then we remembered, it's linked to the large amount of nuclear power that is off line. Earlier this morning, we tweeted [LINK] "*Bit of a surprise, @rte_france warns France to conserve electricity during shoulder season? Recall recent EDF nuclear issues have led to low #Nuclear generation. Bloomberg's @JesperStarn reports "french nuclear availability drops to 50% as Units halt" #OOTT".* Yesterday, Bloomberg reported

"*France's nuclear reactors were operating at 50% of full capacity on Thursday, down from 52% on Monday, according to Bloomberg calculations using data from grid operator RTE. Electricite de France SA halted its Chinon-1 reactor on Wednesday until 6 p.m. on Thursday while the start of Dampierre-1 was delayed until Saturday. The world's biggest nuclear-plant operator had 29 reactors available with a combined output of 29,620 megawatts as of 8:15 a.m. in Paris. Its 56 units generate more than two-thirds of the country's electricity."* Our Supplemental Documents package includes the RTE warning and the Bloomberg report.

A strong case for turning off lightbulbs

Anyone who lived in Europe in the 70s post the Arab Oil Embargo 1973-74 remembers energy conservation was a huge push and remembers the push to do things like turn the lights off when you leave a room. The RTE power warning included a good reminder on energy conservation. RTE wrote "*These gestures can have a real impact. For example, if all French people turn off a light bulb, this leads to a saving in electricity consumption of 600 MW, or approximately the consumption of a city like Toulouse."* There are 68 million people in France and approx. 500,000 people in Toulouse.

Energy Transition – Eni CEO says energy crisis isn't just Russia

Eni CEO on the failed energy transition

There was much more to the Eni CEO Monday CNBC interview than the headline comments "*In November, October, I don't want to say that you are a criminal if you produce gas and oil, but not far to be a criminal".* The criminal line got all the attention. But Eni CEO Claudio weighted in why the energy transition hasn't been a "transition" and there is much more to the energy crisis than Russia, which is why we tweeted [LINK] "*Oops, self inflicted #EnergyCrisis. "they create a big mistake & now see what happened. it's not just RUS, the gas price is not just RUS""the worldwide leadership was not wise & without equilibrium in evaluating the energy situation" @c_descalzi to @_HadleyGamble."* We created a transcript of his comments that is worth a read, which included ""*I think that's also, the minister said clearly that in the last years, in the past, we create a conflict between energy transition and gas or oil and decarbonization. It became an ideology so just renewables." " We are producing also renewables. We know we cannot do everything with just renewables." "And now, so that is a big mistake to be radical and say I want just that, renewables. And the rest have to disappear. We know very well that in the last 200 years, all the different energy vectors have been added – so coal, plus oil, plus gas and plus renewables. We never found a source or energy source that replaced everything. it's crazy to think that there is something that can replace everything." "And we need to use all the different technologies if we think that we are to choice some technology by in an ideologic approach, its crazy. Technology is neutral, there is no religion, it is not a god a technology. You have to use to phase the transition. so I think that when we talk about energy, first of all, we have to know what you are talking about – competencies. Everybody talks about energy, everybody talk about Covid. And make a big confusion. They create a big mistake and now we see what happened. It's not just Russia, the gas price is not just Russia. Because for seven years, we underinvested, we invested just 45% of what we invested in the previous seven years until 2014. Then we have Russia, then we have Covid, so I think that the worldwide leadership was not wise and without any equilibrium in evaluating the energy situation*." Our Supplemental Documents package includes the transcript we made of the Eni CEO comments.

Energy Transition – Abdulaziz, need energy security to attend to climate change

Abdulaziz on energy security & climate change

Earlier, we noted Saudi Energy Minister Abdulaziz's comments on the Biden administration support for Saudi Arabia. CNBC also posted a good clip of his reminder that the world needs to have energy security if it wants to deal with climate change. And what has happened is that there wasn't a priority on energy security so there becomes an energy crisis and now the world, or most of it, is back to a scramble on energy security. Upon seeing his comments on Tuesday, we tweeted [LINK] ""*Here comes Johnny, look at what is happening today. Who's talking about climate change now? Who is talking about attending to energy security first and foremost" people are pro producing #Oil #NatGas, pro, Halleluha, pro using coal. classic #Abdulaziz to @_HadleyGamble."* We made a transcript of his comments in the clip, which included "*But truly, you cannot attend to climate change without getting energy security. And certainly, if you don't have energy security, you would not have economic prosperity, you will not have economic growth. if you don't' have the two, you would lose the means of attending to climate change And, that day, I can see it in faces, oh yeah yeah yeah, he's the representative of Saudi Arabia bragging about these things. Well, here comes Johnny, look at what is happening today. Who's talking about climate change now? Who is talking about attending to energy security first and foremost? Look at the countries that juggled their own energy mix. Look at how much people are advancing their idea of thoughts we should focus on energy, on oil and gas, and we are pro producing oil and gas. And pro, and pro, Hallelujah, pro using coal".* Our Supplemental Documents package includes the transcript we made of his key comments.

Energy Transition – Norway's strengthening climate risk doesn't change oil & gas

Norway not selling oil and gas stocks

There is no question that Norway's title for their press release immediately caught our attention as it seemed to suggest a pivot away from their December 2021 new approach to oil and gas stocks. However, that was not the case, which is why, on Friday, we tweeted [LINK] "*Norway's "strengthening climate risk efforts in the GPFG" sounds it should be tougher on #Oil #NatGas but it isn't. "investment strategy should remain unchanged [see 12/21 below], "no reason to change the composition of the benchmark index in response to climate risk". #OOTT*." GPFG is what we and others call Norway's wealth fund and stands for Government Pension Fund Global. The title sounded like it should be tougher on oil and gas, but it isn't. Rather there is no change to the positive shift to oil and gas that was announced at the end of December (see below item). It was very clear from the Norway announcement that climate risk isn't the driving force and that they see a "broad, global market index" is the right approach. A few of the comments were "*Climate risk is nonetheless only one of many risk factors to which the Fund is exposed" "The investment strategy should remain unchanged. There is no reason to change the composition of the benchmark index in response to climate risk. This is highlighted both by the expert group and by Norges Bank. A broad, global market index is a suitable basis for managing climate risk and ensuring that the Fund will be exposed to the investment opportunities that arise,"* and "*This does not mean that the Fund shall be managed with a view to realising any other objective than the highest possible return, given an acceptable level of risk."* There were more similar comments. Our Supplemental Documents package includes the Norway release. [LINK]

In Dec, Norway said they would keep investing in oil and gas

Our Friday tweet referenced the positive shift by Norway's wealth fund to oil and gas stocks in December. Our December 26, 2021 Energy Tidbits memo was titled

"*Norway's Wealth Fund is Another Major Investor, Like CPPIB, to Keep Investing in Oil & Gas Stocks*". In that memo, we wrote "*We believe there is the case for multiple expansion for oil and gas stocks in 2022 as investors realize more significant institutional investors, especially pension funds, won't be selling down oil and gas stocks. The predictable is happening – more long term investors realize that the demise of oil and gas is many years further away than the Net Zero aspirations and that they will need oil and gas stocks for their returns. We expect to see more of these types of announcements/news over the next couple weeks. History has shown that the Xmas period is the time for announcements to be made to get the minimum attention. On Tuesday, we tweeted [LINK] "Multiple expansion for #Oil #NatGas stocks? Norway wealth fund has #MacronMoment & follows @cppib to slow play #EnergyTransition, won't sell, rather be a driving force for their equity investments to "adjust to #NetZero emissions over time". Less sellers is always good. #OOTT." Norway's sovereign wealth fund may be saying it a little differently but has come to a similar conclusion as CPPIB last week – they aren't selling oil and gas. They don't say it specifically but we also believe they won't be hesitating to buy . On Tuesday, Norway outlined its view on capital allocation [LINK] that had a number of key items. (i) High emissions sectors including oil and gas make up 14% of Norway's equity portfolio. These are companies that Norway believes must be restructured significantly to manage transition risk. (ii) "But that is not our approach, nor is it the expert group's proposal. Instead of selling ourselves out, we will through active ownership be a driving force for the companies to adapt. In order to influence, we must actually be owners." (iii) They want to be invested in all sectors. "If we are to achieve the best balance between expected return and risk, we must spread the investments widely and own a little of everything in the market. There is a solid professional basis for this approach." (iv) Priority to those that have the largest emissions ie. where they can effect change. "Going forward, we will increase ownership activity on climate, both in scope and depth. We will give particular priority to ownership activity towards the companies that have the largest emissions, towards those that have not published their own climate plans or have inadequate climate reporting." Our Supplemental Documents package includes the speech.*"

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

There was a very bullish for oil and gas stocks call by Canada Pension Plan Investment Board in December. In our December 19, 2021 Energy Tidbits, we wrote "*There was a significant positive to oil and gas investing this week and one that we expect others to follow, and this will lead to more long term investor capital allocation to oil and gas. On Wednesday, CPPIB announced its "new" investment approach in its release "CPP Investments highlights importance of decarbonizing hard-to-abate sectors in addressing climate change". [LINK] This is a significant change for a couple of reasons and one that we have been expecting based on the feedback we hear from long term investors. CPPIB calls it a "new investment approach" including on oil and gas. (i) CPPIB is a leader and is providing the messaging framework that we expect others to follow. Big long term investors like CPPIB have mostly all come out plans on how they taking their investment strategy to Net Zero. But, in discussions, more are realizing the Energy Transition isn't happening as fast as expected so their challenge is how to slow play their capital allocation to Net Zero.*

CPPIB provide the messaging on how they will do so. (ii) CPPIB now calls oil and gas a "strategic sector" and one for capital allocation. CPPIB said "helping businesses decarbonize is critical to addressing climate change, according to a recent perspective published by Canada Pension Plan Investment Board (CPP Investments). The perspective, "Investing to enable an economy-wide evolution to a low-carbon future," highlights the opportunity decarbonization presents for long-term investors, noting the need to address a particularly serious obstacle to decarbonization: strategic sectors that are essential, high-emitting and hard-to-abate. The perspective also outlines CPP Investments' new investment approach which aims to identify, fund and support companies that are committed to creating value by lowering their emissions over time, consistent with CPP Investments' time horizon advantage. "High-emitting companies that successfully navigate the economy-wide evolution to a low-carbon future will preserve and deliver embedded value for patient long-term investors like CPP Investments," said Deb Orida, Global Head of Real Assets & Chief Sustainability Officer. "This new investment approach complements the Fund's ongoing commitment to investing in companies that have the potential to develop innovative climate technologies around the world and furthers our existing capabilities in technologies that enable the energy evolution." Strategic sectors that are essential, high emitting and hard-to-abate within this investment approach include agriculture, chemicals, cement, conventional power, oil and gas, steel and heavy transportation. The successful decarbonization of these sectors is not only essential to meet wider net-zero ambitions, but also to sustain economic growth, stability and a responsible transition." Our Supplemental Documents package includes the CPPIB announcement."

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

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

Energy Transition – Daimler Truck CEO says EV trucks will forever cost more than ICE

EV trucks will aways cost more

We recognize that western governments will be regulating the end of ICE vehicles, but taxpayers should be prepared for EV incentives to continue indefinitely. The biggest challenge for EVs in general is to make them affordable for the general public and not just higher income. And this also applies to EV trucks. We ask the question of regular income pickup truck drivers for work purposes (ie. independent contractors) why aren't they putting in their EV truck order – the response is always purchase cost is way more expensive. Higher income truck drivers (perhaps what Texans call all hat, no cattle) really won't care if the electric truck costs an extra $30k or whatever so this shouldn't have any big impact on higher income people spending, but the idea of EVs is that they take over all car buying for reasons other than manufacturers won't be able to make ICE vehicles at a point in time. Last Sunday afternoon, we tweeted [LINK] on the FT reporting on comments from Daimler Trucks CEO Martin Daum. The FT wrote "*If you take the entirety of engine, transmission, axle, tank system, cooling . . . " the chief executive officer of Daimler Truck, Martin Daum, told the Financial Times, "we have a maximum of about €25,000 [of material in a combustion engine truck]." "How much battery do you get for €25,000? Even if [battery costs fall to] €60 per kilowatt hour, and I need 400 kilowatt hours, then I need €24,000 alone for the battery cells [in a single truck]". He added that it would be up to governments to make up the difference, using whichever mechanism they chose. "Without any subsidies . . . the price of an [electric] truck will always, forever be higher than a [combustion engine] truck."* Our Supplemental Documents package includes the FT report.

Deloitte, Most Americans won't pay >$500 vs ICE to buy an EV

Daimler Truck CEO was keeping his comments to EV trucks and not Daimler EV cars. But the challenge remains for EVs to become cost competitive to get broad buying outside of higher income people. Our Jan 16, 2022 Energy Tidbits highlgithed the Deloitte 2022 Global Automotive Consumer Study [LINK]. At that time, we wrote "*We recommend reading the survey as it gives automotive perspectives from different regions of the world. Deloitte says "From September through October 2021, Deloitte surveyed more than 26,000 consumers in 25 countries to explore opinions* *regarding a variety of critical issues impacting the automotive sector, including the development of advanced technologies." (i) Based on the survey, it's hard to see how EVs can have broad penetration across all income groups unless they are priced to the consumer after subsidies at basically the same price as ICE vehicles. On Thursday, we tweeted [LINK] "53% of US won't pay >$500 for alternative engine solutions (#EVs), 69% prefer ICE vs 5% EVs for next vehicle. It's why EVs are still mostly for higher income & need even bigger subsidies. Much more in @Deloitte 2022 Global Automative Consumer Study. Thx @KarenBowman #OOTT". (ii) Our tweet referenced US survey results that 53% won't pay >$500 for alternative engine solutions (EVs) and that 69% prefer ICE vehicles for their next car purchase vs 5% for EVs. (iii) It isn't clear why they picked >$500 as that seems very close to no difference in price even on a US$30,000 car price. We have to believe the 53% would be way higher if they had used a $1,000 or $2,000 or whatever marker. And when it's that close a price, it seems like the interpretation is that there can't be a price difference. (iv) Deloitte's first takeaway from the survey was "Willingness to pay for advanced tech remains limited. A majority of consumers are unwilling to pay more for advanced technologies in most global markets as they have been trained to expect new vehicle features as a cost of doing business for brands looking to differentiate themselves from their competitors." (v) Deloitte's second takeaway was "Interest in EVs driven by lower running costs and better experience. Consumer interest in electrified vehicles (EVs) centers on the perception of lower fuel costs, environmental consciousness, and a better driving experience. However, driving range and lack of available charging infrastructure remain barriers to adoption." (vi) No surprise, Deloitte wrote "Consumers who said they are not considering an EV as their next vehicle cited range anxiety and a lack of public charging infrastructure as their biggest concerns." The third rated concern was generally cost/price premium. (vii) There is much more in the survey." Our Supplemental Documents package includes excerpts from the survey."*

Figure 38: % of consumers unwilling to pay >US$500 for advanced tech in cars

Advanced technology category	US	Germany	Japan	Rep. of Korea	China	India	Southeast Asia[†]
Safety	56%	70%	66%	58%	31%	48%	59%
Connectivity	65%	77%	83%	72%	39%	48%	65%
Infotainment	69%	82%	86%	78%	39%	57%	72%
Autonomy	61%	69%	56%	42%	31%	37%	48%
Alternative engine solutions	53%	56%	57%	41%	31%	35%	46%
Unwilling to pay more than...	$500	€400	¥50,000	₩500,000	¥2,500	₹25,000	Local currencies[‡]

Source: Deloitte

EV buyers are mostly higher income people

Again, the Daimler Trucks CEO was discussing EV trucks and not EV cars. But EV cars are not yet getting broad buying outside of higher income period. Our Dec 12, 2021 Energy Tidbits noted this, when we wrote "*The reality is that EVs are the most visible component to reducing emissions and the assumption is that EVs will move from something higher income people own to a broad adoption from middle and even lower income groups. On Friday, we asked the question via a tweet [LINK] "Would there be any new car #EV purchases by <$50k or <$75k income if there weren't purchase incentives? what will it take and how long will it take to get these groups to increase new EV purchases and not new ICE purchases and used car purchases? #OOTT." Our tweet included the recent Hedge & Company "New Car Buyer Demographics 2022 (Updated)" data [LINK]. This is the challenge, there are economic incentives to buy EVs in all states, yet its hard for new EV sales to penetrate less than $100,000 income groups. Hedges & Company estimates 60% of the new EV buyers have household income >$100,000. There is going to have be increased regulatory/economic incentives for EVs to penetrate other income groups if EV penetration is going to grow as quickly as NetZero aspirations. And the other reality is that there will be increasing regulatory/economic costs assigned to ICE vehicles. Our Supplemental Documents package includes the Hedge & Company update*. "

Figure 39: New Battery Electric Vehicle Buyers by Household Income

Under $50,000	20%
$50,000 to $74,999	16%
$75,000 to $99,000	4%
$100,000 and up	60%

Source: Hedges & Company

Energy Transition – FedEX testing autonomous drone cargo delivery

FedEX tests drone delivery

Following the announcement from Amazon, FedEX has begun testing the use of automated air cargo delivery services in partnership with Elroy Air. The exponential growth of e-commerce has accelerated the demand for reliable, efficient transportation and logistics solutions throughout all stages of the supply chain. FedEX issued a press release on Wednesday [LINK] announcing their partnership with California based Elroy Air, who has been the first end to end automated vertical takeoff and landing (VTOL) air cargo system [LINK]. FedEX announced expects to begin developing plans to test the autonomous system with the company's middle-mile logistics operations that will move cargoes between an assortment of locations. From the release, "*FedEx was built on innovation and we are always looking toward new technologies to help enhance the logistics industry through improved safety, efficiency and customer service," said Joe Stephens, senior vice president, global planning, engineering and technology, FedEx Express. "We look forward to continued testing and learning throughout our collaboration with Elroy Air."* FedEx and Elroy Air have been working together since January 2020 and will continue their collaboration to pursue certifications and begin flight testing in 2023. The Elroy Air [LINK] "*Chaparral is a Vertical*

Take-Off and Landing (VTOL) aerial cargo platform. The first version of the Chaparral will carry 300–500lbs of cargo over a 300-mile range with its hybrid-electric powertrain and simple, redundant lift and forward-flight motors."

Figure 40: Elroy Air Chaparral

Source: Elroy Air

Capital Markets – BlackRock President calls out the entitled generation

BlackRock calls out entitled generation

We were surprised that someone at this level (President Ron Kapito) at a company like BlackRock would say this an we suspect most others were surprised. He called out an "entitled" generation, he wasn't specific at which generation but the nature of his comments were universally believed to be pointing at younger people. We are surprised because he could have easily reminded that the shortage issue that will be facing everyone. the issue of shortages is something that every age person really hasn't faced since the 1973/74. If that is when he is referring, the reality is that anyone under 65 or so wasn't old enough to have be the person dealing with shortages. Bloomberg reported "*"For the first time, this generation is going to go into a store and not be able to get what they want," Kapito said Tuesday at the Texas Independent Producers and Royalty Owners Association conference—an annual oil and gas industry convention. "We have a very entitled generation that has never had to sacrifice," Kapito added, Bloomberg reported. Without stating exactly which generation he was referring to, Kapito said that many people who had always had everything available to them at the supermarket would soon face "scarcity inflation"—the consequence of shortages in anything from workers to oil, housing or silicon chips. "I would put on your seat belts because this is something that we haven't seen," said Kapito, who co-founded Blackrock, the world's largest asset manager, along with CEO Larry Fink and retired vice president Susan Wagner."* Surely BlackRock will try to backtrack from these comments. Our Supplemental Documents package includes the Bloomberg report.

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

@Energy_Tidbits on Twitter

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

LinkedIn – Look for quick energy items from me on LinkedIn

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

Look for energy items on LinkedIn

Misc Facts and Figures.

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

Indianapolis Colts QB Matt Ryan on leadership & still wanting to play

I couldn't help but think of some of the great leaders I have worked with and seen in the financial industry when I saw some of new Colts QB Matt Ryan comments. The financial industry attracts a lot of good people but there is normally a reason why some firms are the best in hot, normal and cold markets and others just follow the tide. NBC sports Peter King wrote on his interview with Ryan [LINK] "*Ryan: "I think you have to know your guys, you know, and when they need to be locked in. And you have to be comfortable being uncomfortable, doing the things that might piss somebody off. Quite frankly, they might need to be pissed off to get the best or the most focused or whatever. I think a lot of people don't get to see that side of me – but it's there. That's part of playing this position. There's a responsibility that comes with leadership and playing this position. You have to get into that deep water and be uncomfortable and put it out there*." I also liked his response to King asking how much longer he might play. "*Ryan: "The most important thing is the passion, the energy, the want-to. I still have all of it. I'm not sure [I'll have it for] four years, five years, six years. You know? Certainly doesn't feel like one year, no. Absolutely not*."

Tornado Alley

AccuWeather's 2022 tornado forecast also explained Tornado Alley. AccuWeather wrote "*Tornado Alley, a term coined in 1952 by Maj. Ernest J. Fawbush and Capt. Robert C. Miller of the U.S. Air Force, for decades, was used to refer to an area where there was a high potential for tornado development. The ingredients for tornadoes came together frequently in this region as Arctic air from the north clashed with warm, moist air from the Gulf of Mexico. Hearing the term Tornado Alley may conjure up thoughts of storm chasers racing toward a towering thunderstorm in Oklahoma or Kansas, but trends in twisters in recent years have sparked debate among meteorologists as to whether the zone for most frequent tornadoes is shifting eastward. The area historically referred to as Tornado Alley encompasses a swath of the southern Plains to the northern Plains that includes central Texas, much of Oklahoma, Kansas, Nebraska and South Dakota. On its western flank, this traditional Tornado Alley includes slivers of eastern Colorado and eastern New Mexico and, on its opposite side, a narrow slice of Iowa. But in recent years, the area with the most frequent tornadic activity has seemed to shift farther east toward the Mississippi and Tennessee valleys."*

Did you know bar code scanning took off with rail cars tracking?

On Thursday, the WSJ posted the obituary "*Bar Code Pioneer Proved the Technology Was Robust. David J. Collins, who has died at age 86, created a system in the early 1960s to track railcars rumbling down the track*." [LINK]. The WSJ wrote "*The basic idea behind the bar code came from research by N. Joseph Woodland and Bernard Silver in the late 1940s. In the early 1960s, David J. Collins pioneered a way to scan bar codes with flashes of light. By developing a system to identify railcars, he helped turn bar codes and their derivatives into an inescapable badge of modern life, used to identify merchandise, inventories, packages and people getting on airplanes. Mr. Collins, a civil engineer, was working for a Sylvania Electric Products Inc. lab in Waltham, Mass., when he came up with his idea for tracking railcars. He labeled the cars with patterns of bars in various colors. Scanners read those codes as cars hauled gravel through Massachusetts. "It worked very, very well," Mr. Collins said later."*

Best indictor of high costs – Vegas raises prices for cheap buffets

This week, we saw a WSJ report that is a good indicator that cost inflation is hitting restaurants hard because it is forcing a very reluctant price increase to meals with brands based primarily on very low prices – Las Vegas buffets. On Wednesday, the WSJ reported [LINK] "*What Happens in Las Vegas Costs More".* The WSJ notes items that shouldn't surprise at higher end places such as *"on the Venetian casino's pool deck, a 20-ounce strawberry daiquiri is now $32—or $35 in a souvenir cup—compared with $28 and $33, respectively, as recently as November, according to menus posted on the casino's website. A spokesperson for the Venetian declined to comment*." But what is the better indicator that cost inflation is real is how the cheap buffets are having to raise their prices. The WSJ wrote "*Anthony Curtis, publisher of the newsletter Las Vegas Advisor, has been monitoring prices for more than 40 years, and he says the increases are the highest he has seen. He uses a Top 10 list of the best deals as a barometer for the Vegas market, and four of those increased in the past two months. A popular $5.99 steak special, for example, bumped up to $6.99. One buffet went up by $2. "These are sacred deals that are going up in price all over the place," Mr. Curtis told his YouTube viewers this month."*