Energy Tidbits

Aug 28, 2022

Produced by: Dan Tsubouchi

Saudi Energy Minister Abdulaziz Moves Brent +$6/b Despite a Gloomy FED Chair Outlook & Weak Global Economic News

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. Our target is to write on 48 to 50 weekends per year and to post by noon MT on Sunday. The Sunday noon timing was because PMs said they didn't have research to read on Sundays and Sundays are a day when they start to think about the investing week ahead.

This week's memo highlights:

1. Oil markets listened when Saudi Energy Minister Abdulaziz warned on physical markets and OPEC could always cut production. (Click Here)
2. All eyes will be on Nord Stream to see if it resumes deliveries after its Aug 31-Sept 2 maintenance. (Click Here)
3. Iran says its review of US JCPOA comments will take at least until Friday. (Click Here)
4. UK Ofgem increases energy cap price by 80% for Oct 1 and warns could get significantly worse thru 2023. (Click Here)
5. Macron's warning on the end of abundance for raw materials reminds of his 10/30/21 warning the energy system being created was going to lead to higher oil and gas prices. (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].

Dan Tsubouchi
Principal, Chief Market Strategist
dtsubouchi@safgroup.ca

Ryan Dunfield
Principal, CEO
rdunfield@safgroup.ca

Aaron Bunting
Principal, COO, CFO
abunting@safgroup.ca

Ryan Haughn
Principal, Energy
rhaughn@safgroup.ca

Table of Contents

Natural Gas – Natural gas injection of +60 bcf, storage now -268 bcf YoY deficit

YoY storage at -268 bcf YoY deficit

The YoY storage deficit started last winter at -282 bcf YoY at Oct 31 and is now -268 bcf YoY. The EIA reported a +60 bcf build (+56 bcf expectations) for the Aug 19 week, which was above the 5-yr average build of +46 bcf, and above last year's injection of +29 bcf. Storage is 2.579 tcf as of Aug 19, decreasing the YoY deficit to -268 bcf from -296 bcf last week and is -354 bcf below the 5-year average vs -296 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 (08/19/21)		Historical Comparisons: 5-year average (2017-21)	
Region	08/19/22	08/12/22	net change	implied flow	Bcf	% change	Bcf	% change
East	598	571	27	27	659	-9.3	689	-13.2
Midwest	714	684	30	30	786	-9.2	785	-9.0
Mountain	153	151	2	2	188	-18.6	186	-17.7
Pacific	243	248	-5	-5	241	0.8	272	-10.7
South Central	871	866	5	5	972	-10.4	1,000	-12.9
Salt	184	185	-1	-1	231	-20.3	246	-25.2
Nonsalt	687	681	6	6	742	-7.4	755	-9.0
Total	**2,579**	**2,519**	**60**	**60**	**2,847**	**-9.4**	**2,932**	**-12.0**

Source: EIA

Natural Gas – Platts forecasts Nov 1/22 storage at -265-365 bcf Yoy to 3.3 to 3.4 tcf

Platts gas storage forecast

There was a storage tidbit at the end of the Platts Aug 25 report "*NYMEX Henry Hub futures market shrugs off oversized build to US natural gas storage.*" [LINK] Platts wrote "*This fall, the prospect of refilling US gas storage at an average or even above-average pace now looks more promising with the addition of some 60 Bcf in supply from lost feedgas demand at Freeport LNG. Over the balance of the current injection season, even average weekly builds to US stocks would leave pre-winter inventories at a concerningly low level below 3.3 Tcf. According to forecasts from Platts Analytics, the US industry is on target to finish the current injection season just above that level with a projected 3.3-3.4 Tcf in the ground*." Even with the extended Freeport LNG restart delay (see later item), Platts Analytics is forecasting start of winter natural gas season Nov 1, 2022 storage to be down -265 to -365 bcf YoY vs Nov 1, 2021 storage of 3.665 tcf.

EIA's Aug STEO forecasts Nov 1, 2022 storage to be down 206 bcf YoY

Our Aug 14, 2022 Energy Tidbits *highlighted the EIA's Short Term Energy Outlook August 2022 forecast. We wrote "The EIA STEO also forecasts US gas storage. Its forecast is positive for natural gas. (i) Winter 2021/22. US gas storage started winter 2021/22 at 3.66 tcf, which was down -283 bcf YoY. But the EIA now forecasts end of winter (March 31, 2022) at 1.4 tcf, which is -395 bcf YoY and ~14% below the 5-yr average. (ii) Summer 2022. The EIA forecasts start of winter 2022/23 storage at 3.46 tcf, which is -206 bcf YoY. The start of 2022/23 winter forecast is -6% below the 5-yr average. This forecast has been increased due to the Freeport LNG shut-in. (iii) The EIA wrote "U.S. natural gas inventories ended July at 2.5 trillion cubic feet (Tcf), which was 12% below the 2017–2021 average. We forecast that natural gas inventories will end the 2022 injection season (end of October) at close to 3.5 Tcf, which would be 6% below the five-year average"*

Figure 2: EIA STEO Aug 2022 forecast US gas storage

	Storage	2016-2023				
	Level	Low	High	Range	Average	Deviation
Mar 2016	2,486.3	1,184.9	2,486.3	1,301.4	1,835.6	35.4%
Oct 2016	4,012.7	3,236.3	4,012.7	776.4	3,624.5	10.7%
Mar 2017	2,062.5	1,184.9	2,486.3	1,301.4	1,835.6	12.4%
Oct 2017	3,816.5	3,236.3	4,012.7	776.4	3,624.5	5.3%
Mar 2018	1,390.3	1,184.9	2,486.3	1,301.4	1,835.6	-24.3%
Oct 2018	3,236.3	3,236.3	4,012.7	776.4	3,624.5	-10.7%
Mar 2019	1,184.9	1,184.9	2,486.3	1,301.4	1,835.6	-35.4%
Oct 2019	3,762.0	3,236.3	4,012.7	776.4	3,624.5	3.8%
Mar 2020	2,029.4	1,184.9	2,486.3	1,301.4	1,835.6	10.6%
Oct 2020	3,928.5	3,236.3	4,012.7	776.4	3,624.5	8.4%
Mar 2021	1,800.6	1,184.9	2,486.3	1,301.4	1,835.6	-1.9%
Oct 2021	3,665.4	3,664.6	4,012.7	348.1	3,838.6	-4.5%
Mar 2022	1,401.5	1,184.9	2,486.3	1,301.4	1,835.6	-23.7%
Oct 2022	3,459.0	3,236.3	4,012.7	776.4	3,624.5	-4.6%
Mar 2023	1,547.2	1,184.9	2,486.3	1,301.4	1,835.6	-15.7%
Oct 2023	3,841.4	3,236.3	4,012.7	776.4	3,624.5	6.0%

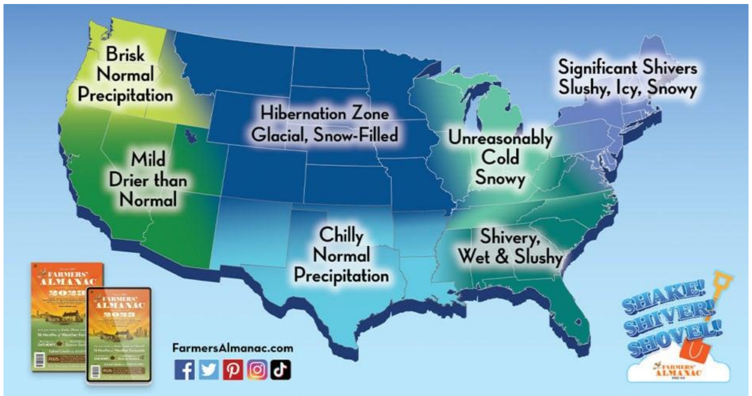
Source: EIA

Natural Gas – Farmer's Almanac calls for early start to a cold winter

Farmer's Almanac calls for cold winter

Our normal comment at this time of year is that it's still early so long term winter forecasts don't have much of an impact on natural gas markets going into Labor Day. And that's even moreso this year given the global shortage of natural gas and LNG post Russia/Ukraine. Plus, normally, the only time early winter forecasts tend to have an impact is when there is a clear view of an El Nino winter. On Aug 4, Farmer's Almanac issued their long-term weather forecast for 2023 [LINK]. The Farmer's Almanac doesn't provide an overall commentary for the US, but goes thru a regional recap. Looking at the regional assessments, it looks like a below normal temperature forecast for the US. They specifically warned about cold Dec and Jan in the East and South. The Farmer's Almanac wrote "*A cold December and a very cold January might make readers in the Northeast shake and shiver. But February will bring milder temperatures that should make winter seem more bearable. The Southeast will experience some shivers, especially during the month of January. Fortunately, for the snowbirds, February will likewise warm the region to near-normal winter season temperatures overall. Extra Flannels Necessary In Other States! Winter will feel unreasonably cold for readers in the Great Lakes region, especially in January.*" Our Supplemental Documents includes the Farmers' Almanac release.

Figure 3: Farmer's Almanac Winter 2022-2023 Forecast



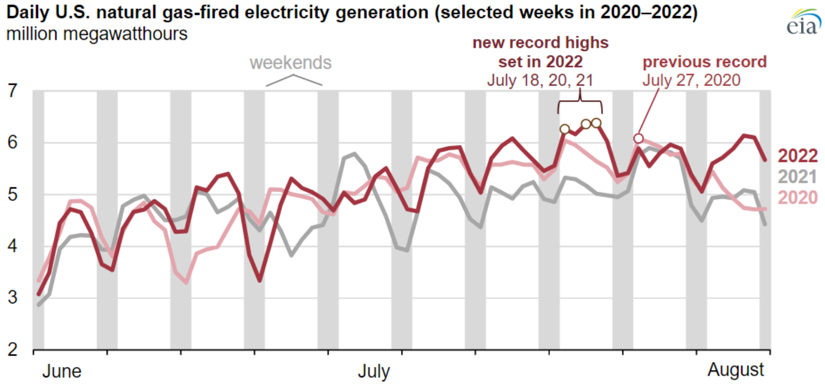
Source: Farmer's Almanac

Natural Gas – Daily U.S. electricity generation from natural gas hit a record in July

Electricity generation from natural gas

On Tuesday, the EIA reported [LINK] daily U.S. electricity generation from natural gas hit a record in July. In the U.S. Lower 48 states, electric power generated by natural gas-fired power plants reached 6.37 million megawatthours on July 21, 2022. Despite relatively high natural gas prices, demand for natural gas for electricity generation has been strong throughout July as a result of above-normal temperatures, reduced coal-fired electricity generation, and recent natural gas-fired capacity additions. This past July was especially hot, ranking as the third hottest on record in the United States. Typically, higher natural gas prices reduce natural gas price competitiveness relative to other sources, especially coal. This summer, coal-fired power plants have not been used as much as in prior summers. Continued retirements of coal-fired generating plants, relatively high coal prices, and lower-than-average coal stocks at power plants have limited coal consumption. In May, coal inventories at power plants averaged 20% lower than the prior-year levels. New capacity has increased the availability and use of natural gas-fired electricity. Over the past 10 years, developers have added about 62 gigawatts of combined-cycle gas turbine capacity. The increased number of combined-cycle gas turbines in use has led to efficiency gains and less conversion losses, which means more electricity can be generated from the same amount of natural gas. Our Supplemental Documents package includes the EIA blog.

Figure 4: Daily U.S. Electricity Generation from Natural Gas



Source: EIA

Natural Gas – Freeport LNG pushes back restart, now back to ~2 bcf/d by end of Nov

Freeport LNG update

It's all relative, but a negative HH story on Tuesday was Freeport LNG announcing a delay of approx. 2 months in its restart. Freeport LNG now expects getting back to sustained levels of 2 bcf/d for late November. On Tuesday, we tweeted [LINK] *"A later restart date for #FreeportLNG. Now, initial production can commence in early to mid-Nov, ramp up to >2 bcfd by end of Nov. Full Volumes expected Mar 2023. Was early Oct at ~2 bcfd. #NatGas #LNG #OOTT"*. In our Aug 7, 2022 Energy Tidbits memo, we highlighted Freeport's previous expectations, stating "*Freeport surprised the market on Wednesday (Aug 3) with their expectation they will get back to almost 100% capacity in early October.*" Production is now expected to commence in early to mid Nov, and reach ~2 bcf/d by the end of Nov. 100%

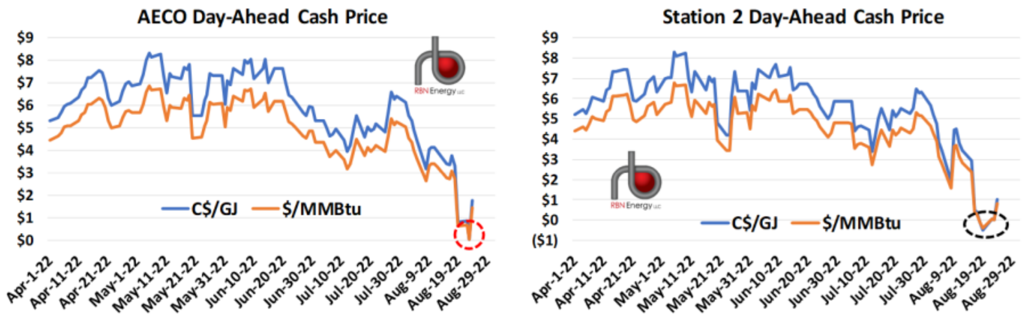
operating capacity is expected to be reached in March 2023. Our Supplemental Documents package includes from the Freeport LNG release.

Natural Gas – RBN blog: Canadian natural gas prices experience another collapse

RBN blog on Canadian natural gas

There was a good food for thought blog from RBN on Wednesday titled *"Too Low For Zero - Canadian Natural Gas Prices Experience Another Collapse, Record Discounts"* [LINK] which gives an overview of the Western Canadian gas market and the recent AECO price collapse. RBN goes thru a detailed recap of the key factors driving why AECO has been hammered despite HH being over $9. RBN writes "*It might seem easy to attribute the price crash to pipeline operators. However, this latest plunge is the result of a unique combination of record production levels, innumerable regulatory delays forcing construction schedules to shift, unintended overlapping of pipeline maintenance/construction work (i.e., Westcoast Huntingdon and NGTL USJR IT flows), and seasonal windows when only certain construction activities can take place. Even hotter-than-average weather, which has been baking Western Canada throughout July and August, could be playing a role by limiting the efficiency of compressors and making ground temperatures warmer than normal, which somewhat limits the amount of gas that can safely flow through the pipeline system without sending linepack pressures too high."* Our Supplemental Documents package includes the RBN blog.

Figure 5: Canadian Natural Gas Prices



Source: RBN

It was inevitable AECO diffs would be hit this summer

There is no question RBN has done their normal detailed review of why AECO has been hit this summer. It was inevitable that AECO would be hit this summer relative to HH. On Aug 17, we tweeted [LINK] "*unfortunately, the hit to #AECO #NatGas prices has played out as warned by my SAF Group partner @GregSheaWorkBee in April. See 👇 below 04/19/22 thread. #OOTT."* We pointed to our April 19, 2022 tweet [LINK] "*Expect #AECO price hit as unexpected #NatGas will be forced into storage this summer. @TCEnergy likely case delays in USJR capacity addition in-service for ~0.9 bcf/d, most for ~5 mths, small % to early Q1/23. Thx @GregSheaWorkBee for flagging. #OOTT [LINK]."* In our April 24, 2022 Energy Tidbits, we wrote ""*Natural Gas –~0.9 bcf/d of new NGTL capacity adds delayed for ~5 months. We were a little surprised that TC Energy's advising of delays for new NGTL gas capacity expansion in 2022 was going to be late didn't get any real attention. As soon as we saw the NGTL customer notice [LINK] on Tuesday night,* *we tweeted [LINK] "Expect #AECO price hit as unexpected #NatGas will be forced into storage this summer. @TCEnergy likely case delays in USJR capacity addition in-service for ~0.9 bcf/d, most for ~5 mths, small % to early Q1/23. Thx @GregSheaWorkBee for flagging. #OOTT". NGTL was supposed to put into service 1.3 bcf/d of new capacity in the Upstream James River Receipt area (USJR) in west-central and north-west part of Alberta ie. the primary growth area for Alberta natural gas. Producers were working on the assumption that 1.3 bcf/d was to be put into service in late April and throughout May. However, on Tuesday, NGLT advised to delays of most of this new capacity. Our tweet noted that ~0.9 bcf/d of this new capacity was being delayed, most of it for ~5 months and a small % delayed until early Q1/23. This delay did not impact current production takeaway, but it was being counted on by producers for the capacity to move the primary natural gas growth areas (ie. for the Montney) into the NGTL Alberta gas system and down to export markets*."

Natural Gas – Mexico's natural gas production still stuck below 5 bcf/d, +1.9% YoY

Mexico natural gas still stuck below 5 bcf/d

On Friday afternoon, Pemex reported [LINK] its oil and gas data for July. Pemex reported natural gas production of 4.815 bcf/d, which was +1.9% YoY and +1.5% Mom. For the past 3 years, an ongoing theme of the Mexican energy sector, has been their inability to grow domestic natural gas production. As a result, Mexico has relied on imports from the US which are reaching record levels; US pipeline exports to Mexico have increased ~2 bcf/d since Jan 1, 2018. Pemex does not provide any commentary along with its production data. Below is our ongoing table of Pemex reported monthly natural gas production.

Figure 6: 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%	4.766	-1.5%
Apr	5.921	5.334	4.869	4.816	4.827	4.671	-3.2%	4.740	1.5%
May	5.841	5.299	4.827	4.841	4.460	4.730	6.1%	4.702	-0.6%
June	5.881	5.253	4.840	4.843	4.754	4.727	-0.6%	4.744	0.4%
July	5.785	5.216	4.856	4.892	4.902	4.725	-3.6%	4.815	1.9%
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 – Another long-term LNG deal, Shell 20-yr deal buy from Energy Transfer

Another long term LNG deal

The rush continues for LNG buyers locking up long term LNG supply as there has been 11.43 bcf/d of long-term LNG supply locked up since July 1, 2021. We say continues because it started in July 2021 and was well underway before Russia invaded Ukraine. But no question it has accelerated post the invasion. Our March 13, 2022 Energy Tidbits memo noted Europe's plan to move away from Russian pipeline natural gas and LNG is a global game changer for energy for at least the 2020s. We were already seeing clear signals of the bullish LNG for 2020s call since the end of June 2021 with the abrupt shift of Asian LNG buyers to long term contracts. Now, with Russia, the rush continues and from more than Asian LNG buyers. There continues to be a consistent news flow of more long-term LNG supply deals, especially for the quickest to market LNG from the US Gulf Coast. On

Wednesday, Energy Transfer announced [LINK] it entered into a 20-yr deal to supply Shell NA LNG with 0.28 bcf/d from Lake Charles with first deliveries expected as early as 2026. Our Supplemental Documents package includes the Energy Transfer release.

Major LNG suppliers are also buying other's LNG for their supply portfolios

The Energy Transfer release included the following comments from Shell - "*Steve Hill, Executive Vice President Energy Marketing, Shell stated "LNG is a flexible energy source, connecting demand and supply centres globally and delivering reliable energy to millions of people. We are very happy to be working once again with Energy Transfer and adding Lake Charles volumes to our global LNG supply portfolio. This agreement will enable us to further meet the increasing demand for LNG and positions Shell as a leading buyer of LNG from the US – which in 2021 became the world's biggest LNG supplier*." This week's transaction by Shell highlights one of the different themes in 2022 – we have seen an increasing number of major global LNG suppliers lock up long term LNG supply for their LNG supply portfolios. We have seen Chevron, Equinor, Exxon, Shell and Vitol lock up LNG supply. This gives them the flexibility to have other LNG supply in the event of outages in their own LNG supply projects. One of the major LNG stories of the past year has been LNG supply outages including at Chevron's Gorgon LNG and Shell's Prelude LNG.

Asia is still well in front of Europe in securing long term LNG supply

Our March 13, 2022 Energy Tidbits memo noted that Europe LNG buyers were starting 9 months behind the wave of Asian LNG buyers who started to lock up long term LNG supply starting in July 2021. The LNG supply crunch is not a 2022 development. Rather, it was clear in H1/21 that there was a major sea 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 11.43 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 11.43 bcf/d of long term LNG deals since July 1, 2021. 64% of the deals have been by Asian LNG buyers, but we are now seeing rest of world locking up long term supply deals post Russia/Ukraine. And as seen in the Shell deal this week, major LNG supply companies like Chevron, Equinor, Exxon, Shell and Vitol are locking up long term LNG supply to add to their portfolios for LNG supply to others. Below is our updated table of Asian and Europe LNG buyers new long term supply deals since July 1, 2021.

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

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country Buyer / Seller	Volume (bcf/d)	Duration Years	Start	End
Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
Jul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037
Jul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034
Jul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045
Sept 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037
Oct 7, 2021	Shenzhen	BP	China / US	0.04	10.0	2023	2032
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035
Nov 4, 2021	Unipec	Venture Global LNG	China / US	0.46	20.0	2023	2043
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5	2022	2040
Nov 22, 2021	Foran	Cheniere	China / US	0.04	20.0	2023	2043
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0	2024	2034
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0	2023	2033
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2023	2043
Dec 29, 2021	Foran	BP	China / US	0.01	10.0	2023	2032
Jan 11, 2022	ENN	Novatek	China / Russia	0.08	11.0	2024	2035
Jan 11, 2022	Zhejiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039
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.
Apr 6, 2022	ENN	NextDecade	China / US	0.20	20.0	2026	2026
Apr 22, 2022	Kogas	BP	Korea / US	0.20	18.0	2025	2043
May 2, 2022	Gunvor Singapore Pte	Energy Transfer LNG	Singapore / US	0.26	20.0	2026	2046
May 3, 2022	SK Gas Trading LLC	Energy Transfer LNG	Korea / US	0.05	18.0	2026	2042
May 10, 2022	Exxon Asia Pacific	Venture Global LNG	Singapore / US	0.26	n.a.	n.a.	n.a.
May 11, 2022	Petronas LNG	Venture Global LNG	Malaysia / US	0.13	20.0	n.a.	n.a.
May 24, 2022	Hanwha Energy	TotalEnergies	Korea / France	0.08	15.0	2024	2039
May 25, 2022	POSCO International	Cheniere	Korea / US	0.05	20.0	2026	2036
June 5, 2022	China Gas Holdings	Energy Transfer	China / US	0.09	25.0	2026	2051
July 5, 2022	China Gas Holdings	NextDecade	China / US	0.13	20.0	2027	2047
July 20, 2022	PetroChina	Cheniere	China / US	0.24	24.0	2026	2050
July 26,2022	PTT Global	Cheniere	Thailand / US	0.13	20.0	2026	2046
July 27, 2022	Exxon Asia Pacific	NextDecade	Singapore / US	0.13	20.0	2026	2046
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**7.30**			
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
May 2, 2022	Engie	NextDecade	France / US	0.23	15.0	2026	2041
May 17, 2022	PGNiG	Sempra Infrastructure	Poland / US	0.40	20.0	n.a.	n.a.
May 25, 2022	RWE Supply & Trading	Sempra Infrastructure	Germany / US	0.67	15.0	n.a.	n.a.
June 9, 2022	Equinor	Cheniere	Norway / US	0.23	15.0	2026	2041
June 21, 2022	EnBW	Venture Global LNG	Germany / US	0.20	20.0	2026	2046
June 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.18	20.0	n.a.	n.a.
June 22, 2022	Chevron	Venture Global LNG	US / US	0.26	20.0	n.a.	n.a.
June 22, 2022	Chevron	Cheniere	US / US	0.26	15.0	2027	2042
July 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	20.0	2026	2046
July 13, 2022	Vitol	Delfin Midstream	US / US	0.07	15.0	n.a.	n.a.
August 9, 2022	Centrica	Delfin Midstream	UK / US	0.13	15.0	2026	2041
August 24, 2022	Shell	Energy Transfer	US/US	0.28	20.0	2026	2046
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**4.14**			
Total New Long Term LNG Contracts since Jul/21				**11.43**			
*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 – Shell Prelude 0.47 bcf/d FLNG gets deal to end Union industrial action

Shell Prelude FLNG 0.47 bcf/d

We don't know the details, but Shell reached a deal with the union to end the industrial action at its 0.47 bcf/d Prelude FLNG offshore NW Australia. We thought the union had been signaling the potential for an end to its industrial action by stopping the threat of a long term stoppage and defining the key issue of job security. We don't know what Shell gave, but, on Wednesday, we tweeted [LINK] "*Union says reached a deal with #Shell #PreludeFLNG 0.47 bcf/d. No details yet or when #LNG loadings can resume. But have to believe LNG cargos* *resume sometime in Sept. #NatGas #OOTT*." The last LNG cargo was July 6 and the announcement did not say forecast timing for LNG cargos, but we would expect LNG cargos sometime in Sept. Our Supplemental Documents package includes the Offshore Alliance Aug 24 Facebook posting.

Figure 8: Shell Crux Project Overview

Source: Shell

Natural Gas – India June natural gas production -0.3% YoY to 3.29 bcf/d

India natural gas production -0.3% YoY

One of the key themes for India over the past year is that it looks like they have turned the corner on a decade of declining domestic natural gas production, which is even more important given the stronger than expected LNG prices in 2021-2022. The key India natural gas theme for the past decade was that India's natural gas production declined, which meant that increases in natural gas consumption had to be met by increased LNG imports. India's domestic natural gas production peaked in 2010 at 4.6 bcf/d but it now looks like we are seeing modest return to growth. However, July's production is down slightly MoM. On Thursday, India's Petroleum Planning and Analysis Cell released their monthly report for July natural gas and oil statistics [LINK]. India's domestic natural gas production was down slightly -0.3% YoY from 3.29 bcf/d in July 2021 to 3.28 bcf/d, down from 3.31 bcf/d in June. India has consistently struggled to grow domestic natural gas production with 2018-2019 production averaging 3.18 bcf/d, declining to 3.02 in 2019-2020 and averaged 2.78 bcf/d 2020-2021. Our Supplemental Documents package includes excerpts from the PPAC monthly package.

Natural Gas – India June LNG imports up 1.7% YoY to 2.93 bcf/d, up 1.5% MoM

India LNG imports +1.7% YoY

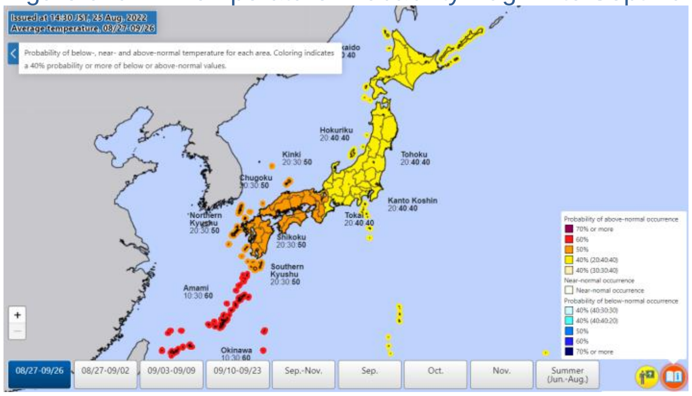
There is no surprise that the above noted decrease of India domestic natural gas production means increased need for LNG imports. India is always viewed as an extremely price sensitive buyer in terms of its LNG imports, which was exemplified in their 2020-2021 import data. India had ramped up imports from June to October 2020, taking advantage of low LNG prices to fill their stocks. Imports began to decline in November 2020 as LNG prices rose, with the price trajectory ramping up in late Dec and reaching record levels in January. This resulted in India LNG imports declining from a 2020-2021 peak of 3.84 bcf/d in Oct 2020 to just 2.85 bcf/d in Jan 2021. July imports increased MoM to 2.93 bcf/d and up 1.7% YoY.

Natural Gas – Continued hot weather forecast in Japan

Still hot in Japan

The hot weather continues in Japan with JMA forecasting warmer than normal temperatures through Aug and into Sept. Hot weather in the summer is always a positive for power demand, but, this summer, the high cost of LNG has pushed Japan's utilities to try to maximize fuel oil and coal for power generation. But still hot weather is positive to Japan natural gas consumption. The Japan Meteorological Agency posted its August 27 to September 26 weather forecast [LINK] calling for much warmer than normal temperatures. Note the below map is for the next month, but the maps for each of the next two weeks is the same depicting hot weather.

Figure 9: JMA Temperature Probability Aug 27 to Sept 26



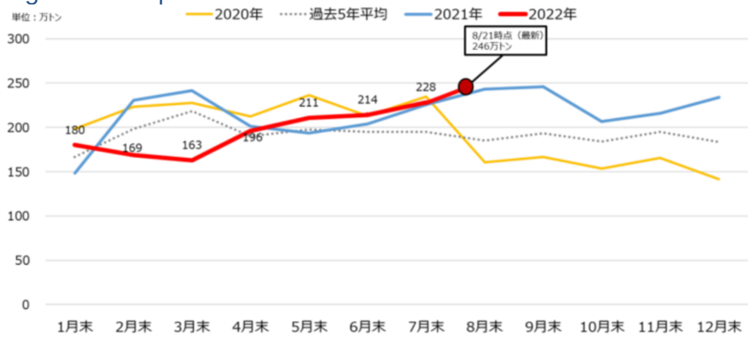
Source: Japan Meteorology Agency

Natural Gas – Japan's LNG stocks up +2.6% from last week

Japan LNG stocks +2.6% WoW

The risk for Japan in the winter is that they need full storage and continued LNG imports to avoid natural gas outages. That's because Japan's LNG stockpiles are not huge relative to LNG imports that have ranged from 7 to 14 bcf/d since Jan 1, 2021. A cold winter or interruption in LNG imports could easily lead to a shortage. LNG stockpiles held by Japanese power producers have exceeded both last year's level and the 4-year average. Japan's METI weekly LNG stocks data was released on Wednesday [LINK]. LNG stocks at Aug 21 were ~118 bcf, +2.6% WoW from 115 bcf and slightly up from the 5-yr average of 117 bcf. Below is the LNG stocks graph from the METI weekly report.

Figure 10: Japan’s LNG Stocks



Source: METI

Japan storing LNG in Indonesia

Natural Gas – Japan’s Kyushu Electric is also storing LNG in Indonesia

It’s not a difference maker for LNG for Japan, but one of its utilities, Kyushu Electric Power Co., is also using LNG storage tanks in Indonesia. On Thursday, Bloomberg reported that Kyushu Electric Power Co “*has started using storage tanks at the Arun import terminal in Indonesia under an agreement with a unit of PT Pertamina, according to Miho Shimasue, head of long-term LNG procurement at the Fukuoka-based company. A first delivery into the tanks was made in April and discharged for delivery to Japan later that month while a cargo from Russia’s Sakhalin export plant unloaded at the Indonesian site this month, she said.”* And “*Yet Kyushu Electric is unusual among Japan’s big 10 utilities in securing storage capacity outside its home market. Increasing renewable energy production in the southern island of Kyushu led the nation’s fourth biggest power retailer to start negotiations with Pertamina to store surplus supplies, and the parties reached an agreement last December over the use of two of the four tanks at Arun from January to December 2026. That’s the equivalent to having about*

Pertamina’s Arun LNG Hub Center in Asia

Kyushu Electric is storing LNG at Pertamina’s Arun LNG Hub Center that became operational in Q4/21. On Oct 29, 2021, Pertamina announced it “*has successfully done the LNG reloading optimally to the international market (28/10/2021). It confirms PAG’s vision to become a world-class LNG Hub and Regasification company. It is also Pertamina Go Global’s commitment and implementation of the cooperation agreement to utilize the LNG Hub tank of Arun Refinery, which was signed on August 10, 2021. President Director of PT Perta Arun Gas, Arif Widodo, said that PAG has succeeded in unloading and reloading several LNG cargoes owned by various parties. “We plan to develop this business by utilizing four LNG tanks with a total capacity of 508,000 m3, with each tank having a capacity of 127,000 m3. It is one of PAG’s remarkable milestones in expanding the global market network and increasing the company’s value,” he said.”* Using BP’s conversion guide, that is total capacity of 17.9 bcf of LNG. Our Supplemental Documents package includes the Pertamina Oct 29, 2021 announcement.

Natural Gas – Norway reminds EU wanted spot prices not long term supply deals

xxxx

Our first thought in seeing Norway Oil and Energy Minister Terje Aasland's comments was that these comments could easily have come from Russia. E24 reported on Aasland's written comments in a response to parliamentary representative Sofie Marhaug. We tweeted [LINK] "*Norway will supply #NatGas to EU but not at discount prices ie. almost sounds like RUS. Prices were high pre RUS/UKR. EU went for spot prices, not long term supply contracts, so seeing higher prices now. Rejects imposing price cuts on #NatGas exports to EU. Thx @malkyl. #OOTT".* Aasland made three key natural gas comments. (i) Natural gas was already up well before Russia invaded Ukraine. E24 wrote "*We are in a demanding time", writes Oil and Energy Minister Terje Aasland (Ap) in his reply to Marhaug. He links the high gas prices to the corona crisis, which gave a shock, followed by rapid economic growth afterwards. Russia's warfare in Ukraine comes on top of this. Russian gas deliveries to Europe have been low, and this is causing concern about the supply situation for the winter."* (ii) Europe's move to spot prices instead of long term supply contracts is hitting them now. This has been one of Putin's big reminders – Europe didn't want to enter into long term supply deals linked to oil. E24 wrote "*The minister points out that it is Europe itself that has chosen the spot price over the fixed price in recent years. Now the market is hitting back at a lot of people. They have speculated on low prices, and not planned for bad times, says Marhaug to E24. Gave increased security In recent years, many gas customers have chosen to buy gas in the spot market, instead of on long-term fixed-price contracts. Aasland points out that for a long time it was common to have long-term contracts where the price was linked to the oil price. "Such contracts gave increased security for the companies that invested in production and transport infrastructure that the facilities would be profitable," he writes. Such long-term contracts have not been desired by the EU in the last 20 years or so, the minister points out. Instead, spot prices have been preferred, which fluctuate from day to day. "In periods it has given the EU countries low gas prices in an international perspective and in certain periods like now it has given higher prices", writes Aasland."* (iii) Aasland was asked if he thinks the Norwegian oil and gas companies should be required to sign fixed price contracts for natural gas below the current market price. E24 wrote ""*To the extent that gas customers in Europe and companies that produce gas on the Norwegian continental shelf wish to enter into long-term gas contracts on commercial terms, they are free to do so," writes Aasland. "However, I am not proposing a policy where petroleum companies on the Norwegian continental shelf are required to sign fixed-price contracts for gas deliveries," he adds."* Our Supplemental Documents package includes the e24 report. [LINK].

Natural Gas – Delays in restarting France nuclear means more boost for natural gas

Delays in France nuclear restarts

It better be a warm start to winter in Europe and in Asia because there was another unplanned boost for natural gas on Thursday with the reports such as Reuters "*Restarts at several French nuclear power reactors delayed".* [LINK] The delay in return of the nuclear plants means that there will be increased pressure to cut consumption but also increased demand for natural gas and LNG. The EDF nuclear plants being down in 2022 was already bad and then the drought in Europe also impacted generation. We tweeted [LINK] "*More #NatGas #LNG will be needed in Europe. Delays in the restart of several of #EDF #Nuclear power reactors in FR to at least mid-Nov delaying in an adjustment of outage schedules, further delaying 5.2 GW of #Electricity capacity. Thx @forrest_crellin @EckertVera. #OOTT."* Now, Reuters reported "*Several of EDF's nuclear power reactors in France have had their restart pushed back to at least mid-November in an adjustment of outage schedules, further* *delaying 5.2 gigawatts (GW) of supply at a time of historically low availability*." Two of the examples highlighted by Reuters were "*The 1.3 GW Penly 1 reactor in northwestern France is expected offline on Oct. 2 and will now remain out until Jan. 23. Corrosion was discovered last January on the piping of the safety injection circuit and the reactor cooling circuit at Penly 1. The delay is nearly a month from the previously announced restart date of Dec. 25. Delays were also announced at several 1.3 GW reactors at the Cattenom site in northeastern France. The restart of the Cattenom 3 reactor, where indications of corrosion were detected during testing after going offline in March, was delayed two months to Dec. 11 from an initial return date of Oct. 8."* Our Supplemental Documents package includes the Reuters report.

EDF also gets hits by small unplanned nuclear downtimes in France

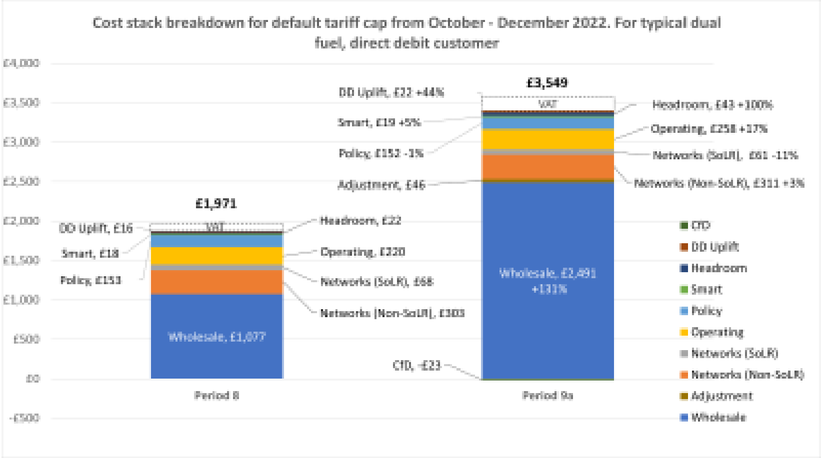
The above noted delays are a bigger issue for the France power outlook but, unfortunately, EDF is also getting hit by small unplanned nuclear downtimes. On Monday, we tweeted [LINK] "*Terrible timing for another #EDF unplanned #Nuclear outage. EDF expects #Bugey-2 to be only down 3 days post a failure. As a result, @MathisWilliam reports France's nuclear reactors now operating at 43% of capacity vs 48% Friday. #NatGas #LNG #OOTT*." EDF had just made France nuclear generation back to 50% earlier in Aug and then gets hit with these smaller items.

Natural Gas – UK homes get hit with +80% Oct 1 energy price, way higher on Jan 1

UK energy prices +80%

The reality of Europe energy prices is starting to flow thru to consumers and it isn't pretty and the worst is still to come. On Friday, we tweeted [LINK] "*Buckle up! UK energy price cap increase +80% or +$1,870 to $4,200 per year for average household from Oct 1. And it gets even worse come Jan 1. Note @ofgem warms "the market for #NatGas in Winter means that prices could get significantly worse through 2023". #OOTT.*" On Friday, UK's Ofgem posted "*Ofgem updates price cap level and tightens up rules on suppliers*" [LINK]. Ofgem wrote *"Today (26 August 2022) Ofgem has announced the energy price cap will increase to £3,549 per year for dual fuel for an average household from 1 October 2022. This comes as Ofgem's CEO warns of the hardship energy prices will cause this winter and urges the incoming Prime Minister and new cabinet to provide an additional and urgent response to continued surging energy prices*." This is an 80% increase, an increase of £1,578 or $1,867, which increases the annual price cap to £3,549 or $4,199 per household. The price cap gets adjusted for each quarter and Ofgen warns the worst is still to come. Ofgen wrote "*Although Ofgem is not giving price cap projections for January because the market remains too volatile, the market for gas in Winter means that prices could get significantly worse through 2023."* That is a big warning that prices could get "significantly worse through 2023". Our Supplemental Documents package includes the Ofgem announcement

Figure 11: Dual fuel customer paying by direct debt, typical energy use (GB £)



Source: Ofgem

On Aug 4, Ofgem warned "customers face a very challenging winter ahead"

Based on the reporting of the Ofgem price increase, the 80% price increase and the warning that it could get significantly worse in 2023 was a surprise. On Aug 4, Ofgem confirmed that the energy price cap was being updated quarterly and it "*warned that customers face a very challenging winter ahead*". [LINK]. Ofgem wrote "*The price cap, as set out in law in 2018, reflects what it costs to supply energy to our homes by setting a maximum suppliers can charge per unit of energy, and caps the level of profits an energy supplier can make to 1.9%, protecting millions of households. As a result of the market conditions, the price cap will have to increase to reflect increased costs and Ofgem will publish the next price cap level at the end of August. While the price cap will have to rise, it continues to remove the risk of prices rising quickly for consumers when wholesale prices go up but falling slowly and less fully when they go down. When wholesale prices fall, these reductions will be passed on in full to customers through a lower price cap. This will happen more quickly with the quarterly price cap."*

Natural Gas – Nord Stream stops on Aug 31, will it restart after Sept 2?

Nord Stream maintenance ends Sept 2

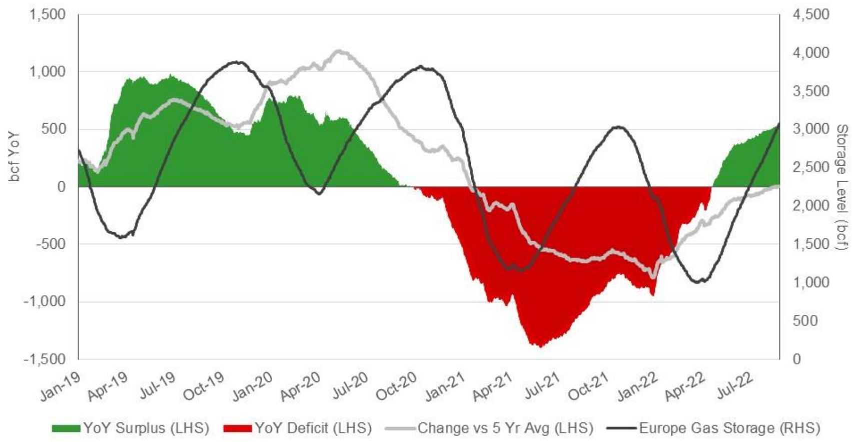
All eyes will be on Nord Stream this week. Gazprom is scheduled to stop all natural gas flows on Aug 31, conduct 3 days of maintenance and resume natural gas flows after Sept 2. But there is huge risk that it may not resume *deliveries. Gazprom announced the 3-day maintenance in an Aug 19 tweet* [LINK] *"On August 31, 2022, the only gas compressor unit that is currently in operation, Trent 60, will be shut down for a three-day servicing and preventative maintenance period".* And this means Nord Stream natural gas supplies will be suspended during the 3-day period Aug 31 to Sept 2. We tweeted the key question on everyone's mind – will it be restarted. We tweeted [LINK] *"Hmmm! #Gazprom says #NordStream to shut down on Aug 31 for 3 days and will resume #NatGas flows at 1.17 bcf/d "provided that no malfunctions are identified". wonder what the betting line is on more than 3 days! #OOTT."* Servicing and maintenance is proper operating procedures for pipelines and Gazprom said "*according to the technical specifications provided by Siemens, the unit must* *undergo technical maintenance every 1,000 hours*", which is every 41 days. Gazprom's notice closed "*upon the completion of maintenance operations, provided that no malfunctions are identified, gas transmissions will be resumed at the rate of 33 million cubic meters per day.*" The key qualifier being "provided no malfunctions are identified". This will be the question – will it resume after Sept 2? Our Supplemental Documents package includes the original Gazprom Aug 19 tweet.

Natural Gas – Europe storage is now +13.14% YoY ie. 78.30% full vs 65.16%

Europe storage now 78.30% full

It looks like the continued strong LNG imports and efforts to reduce consumption are having an impact. Even with the reduced volumes on Nord Stream, Europe storage continues to have increasing YoY levels. Europe gas storage began the year in a YoY deficit, but the YoY Europe storage gap changed to a YoY storage surplus and it continues to build this week. Europe gas storage started the winter down 18.52% YoY and is now a YoY surplus of 13.09%. Inventories are rising all across Europe, as is normal during spring and early summer. 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 turned to surplus after months of the deficit tightening. Thanks to the warm weather and US LNG, storage as of Aug 24 is at 78.30%, which is +13.15% greater than last year levels of 65.16% and are +0.17% above the 5-year average of 78.13%. Below is our graph of Europe Gas Storage Level.

Figure 12: Europe Gas Storage Level



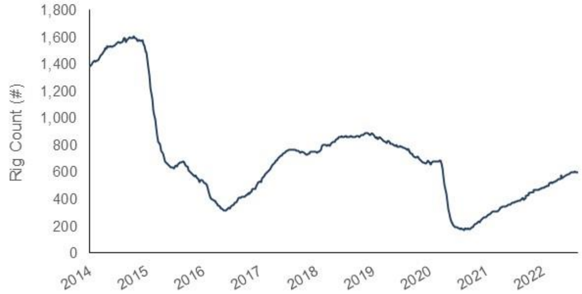
Source: Bloomberg

Oil – US oil rigs +4 at 605 oil rigs at Aug 26

US oil rigs +4 WoW

Baker Hughes released its weekly North American drilling activity data on Friday. This week US oil rigs were +4 at 605 oil rigs. It looks like US oil rigs are in a pause and basically unchanged since oil dipped to $90. Oil rigs are +433 off the bottom of 172 in Aug14/2020 week. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by -78 to 605 oil rigs (-13%). US gas rigs were -1 WoW at 158 rigs as HH still continues to be above $8.

Figure 13: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – US frac spreads +7 to 287 spreads for the week ending Aug 26

Mark Rossano (C6 Capital Holdings) held his weekly US frac spread recap for the week ending Aug 26 on the Primary Vision network. YouTube video is at [LINK]. For the week ending Aug 26, US frac spreads at the high point in the week were +7 to 287 spreads. Here are some of Rossano's comments on the week. Saw the expected increase this week, which gives a strong close to August. Sets up the push in September to 300 to 305 spreads, which is where he expects spreads to settle out in Oct/Nov until get to the normal seasonal decline at Thanksgiving thru year end. The biggest spread increases were in the smaller basins as well as the Permian. Rossano reinforced he is not expecting a huge increase in spreads, rather its this 13 to 17 spreads move up. He noted spreads still have a way to catch up with rigs. Rossano said spreads are typically at 0.41 ratio to rigs, right now it's 0.37, so still room to move.

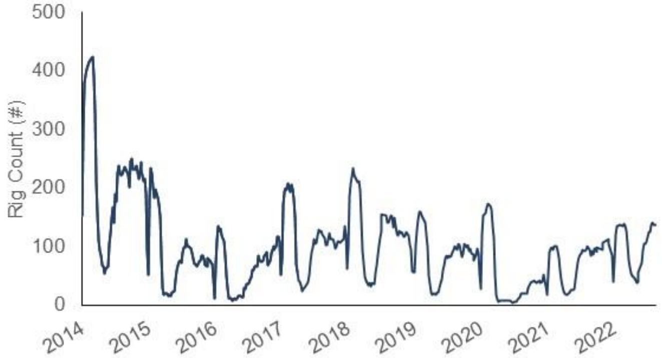
Frac spreads +7 to 287

Oil – Total Cdn rigs flat WoW at 201 total rigs, +54 rigs YoY

Total Cdn rigs were flat at 201 total rigs. Cdn oil rigs were -1 at 136 rigs. Cdn gas rigs were +1 at 65 rigs. Cdn rigs have been in a bit of a pause with WTI ~$90 and plunged AECO. Total rigs are now +188 since the June 26, 2020 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 85 and Cdn gas rigs were 62 for a total Cdn rigs of 147, meaning total Cdn oil rigs are +51 YoY and total rigs are +54 vs 2021.

Cdn rigs flat WoW

Figure 14: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production -0.1 mmb/d at 12.0 mmb/d

US oil production was down -0.1 mmb/d to 12.0 mmb/d for the week ended Aug 19 after another decrease last week. Its only been a couple months but US oil production has been stuck around 12 mmb/d. Lower 48 production drove total production and was -0.1 mmb/d at 11.6 mmb/d this week, with Alaska having immaterial change. US oil production is up YoY at +0.6 mmb/d, but is still down significantly at -1.1 mmb/d since the 2020 peak of 13.1 mmb/d on March 13.

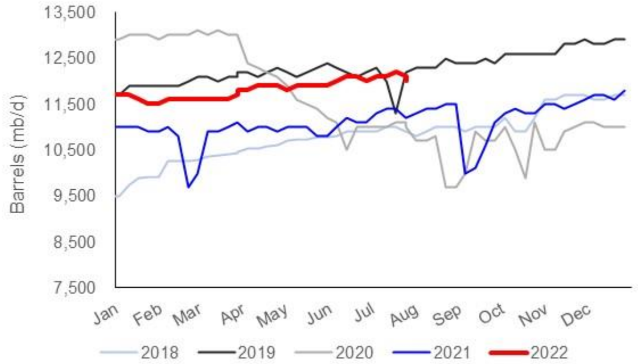
US oil production -0.1 mmb/d WoW

Figure 15: EIA's Estimated Weekly US Oil Production

Year-Month	Week 1 End Date	Week 1 Value	Week 2 End Date	Week 2 Value	Week 3 End Date	Week 3 Value	Week 4 End Date	Week 4 Value	Week 5 End Date	Week 5 Value
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	03/25	11,700		
2022-Apr	04/01	11,800	04/08	11,800	04/15	11,900	04/22	11,900	04/29	11,900
2022-May	05/06	11,800	05/13	11,900	05/20	11,900	05/27	11,900		
2022-Jun	06/03	11,900	06/10	12,000	06/17	12,000	06/24	12,100		
2022-Jul	07/01	12,100	07/08	12,000	07/15	11,900	07/22	12,100	07/29	12,100
2022-Aug	08/05	12,200	08/12	12,100	08/19	12,000				

Source: EIA

Figure 16: US Weekly Oil Production



Source: EIA, SAF

No big wildfire issues so far for oil sands

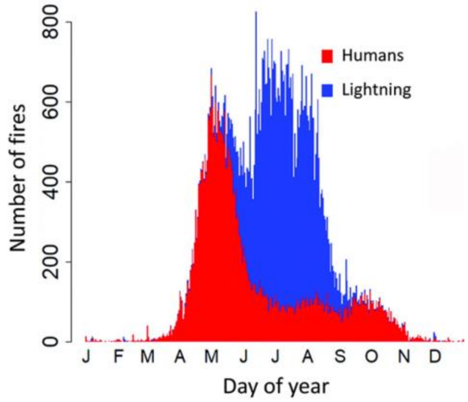
Oil – So far, wildfires haven't been a big impact on oil sands

On Tuesday, we tweeted [LINK] "*Here Alberta Wildfire Status Dashboard link. @roberttuttle reports wildfire 10 miles NE of #Suncor's Firebag #OilSands is "being held", est to be 60 hectares & was caused by lightning. Hope wildfires won't be an issue to our friends in Fort McMurray. #OOTT [LINK]".* As of our 7am MT news cut off, it looks like the "being held" wildfire has been held without any significant change in the past 5 days just NE of Suncor's Firebag oil sands. The latest status is that is still ~1,500 hectares or approx. 6 square miles. So good news that the fire is being held and not getting larger in area.

Keep our fingers crossed, it's still wildfire season

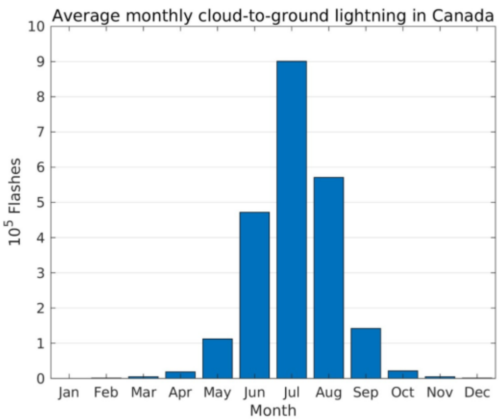
Every time we hear about weather with thunder and lighting, we worry about wildfires. And one thing we know is that wildfire season is unpredictable and we are still in wildfire season. Below are two graphs that remind the big factor for wildfires is lightning. For a good way to track the wildfires, check out the AB [LINK] and BC [LINK] wildfire maps, which show any active fires as well as the stage of control they are in as well as their suspected cause. Below is the Wildfire Today graph of wildfires in Canada by month [LINK] Canada Environment and Natural Resources graph showing average monthly cloud-to-ground lightning in Canada [LINK]..

Figure 17: Canada Wildfires Distribution Over Year



Source: Wildfire Today

Figure 18: Average monthly cloud-to-ground lightning in Canada



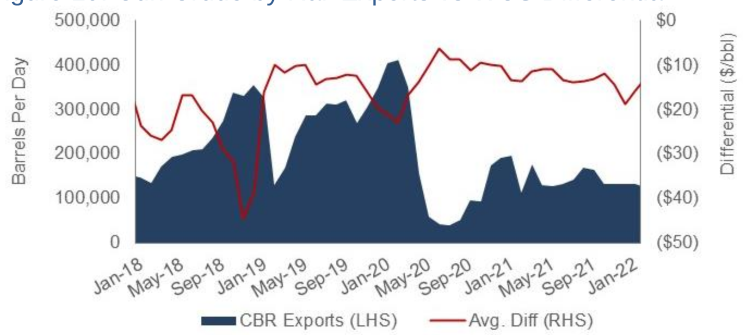
Source: Canada Environment and Natural Resources

Oil – Cdn crude by rail exports at 170,234 b/d in June, up 29.3% YoY

Cdn crude by rail exports

The Canadian Energy Regulator (successor to NEB) reported Canadian crude by rail exports were -2,888 b/d MoM in June to 170,234 b/d vs 173,122 b/d in May [LINK]. This puts June export volumes at +38,610 b/d YoY (+29.3%) vs June 2021 of 131,624 b/d. CBR volumes are +131,367 since the Covid July 2020 bottom of 38,867 b/d. June WCS-WTI differentials increased to -$18.85, which provides economic incentive to ship Cdn crude by rail into US markets. Below is our graph of Cdn crude by rail exports compared to the WCS–WTI differential.

Figure 19: Cdn Crude by Rail Exports vs WCS Differential



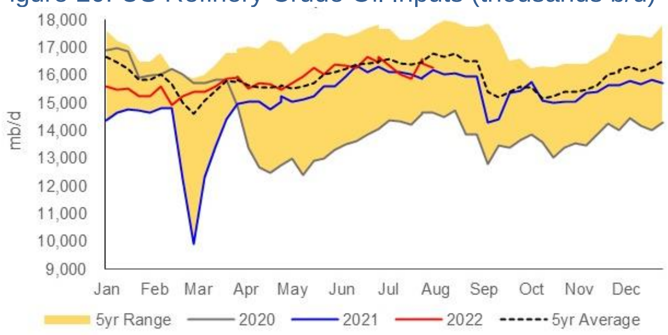
Source: Canadian Energy Regulator, Bloomberg

Oil – Refinery inputs -0.168 mmb/d WoW at 16.255 mmb/d

Refinery inputs down WoW

The EIA crude oil input to refinery data is for the week ended Aug 19. This is the season that normally sees increasing processing volumes in Q2 every year, though the EIA reported crude oil inputs to refineries down -0.168 mmb/d to 16.255 mmb/d for the week ended Aug 19 and are +0.187 mmb/d YoY. Refinery utilization was up to 93.8%, which is +1.4% YoY. Note that hurricane season in the US is here, with the official start of the season on June 1. Total products supplied (i.e., demand) decreased WoW, down -1.882 mmb/d to 19.339 mmb/d, and Motor gasoline was down -0.914 mmb/d at 8.434 mmb/d from 9.348 mmb/d last week. The 4-week average for Motor Gasoline was down -0.667 mmb/d YoY to 8.861 mmb/d. The 4-week average of Total demand was down -0.995 mmb/d YoY to 19.995 mmb/d.

Figure 20: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA

Oil – BP Whiting, minimal fire damage means a quick restart to production

BP Whiting 435,000 b/d refinery

Goood news for Cdn oil companies that the Wednesday fire at BP's 435,000 b/d Whiting (Indiana) refinery only had minimal damage and the refinery was expected to restart operations this weekend. As of our 7am MT news cut off, we have not seen reports if it restarted yesterday. This is a huge refinery for Cdn oil that supplies probably all of the crude supply. On Friday, Bloomberg reported "* *BP's Whiting, Indiana, refinery may be able to begin restarting production as soon as the weekend after finding damage from Wednesday's fire was minimal and most of the work will be electrical, people familiar with operations say.*

** The biggest Midwest refinery was mostly not operating after the fire in a power house caused a loss of cooling water, which most units must have to operate without incurring damage ** Fire stemmed from an electrical arc flash, meaning the big production units likely escaped damage * Restarting multiple production units and returning to normal production can take at least several days to a week and longer if issues are discovered during the restart process".* Our Supplemental Documents package includes the Bloomberg report.

Oil – Granholm urges refiners build stocks/don't increase exports or else

Granholm's warning to refiners

On Friday morning, we tweeted [LINK] "*Every man for himself! @SecGranholm urges US #Oil refiners to build inventories, not sell down stocks & further increase exports. Or, Admin need to consider added Fed requirements or other emergency measures. Excerpt 👇, worth reading full @WSJ opinion. #OOTT."* We didn't see the WSJ opinion piece until early Friday morning and had to read it a couple times to make sure the WSJ was quoting Energy Secretary Granholm's letter and not interpreting her comments. But they were quotes from a Granholm letter to some refiners that wasn't made public. Her comments surprised us and others. It was a pretty clear warning to US refiners that the Biden Administration will take actions against refineries if they increase exports of petroleum products. The WSJ wrote "*That's the message Energy Secretary Jennifer Granholm sent last week in a letter imploring seven major refiners to limit fuel exports. We obtained a copy of the letter, which the Administration didn't release publicly. Ms. Granholm warns that gasoline inventories on the East Coast are at a near-decade low, and diesel stocks are nearly 50% below the five-year average across the region. "Given the historic level of U.S. refined product exports, I again urge you to focus in the near term on building inventories in the United States, rather than selling down current stocks and further increasing exports," she writes. "It is our hope that companies will proactively address this need," she adds. "If that is not the case, the Administration will need to consider additional Federal requirements or other emergency measures." In New Jersey they call that an offer you can't refuse."* Our Supplemental Documents package includes the WSJ opinion piece. [LINK]

Oil – US "net" oil imports up 0.863 mmb/d WoW at 1.994 mmb/d

US "net" oil imports up WoW

US "NET" imports were up 0.863 mmb/d to 1.994 mmb/d for the Aug 19 week. US imports were up 0.040 mmb/d to 6.171 mmb/d. US exports were down -0.823 mmb/d to 4.177 mmb/d. The WoW increase in US oil imports was driven by US's Top 10 imports by country which were up by 0.276 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was up this week by 0.379 mmb/d to 3.834 mmb/d. (ii) Saudi Arabia was up 0.003 mmb/d to 0.247 mmb/d this week. (iii) Colombia was down -0.071 at 0.143 mmb/d. (iv) Ecuador was up 0.242 mmb/d at 0.278 mmb/d. (v) Iraq was up 0.062 mmb/d to 0.225 mmb/d. (vi) Mexico was down -0.158 mmb/d to 0.503 mmb/d.

Figure 21: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d	June 10/22	June 17/22	June 24/22	July 1/22	July 8/22	July 15/22	July 22/22	July 29/22	Aug 5/22	Aug 12/22	Aug 19/22	WoW
Canada	3394	3344	2887	3803	3827	3481	3308	3,673	3,351	3,455	3,834	379
Saudi Arabia	681	760	701	398	634	242	516	500	412	244	247	3
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	608	374	743	702	610	877	639	815	710	661	503	-158
Colombia	292	228	215	213	213	405	150	328	174	214	143	-71
Iraq	555	100	76	362	302	454	165	369	181	163	225	62
Ecuador	227	124	59	142	149	57	150	243	212	36	278	242
Nigeria	181	43	201	171	79	136	143	57	161	253	72	-181
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	5,938	4,973	4,882	5,791	5,814	5,652	5,071	5,985	5,201	5,026	5,302	276
Others	1,047	1,253	1,116	1,048	861	867	1,093	1,357	970	1,106	869	-237
Total US	6,985	6,226	5,998	6,839	6,675	6,519	6,164	7,342	6,171	6,132	6,171	39

Source: EIA

Oil – Pemex oil production still stuck around 1.7 mmb/d, but partners now 70,000 b/d

Pemex July oil 1.707 mmb/d

On Friday afternoon, Pemex released its July production for its interests, it was 1.707 mmb/d of oil, which is basically unchanged for the last several months. Pemex has been unable to grow its own oil production. However, the non-Pemex oil production in Mexico is now up to 70,000 b/d in July and has averaged 62,000 b/d for YTD July 31. As a result, total Mexico oil production (Pemex and non-Pemex) was 1.777 mmb/d for July and 1.758 mmb/d for YTD July 31. Below is our chart tracking Pemex oil production.

Figure 22: Pemex (Excl 3rd Party) 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	1,696	-0.1%
Apr	2,201	2,177	2,012	1,868	1,675	1,703	1,693	1,686	-0.4%
May	2,227	2,174	2,020	1,850	1,663	1,633	1,688	1,690	0.1%
June	2,247	2,178	2,008	1,828	1,671	1,605	1,698	1,702	0.2%
July	2,272	2,157	1,986	1,823	1,671	1,595	1,701	1,707	0.4%
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

Oil – Mexico July oil exports up to 1.062 mmb/d

Pemex July oil exports

Our April 3, 2022 Energy Tidbits highlighted the major (and a surprising one) change in Mexico oil export strategy for 2022. On March 31, AMLO announced "plan emergente" that would see Mexico oil exports relatively flat YoY in 2022, and not down huge as has been one of the primary election promises to the Mexican people. The plan didn't make sense at the time as to why export oil at a high price but then keep importing more petroleum products at higher prices ie. a net loss. That is, unless increasing refining capacity wasn't happening as planned. Part of this came to light last month with the inauguration of the new 340,000 b/d Dos Bocas refinery, which won't be ready to refine oil for several months. As a result, Mexico isn't making any real decreases in oil exports. On Friday afternoon, Pemex reported July oil exports were 1.029 mmb/d, which was up MoM vs June of 1.029 mmb/d and down 9.5% YoY vs July 2021 of 1.173 mmb/d. Pemex oil exports to US were 0.684 mmb/d in July, basically flat MoM to 0.664 mmb/d in June. Below is our table of the Pemex oil export data.

Figure 23: 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%	905	-2.2%
Apr	1,081	1,017	1,266	1,023	1,179	923	-21.7%	1,024	10.9%
May	1,204	958	1,222	1,205	1,062	1,031	-2.9%	965	-6.4%
June	1,098	1,157	1,110	995	1,114	1,106	-0.7%	1,029	-7.0%
July	1,146	1,255	1,156	1,079	1,051	1,173	11.6%	1,062	-9.5%
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 – Norway July oil production of 1.646 mmb/d, down +23.9% MoM

Norway oil production

The Norwegian Petroleum Directorate released its July production figures [LINK] of 1.646 mmb/d of oil, which is -6.1% YoY and +23.9% MoM from June of 1.329 mmb/d. July production was down 10.9% (-0.201 mmb/d) from the forecast amount of 1.847 mmb/d. The NPD does not provide any explanations for the MoM changes. The theme for Norway through 2021 was that Norway oil production returned to growth because of the Johan Sverdrup oil field, and tax breaks from the government allowing increased capex in the energy sector. Norway oil production was still expected up modestly in 2022.

Figure 24: Norway July 2022 production

		Oil	Sum liquid	Gas	Total
		mill bbl/d	mill bbl/d	MSm³ /d	MSm³ o.e/d
Production	**July 2022**	**1,646**	**1,876**	**351,0**	**0,649**
Forecast for	July 2022	1,847	2,094	332,5	0,665
Deviation from forecast	July 2022	-0,201	-0,218	18,5	-0,016
Deviation from forecast in %	July 2022	-10,9 %	-10,4 %	5,6 %	-2,4 %
Production	July 2021	1,753	2,035	310,4	0,634
Deviation from	July 2021	-0,107	-0,159	40,6	0,015
Deviation in % from	July 2021	-6,1 %	-7,8 %	13,1 %	2,4 %
Production	June 2022	1,329	1,540	332,0	0,577
Deviation from	June 2022	0,317	0,336	19,0	0,072
Deviation in % from	June 2022	23,9 %	21,8 %	5,7 %	12,5 %

Source: Norwegian Petroleum Directorate

Oil – No "official" word on how much/how long CPC Kazakhstan oil will be hit

No official word on CPC loading impact

As of our 7am MT news cut off, the Caspian Pipeline Consortium's official updates were on Aug 22 and Aug 25. (i) there has been no official word from CPC on how much loadings will be hurt and for how long will there be reduced loadings from losing the ability to use two of its three offshore loading systems. Rather they have been silent on providing any specific estimates. The Aug 22 update *"SPM-1 and SPM-2 temporarily out of service"* said "*The use of the single SPM will allow to meet shipper nominations with reduced volumes*." The Aug 25 update did not provide any specifics on loading volumes or how long will it take to repair the two damaged loading systems. (ii) But there are reports that suggest it will take several months to repair. On Aug 22, we tweeted [LINK] *"Must read! #Kommersant equipment failure to lead to big cut in #Oil exports via CPC from planned 1.35 mmbd to 0.60 mmbd as "given the political situation, repairs will most likely be delayed until spring". some alternative route* *via Transneft 0.40 mmbd & BTC 0.10 mmbd. #OOTT*." Kommersant reported "*Novorossiysk demanded to stop the work of the consortium for 30 days due to environmental violations. Now deliveries through one TLU will allow fulfilling the orders of shippers in reduced volumes, the CPC said, refusing to comment further. Also, the company does not comment on the timing of repairs. They explained that the replacement of tanks will be carried out from those available in reserve, and to perform this operation, a pre-qualification selection of organizations is needed. A Kommersant source familiar with the situation says that, given the political situation, repairs will most likely be delayed until spring: even if the company manages to select a contractor and sign a contract with him by October, the storm season will begin, during which it will be impossible to carry out work . As a result, according to Kommersant's interlocutor, deliveries through the CPC may decrease by at least 50%, to 28-30 million tons on an annualized basis. Such calculations are confirmed by Igor Yushkov, an expert at the Financial University under the Government of the Russian Federation. He notes that in normal mode, as a rule, two TLUs operate, and the third one is connected when necessary. Therefore, taking into account the plans for pumping up to 67 million tons for 2022, the shutdown of two TLUs threatens to decrease to about 30 million tons on an annualized basis. Therefore, if the repair is delayed for six months, the shipment will amount to 15 million tons by March."* (iii) There is no guarantee that Kommersant reporting is correct, but we remind they announced the Baker Hughes stopping servicing and providing equipment for its big turbines in Russian LNG projects a month before other media. Our Supplemental Documents package includes the two CPC updates and the Kommersant report.

Oil – OPEC and non-OPEC ministerial meeting (ONOMM) is Mon Sept 5

OPEC+ meeting Sept 5

The 32nd OPEC and non-OPEC Ministerial Meeting (ONOMM) is planned for Monday September 5, 2022 and is to be via video conference once again. The next planned in-person meeting isn't expected until the December meeting at the OPEC offices in Vienna.

Oil –Saudi Energy Minister Abdulaziz warns OPEC could cut production

Abdulaziz warns on oil

It's hard for anyone to say that Saudi Energy Minister Abdulaziz doesn't move oil markets. Oil was up ~$6 this week in a week where oil would have been expected down with negative global economic data, FED chair Powell gloomy Jackson Hole speech, more expectations for a near term JCPOA, etc. On Monday, we tweeted [LINK] "*Don't say The Man, Saudi Energy Minister Abdulaziz, didn't warn everyone. See 👇He may not talk about oil prices, but seems clear that $90 #Oil doesn't reflect the realities of the physical market. And BTW, Saudi can control the realities of the physical market. #OOTT*". As soon as we saw the Saudi Press Agency report of Abdulaziz key comments, we sent out our tweet as it seemed like he was making a clear message to the markets. Abdulaziz never talks about a target for oil prices, but his message seemed clear that he wants higher prices. Brent oil was trading a little lower on Monday down to $95.10, but then rallied Monday and through the week driven by Abdulaziz comments, and closing at $100.99 on Friday. The market listened to Abdulaziz reminding of the potential for OPEC+ to look at a cut in production. Abdulaziz said "*In OPEC+ we have experienced a much more challenging environment in the past and we have emerged stronger and more cohesive than ever. OPEC+ has the commitment, the flexibility, and the means within the existing mechanisms of the Declaration of Cooperation to deal with such challenges and provide guidance including cutting production at any time and in* *different forms as has been clearly and repeatedly demonstrated in 2020 and 2021."* Our Supplemental Documents package includes the Saudi Press Agency report.

Oil – OPEC+ countries said they are supportive of Abdulaziz views

OPEC+ countries support Abdulaziz

Early Thursday morning, we tweeted [LINK] "*When The Man, Saudi Energy Minister Abdulaziz, speaks, markets should listen. He doesn't say things unless he can deliver. #OPEC members publicly endorsing 👇 08/22 tweet. Libya & Congo follow ALGR, GNQ, IQ, KWT, VEN. Thx @business Grant Smith, @Khalidansary, @V_Ratcliffe. #OOTT."* Since our tweet, we have seen endorsements also from Azerbaijan, Bahrain, Congo, Libya, Oman, and UAE. UAE is significant as they are viewed as the only other country with significant spare capacity.

Oil – JCPOA, US says deal is now closer but still not there

US says JCPOA deal is closer

The US continues to say the JCPOA is closer than before but still not yet there. (i) On Tuesday, we tweeted [LINK] "*Is market fulling pricing likelihood of #JCPOA? "We think they have finally crossed the Rubicon and moved toward possibly getting back into the deal on terms that President Biden can accept" says senior US official. Thx @steveholland1 @ArshadReuters #OOTT."* (ii) On Monday, we tweeted [LINK] *"#Oil markets should keep pricing in return to #JCPOA. Today, @StateDeptSpox reminds JCPOA would be PROFOUNDLY in our national security interest, See 👇 Aug 16 tweet, no greater challenge to US national security than Iran w/ nuke, big JCPOA issues have been largely settled. #OOTT*". Our tweet was driven by US State Dept spokesperson Ned Price at his Aug 22 press briefing. Price stepped up his JCPOA comments to say a return to JCPOA would be "profoundly" in our national security interest. Our referenced Aug 16 tweet was linked to this concept and also how Price has said all the big JCPOA issues had been largely settled. It just seems hard for Biden to walk away from the most important national security interest if all the big issues have been solved.

US says JCPOA big issues are settled, how can the US now walk away?

This week's US State Dept comments did not backtrack on their comments that a return to JCPOA is closer than ever, but still not there. And if the big issues have been resolved, how can Biden walk away from one of his priorities. And it would be his big international success. Here is what we wrote in the Aug 24, 2022 Energy Tidbits. "*We thought US State Dept spokesperson Ned Price's comments at his Tues press briefing seemed to point to more momentum for a return to the JCPOA. (i) Big issues have been largely settled. We tweeted [LINK] "Hmmm! is this #Biden messaging for return to #JCPOA? Big issues are fine, other items are details? @StateDeptSpox just now "the big issues have been discussed. they have been tabled. We believe they have been largely settled." Seems consistent with 👇Feb 1 tweet. #OOTT"." We thought it was significant that Price highlighted the big issues have been largely settled. On a massive deal and one of this priority for Biden, we have trouble believing Biden would walk away if the big issues have been resolved. (ii) No greater challenge to US national security. We also tweeted [LINK] "Hmm! 3 separate @StateDeptSpox comments point to US return to #JCPOA. no greater challenge to US national security than Iran w/ nuke, deal will be dead if no longer in national security interest to pursue, big issues have been largely settled. See 👇 SAF*

Group transcript. #OOTT." There were separate comments at the Tues press conference that would seem to point to why it looks hard (nearly impossible?) for the US to walk away now. Price also said there is no greater challenge to US national security than Iran with a nuclear weapon and the JCPOA deal will be dead as soon as it is no longer in our national interest to pursue. If he says the big issues are largely resolved, how can Biden walk away?

Oil – Iran says its JCPOA review of US comments will take at least until Friday

OPEC+ countries support Abdulaziz

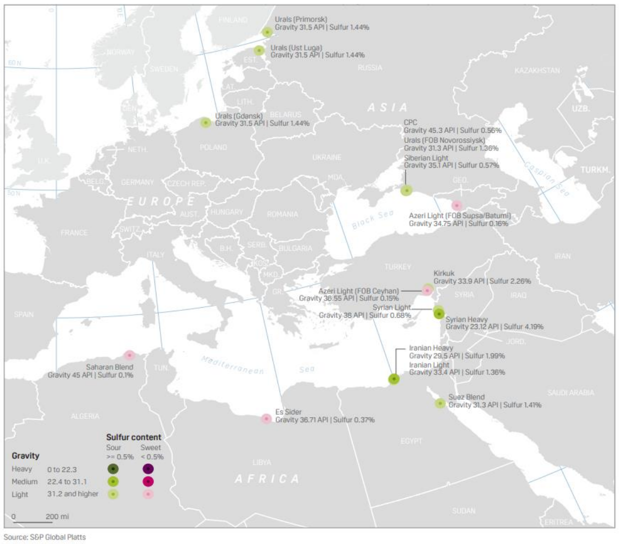
No surprise, Iran didn't just say yes to the latest US JCPOA comments. Iran says their review will take at least until Friday. But what seems different this go around is that they are talking about specific times instead of no estimated time. Earlier this morning, PressTV [LINK] reported "*An expert review of the response that Iran has received from the United States to Tehran's amendments to the EU nuclear deal text is underway, and will conclude by the weekend. Iran's Nour News, affiliated with the country's Supreme National Security Council (SNSC), said in a tweet on Sunday that the detailed examination of Washington's response to Tehran regarding the EU's coordinating ideas is still ongoing at expert levels. It added that the process will continue at least until the end of Friday."* Perhaps the most interesting part of the PressTV report is what isn't in the report – there didn't' seem to be the normal ultimatum type stance. One way or another, it looks like Sept will be the make it or break it moat nth.

Oil – Iran's oil would be a good crude quality replacement for Urals crude to Europe

Iran oil similar to Russia Urals

Here is what we first wrote on this in our March 13, 2022 Energy Tidbits. "*On Wednesday, we tweeted [LINK] on a good reminder from the Gulf Intelligence daily Podcast [LINK] that Iran's crude oil quality would be a good replacement for Russian Urals crude oil to Europe. We tweeted "#JCPOA. Good reminder from @gulf_intel podcast. Matt Stanley @starfuels reminds Iran light matches API and H2S very well and is a good substitute RUS Urals. See below @SPGlobalPlatts crude specs map. #OOTT". Our tweet included the below Platts map that noted crude qualities for Russia were Urals (Primorsk) 31.5 API 1.44% H2S, Urals (Ust Luga) 31.5 API 1.44% H2S, and Urals Gdansk 31.5 API 1.44% H2S, which compares to Iranian Light 33.4 API 1.36% H2S*."

Figure 25: Platts Specifications Guide Europe and Africa Crude Oil



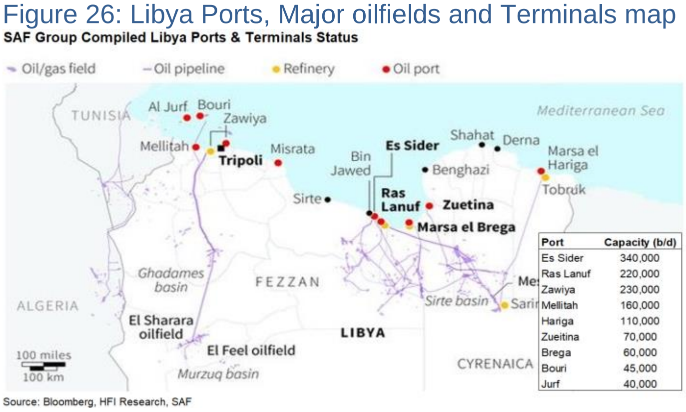
Source: Platts

Oil – Tripoli deaths raise risk/fear for a return to East vs West war

Fears Libya could return to war

Unless things abruptly return to no armed fighting, the markets will look at increased risk for a return to East vs West fighting for control of Libya. And, if so, the risk for Libya oil production (currently >1.2 mmb/d) to sharply decline. Our comments are based on the reports as of our 7am MT news cut off such as Bloomberg/AFP report "*Clashes between backers of Libya's rival governments killed at least 32 people, the health ministry said Sunday in a new toll, after a battle that sparked fears of major new conflict. Armed groups had exchanged fire that damaged several hospitals and set buildings on fire starting Friday evening, the worst fighting in the Libyan capital since a landmark 2020 ceasefire. A cautious calm had set in by Saturday evening, an AFP correspondent said.*"

Figure 26: Libya Ports, Major oilfields and Terminals map



Port	Capacity (b/d)
Es Sider	340,000
Ras Lanuf	220,000
Zawiya	230,000
Mellitah	160,000
Hariga	110,000
Zueitina	70,000
Brega	60,000
Bouri	45,000
Jurf	40,000

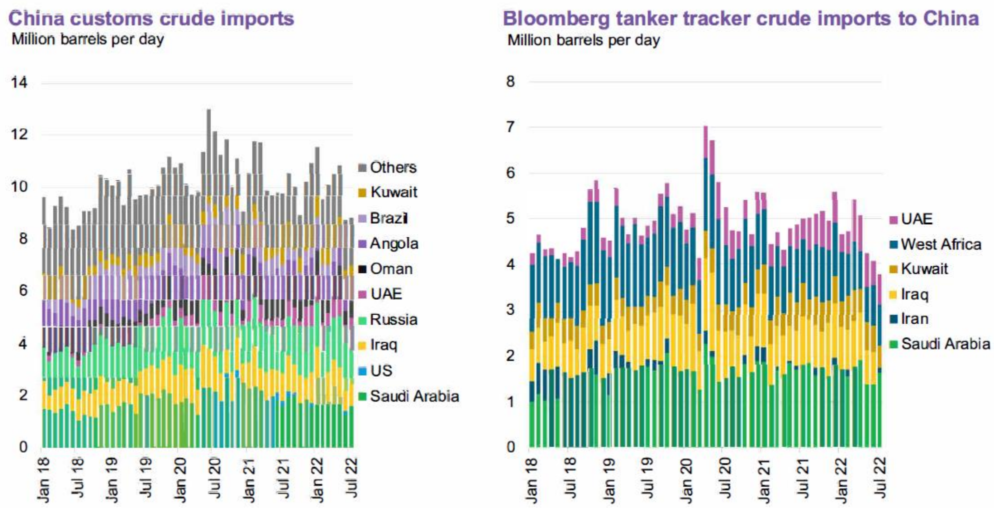
Source: SAF Group

Oil – BNEF says China's "demand recovery has lost steam"

China demand recovery slows

BloombergNEF released their "China Oil Markets Monthly" report for Aug that highlights weakened oil demand in China. The report was subtitled titled "*Demand recovery has lost steam*". New Covid outbreaks are contributing to the decline of China's road congestion index, which is down 3.5% from average levels in July. While jet fuel demand continues to recover, flight cancellations jumped 39% for the week ending August 16, as multiple cities tightened travel restrictions. Refinery throughput in July slumped to 12.58 mmb/d, down 6% MoM. July crude oil imports remained at a low level of 8.8 mmb/d, down 9% YoY. There was, however, an interesting graph (shown below) that seemed to show April/May crude imports this year were above 2019 levels, before falling off in June/July. Our Supplemental Documents package includes excerpts from the BloombergNEF report.

Figure 27: China Monthly Oil Demand Indicators



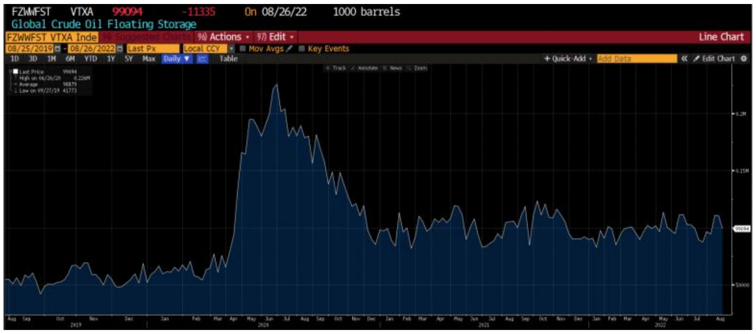
Source: Bloomberg

Oil – Vortexa crude oil floating storage 99.09 mmb as of Aug 26, -11.34 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 Noon MT yesterday. Note that these estimates get revised over the course of the week and the revisions can go back months. We do not check daily for the revisions, so our comments today on the new estimates are compared to the prior weeks Vortexa estimates posted on Bloomberg on Aug 20 at noon MT. (i) As of Noon MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate for Aug 26 was 99.09 mmb, which is -11.34 mmb WoW vs revised up Aug 19 of 110.43 mmb. Note Aug 19 of 110.43 mmb was revised up +5.80 mmb vs the 104.63 mmb posted on Bloomberg as of noon MT on Aug 20. (ii) Note that other than Aug 12, all of the recent weeks were revised up. Comparing yesterday's estimates vs the estimates posted on Aug 20 – Aug 19 revised +5.80 mmb, Aug 12 revised -0.86 mmb, Aug 5 revised +2.47 mmb, July 29 revised +4.47 mmb, July 22 revised +2.63 mmb, July 15 revised +2.89 mmb, July 8 revised +4.23 mmb, July 1 revised +7.84 mmb, and June 24 revised +9.54 mmb. (iii) With the revisions, crude oil floating storage over the past three months looks to be +/- 100 mmb, but with a couple of recent weeks at 110 mmb. (iv) Also remember Vortexa revises these weekly storage estimates on a regular basis and we do not track the revisions through the week. (v) Aug 26 estimate of 99.09 mmb is -126.61 mmb vs June 26, 2020 peak of 225.70 mmb. (vi) Note that the below graph goes back 3 years and not just 2 years as floating oil storage was in the big ramp up period in Q2/20 as Covid started to have a huge impact. Aug 26 estimate of 99.09 mmb is +44.41 mmb vs pre-Covid on Aug 26, 2019 of 54.68 mm. Aug 19 of 99.09 mmb is -0.67 mmb YoY vs 99.76 mmb on Aug 27, 2021. (vii) Below are the last several weeks of estimates made as of today noon MT, Aug 20 at noon MT, and Aug 13 at noon MT.

Figure 28: Vortexa Floating Storage as of Aug 26 posted on Bloomberg Noon MT yesterday



Source: Bloomberg, Vortexa

Figure 29: Vortexa Estimates Posted Aug 27 noon MT, Aug 20 noon MT, Aug 13 noon MT

Posted Aug 27, noon MT

FZWWFST VTXA Index — 08/25/2019 - 08/26/2022

Date	Last Px
Fr 08/26/2022	99094
Fr 08/19/2022	110.429k
Fr 08/12/2022	110.706k
Fr 08/05/2022	94431
Fr 07/29/2022	96372
Fr 07/22/2022	87209
Fr 07/15/2022	89237
Fr 07/08/2022	99286
Fr 07/01/2022	102.682k
Fr 06/24/2022	102.696k
Fr 06/17/2022	111.583k

Aug 20, noon MT

FZWWFST VTXA Index — 08/18/2019 - 08/19/2022

Date	Last Px
Fr 08/19/2022	104.631k
Fr 08/12/2022	111.571k
Fr 08/05/2022	91956
Fr 07/29/2022	91904
Fr 07/22/2022	84582
Fr 07/15/2022	86346
Fr 07/08/2022	95063
Fr 07/01/2022	94835
Fr 06/24/2022	93158
Fr 06/17/2022	103.26k
Fr 06/10/2022	101.878k

Aug 13, noon MT

FZWWFST VTXA Index — 08/11/2019 - 08/12/2022

Date	Last Px
Fr 08/12/2022	106.908k
Fr 08/05/2022	92319
Fr 07/29/2022	91794
Fr 07/22/2022	85237
Fr 07/15/2022	87468
Fr 07/08/2022	93508
Fr 07/01/2022	94246
Fr 06/24/2022	92554
Fr 06/17/2022	101.729k
Fr 06/10/2022	98995
Fr 06/03/2022	82782

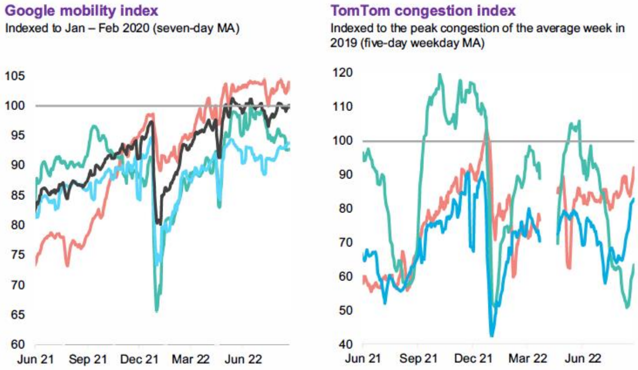
Source: Bloomberg, Vortexa

Oil – BNEF, mobility increases in China, Europe and North America

On Friday, BloombergNEF posted its Global Road Traffic Indicators which highlighted that China, Europe and North America mobility increased. TomTom congestion index showed Europe up 16.5%, Asia Pacific up 10.0% and North America up 7.4% from last week. These are very strong weekly showings from major regions worldwide. China data fluctuates depending on covid restrictions. Our Supplemental Documents package includes excerpts from the BNEF Global Road Traffic Indicators report.

Mobility up in major regions

Figure 30: BloombergNEF Mobility Indicators



	Latest	Week Δ	Four-week Δ
Asia Pacific	104.0	1.6 (+1.6%)	1.1 (+1.1%)
World	100.1	0.6 (+0.6%)	1.5 (+1.5%)
Europe	93.8	-2.0 (-2.1%)	-1.9 (-2.0%)
Americas	92.7	0.7 (+0.7%)	2.7 (+3.0%)

Source: Google Community Mobility Report, BloombergNEF. Note: ***Data <u>exclude</u> China and Russia.*** *Calculation includes retail and recreation, workplaces, transport hubs.* ***Data updated to August 20, 2022.*** *The world index rating is weighted by the 2019 road fuels demand of each country.*

	Latest	Week Δ	Four-week Δ
Asia Pacific	92.2	8.4 (+10.0%)	7.9 (+9.4%)
Europe	63.5	9.0 (+16.5%)	0.8 (+1.2%)
North America	83.0	5.7 (+7.4%)	18.5 (+28.7%)

Source: TomTom road congestion data, BloombergNEF. Note: ***Asia Pacific <u>excludes</u> China. Data updated to August 24, 2022.***

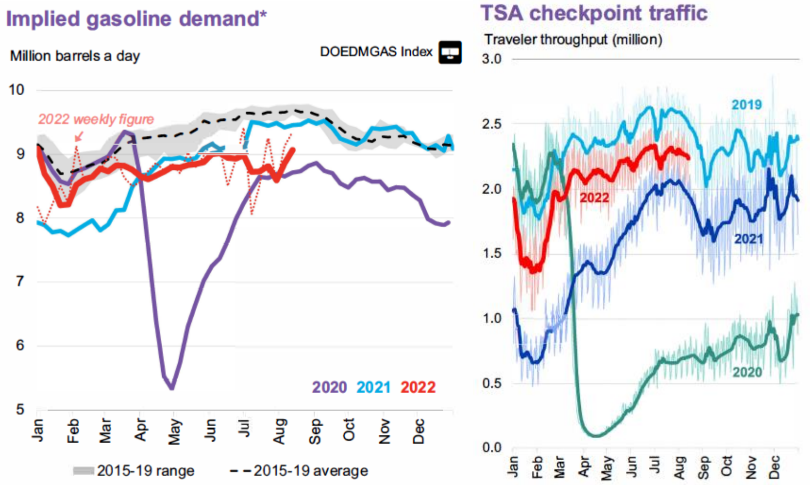
Source: BloombergNEF

Oil – BloombergNEF: US Crude exports hit record highs, inventories plunge

US oil indicators weekly

BloombergNEF's U.S. Oil Indicators Weekly report showed crude exports hitting record highs while inventories plunge. The report stated "*Total nationwide oil inventories-including commercial stockpiles and oil held in the Strategic Petroleum Reserve -fell by 10.46 million barrels in the week to August 12, according to this week's inventory report from the US Energy Information Administration, marking the largest draw since May. The decline can largely be explained by a massive jump in crude exports that climbed to a record 5 million barrels a day.*" It also showed air travel and jet fuel demand slipping this week while gasoline demand surged. BNEF's key messages were "*Jet fuel demand slipped last week. Refiners have been maximizing the fuel over diesel to meet the summer travel, but flight cancellations have made things choppy.*" And "*Implied gasoline demand surged to the highest level this year as easing pump prices and more demand from drives during the back-to-school season lend support.*" Our Supplemental Documents package includes excerpts from the BloombergNEF report.

Figure 31: Implied gasoline demand, TSA checkpoint traffic



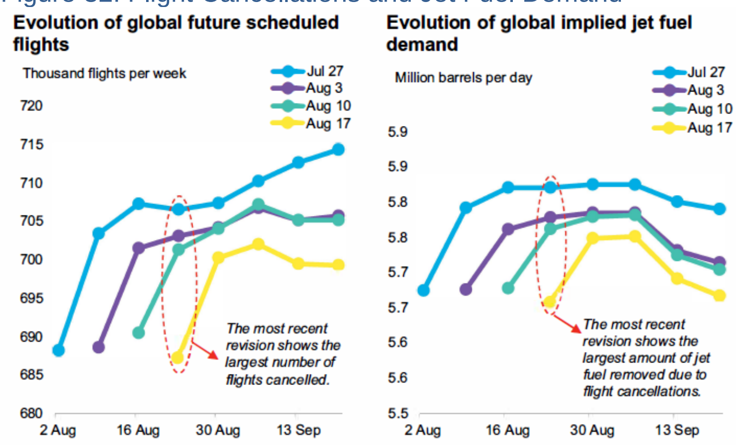
Source: BloombergNEF

Oil – Summer peak air travel is over, global jet fuel estimated down 0.2 mmb/d

BNEF Aviation Indicators weekly

On Monday, BloombergNEF released their "Aviation Indicators Weekly" report which estimates global jet fuel demand will be down ~0.2 mmb/d in Sept with summer peak air travel now over in the US and Europe. On Tuesday, we tweeted [LINK] "*Reminder that summer peak air travel is over. But estimated global implied #JetFuel demand only expected down 0.2 mmb/d over coming month. Thx @BloombergNEF team. #OOTT".* Global passenger jet fuel demand from August 11-17 dropped -0.35% from the previous week. This was led by reductions of 0.8% and 0.9% in Asia Pacific and the Americas, respectively. Bloomberg stated *"The slight dip in summer flight schedules coincided with a shortage of staff, mechanics and pilots, as well as operational issues at airports and worker strikes. These disruptions may see flight cancellations, delays and passenger caps at airports persist over the next few weeks. Downside risks exist due to flight cancellations, high fuel costs, bad weather, and logistical and operational issues at both airlines and airports".* The number of domestic flights in China is set to increase by 14% in the next 4 weeks, but this growth my not materialize as China has routinely cut flights not long before intended departure dates. Our Supplemental Documents package includes excerpts from the BloombergNEF report.

Figure 32: Flight Cancellations and Jet Fuel Demand



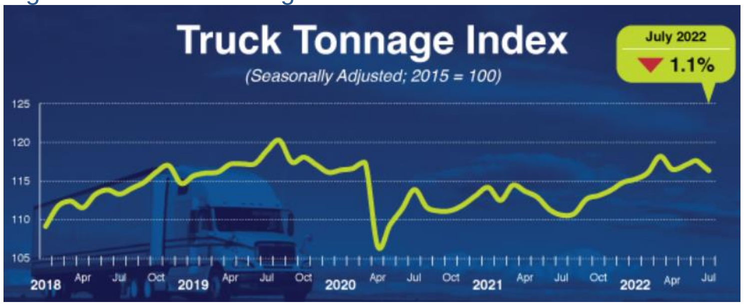
Source: Bloomberg

Oil – July truck tonnage decreased -1.1% MoM, up 3.4% YoY

Truck tonnage index -1.1% MoM in July

It seems like slowing consumption of goods is has started to have an impact on truck tonnage volumes. The American Trucking Association released its seasonally adjusted Truck Tonnage Index for July on Tuesday [LINK]. July observed a 1.1% decrease MoM from June, after rising 0.5% last month. Chief Economist Bob Costello noted, *"Tonnage declined sequentially in July for only the second time during the last twelve months. Despite the dip from June, tonnage remains at elevated levels and increased significantly from a year earlier. While tonnage is much stronger than a year ago, the monthly gains have moderated as the year has gone on. The combination of softer consumption of goods, home construction falling and slower manufacturing activity are the main reasons."* The index is up 3.4% YoY from July 2021, marking the eleventh straight year-over-year gain. Trucking serves as a barometer of the U.S. economy, representing 72.5% of tonnage carried by all modes of domestic freight transportation, including manufactured and retail goods. Trucks hauled 10.23 billion tons of freight in 2020. Motor carriers collected $732.3 billion, or 80.4% of total revenue earned by all transport modes. Our Supplemental Documents package includes excerpts from the ATA report.

Figure 33: Truck Tonnage Index



Source: ATA

Oil & Natural Gas – Trudeau reminds need to accelerate dependency on oil and gas

In case you missed Trudeau's comments at his Wed press conference on oil and gas. We created a transcript of his comments. Trudeau said "*Canada is a major oil and gas producer in the world, but because of our commitment to fight climate change, we are working very very hard to decarbonize and to develop other sources of energy that we can rely on and that we can share with the world. What Russia's invasion of the Ukraine has done has two impacts. One, on the global energy situation. In the short term, it has made it imperative that friends and allies of Canada, like Germany and Europe, reduce their reliance on Russian oil and gas. But in the medium and long term, it means the world needs to accelerate its ending, its dependency on oil and gas in general*."

Trudeau on oil and gas

Oil & Natural Gas – TIPRO Texas oil natural and gas jobs up 6,800 MoM

No surprise that the high oil, natural gas and NGLs prices continue to drive activity from drilling thru production and that is resulting in continued increase in oil and gas employment. The Texas Independent Producers and Royalty Owners Association (TIPRO) updated their employment figures for the Texas upstream sector for July [LINK]. The release noted that employment for July totalled 202,800 marking an increase of 6,800 jobs from the June numbers. This increase comes after another increase in June. The release stated, *"Texas upstream employment for July 2022 totaled 202,800, an increase of 6,800 jobs from June employment numbers. Texas upstream employment in July 2022 represented an increase of 35,400 positions compared to July 2021, including an increase of 8,600 in oil and natural gas extraction and 26,800 jobs in the services sector."* There has been strong job posting data for July in upstream, midstream, and downstream sectors, showing a continued demand for talent in the Texas oil and natural gas industry. From the release *"TIPRO once again noted strong job posting data for upstream, midstream and downstream sectors for the month of July. According to the association, there were 13,614 active unique jobs postings for the Texas oil and natural gas industry in July, an increase of nearly 10 percent compared to June numbers."* Our Supplemental Documents package includes the TIPRO release.

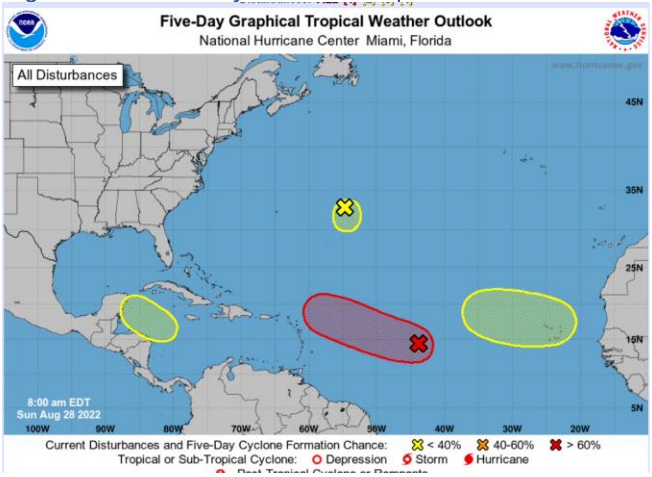
TIPRO July jobs update

Oil – No tropical storms/hurricanes in Aug in Gulf of Mexico

It's been unusually quiet for tropical storm/hurricane activity in the Gulf of Mexico with zero activity in August. NOAA's National Hurricane Center's 6am ET update notes the 20% probability for cyclone development over the next five days. But if so, it isn't clear if this would move west or go north into the GoM. [LINK]

No hurricanes in Aug in GoM

Figure 34: 20% of cyclone development for GoM in next five days



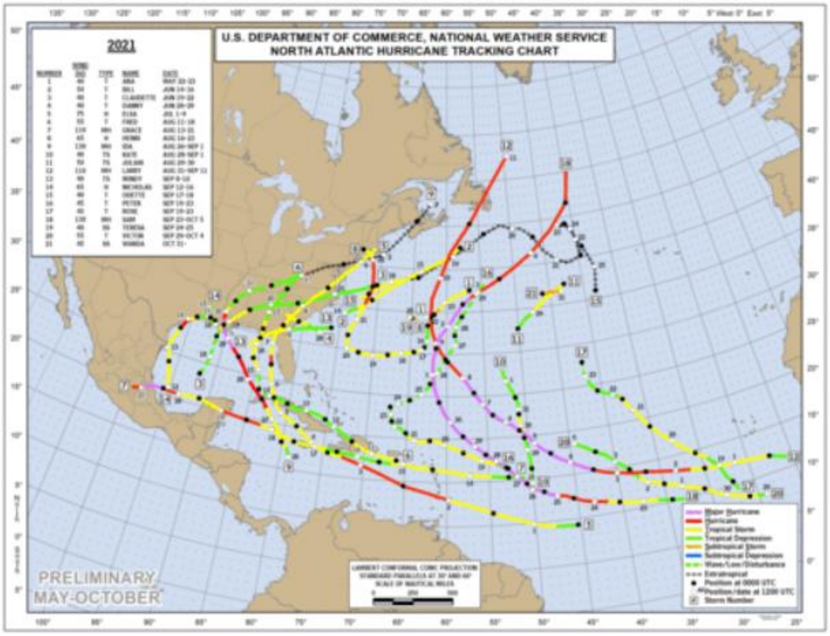
Source: NOAA

Oil & Natural Gas – Puerto Rico tends to be a good marker for GoM hurricane risk

Hurricane risk GOM vs Atlantic

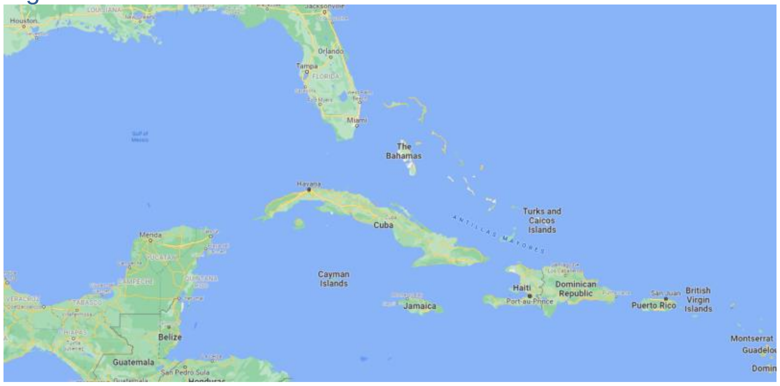
It was another week of no hurricane activity in the Gulf of Mexico or for the Atlantic overall. And with the lack of hurricane activity, it seems like every potential disturbance off the west coast of Africa gets a lot of attention. Above we note the potential storm development in the Atlantic that has a 70% chance of reaching cyclone strength, but it looks more like it will be north into the Atlantic sided and not turning south and west into the GoM. When we see these very early indications, we remind of a good marker for potential storms to come into the Gulf of Mexico – Puerto Rico. On August 7, we tweeted [LINK] "*Forecasting Atlantic hurricane paths is impossible even for experts. But hurricane risk to GoM #Oil #NatGas #LNG #Refinery tends to increase if hurricanes are south of Puerto Rico. See 👇 excerpt SAF Group Dec 5, 2021 Energy Tidbits [LINK] #OOTT*". Here is what we wrote in the Dec 5, 2021 Energy Tidbits "*Is normally not a perfect correlation but the 2021 Atlantic hurricane season was for the early indicator for risk to the GoM oil and gas being if the tropical storm/hurricane hits north of Puerto Rico or not. This year, all the storms/hurricanes that were north of Puerto Rico went into the Atlantic and all that were south of Puerto Rico went into the GoM. Below is NOAA's 2021 tracking map*."

Figure 35: North Atlantic Storm Tracking Map in 2021



Source: National Hurricane Center

Figure 36: Caribbean Sea



Source: Google Maps

Energy Transition – Macron warns on end of abundance of raw materials & water

Macron warns on end of abundance

It didn't get a lot of attention in North America, but Macron gave a stark general warning about the future. We did not see a full transcript or both slogging thru his speech in French, but the reporting was consistent. The problem is that his comments, at least those that were reported, were general and didn't drill down into too many specifics. So we couldn't tell if he was identifying or avoiding being specific on how the energy transition plays into the crisis. But Macron seems to warn on the shortage of oil saying warning on "*the end of an abundance of land or raw materials*". We think the link is to oil given Macron's comments on

Oct 30, 2021 on how he warned that the energy transition push was leading to high fossil fuel prices. He was clear then, but, post Russia/Ukraine, all of the politicians have moved to blame Russia for the energy crisis and tried to avoid noting the energy crisis was already happening in 2021 well ahead of Russia. Regardless of what is blamed, Macron is warning on the end of abundance of raw materials and water. Here are some of his key quotes "*We see a series of crises, each one more serious than the last, and it could be seen that we are destined to be permanently managing crises and emergencies. For my part I believe that what we are going through is a great upheaval, a radical change. In the first place, because we are experiencing - not just this summer, but for the last few years - what could be seen as the end of abundance, of endless liquidity, and we will have to face the consequences of that in the public finances. The world is reorganizing and we are seeing the end of perpetually available products and technologies, we saw it during Covid. The interruption of value chains, scarcity of one material technology or another is reappearing, the end of an abundance of land or raw materials, and water as well, on this we have to draw all the consequences " said the French president, mentioning the French conference on water held this year and its conclusions on a restructuring that "it is up to us to implement".* Our Supplemental Documents package includes a number of press reports with Macron speech quotes.

10/30/21, Macron warned higher fossil fuel prices under energy transition

The reporting Macron's end of abundance view was because of Russia/Ukraine. And we did not see anyone report on Macron linking back to what he said on Oct 30, 2021 on the unintended consequences of the energy transition – a future of higher fossil fuel prices. It was like Macron had a lightbulb moment, which we later called a Macron Moment, when he realized the energy system being built under the energy transition was building an energy system of higher costs. Something that the western political leaders forgot to tell their citizens Our Oct 31, 2021 Energy Tidbits memo was titled "*Macron "Ironic, Because We are Building a System Where in the Medium & Long Term Fossil Energy Will Cost More & More*". In that memo, we wrote "*Its more than annoying that we finally see political and business leaders acknowledge the Energy Transition will take longer, be a bumpy road and have higher energy costs. One of our tweets yesterday was a reply [LINK] "Yes. Its unfortunate G7 leaders knew they wouldn't get commitment to #NetZero if they told people they really didn't have a plan on how to get there without causing a self inflicted energy crisis for the 2020s, hopefully not longer than that." We think its too late, for the most part, to see these new confessions – this time by France's Macron. These political leaders and also business leaders drove thru the push to the Energy Transition in 2019, 2020 and the first part of 2021 and now we see some start to warn that this isn't going to be pretty. They didn't have a plan on how to execute this and certainly didn't have (and still don't have) an idea of how much it will cost. Although some like Macron are admitting it means higher energy prices for years to come. As we put in or tweet, hopefully its no more than a decade. Our first tweet yesterday morning [LINK] was on the FT's report "Macron warns of threat to global economy from energy crisis" [LINK]. Macron's concern on current energy prices got all the attention. However, the part that is getting less attention is what Macron said on fossil fuel prices. Our tweet was "Oops, #Macron on #EnergyTransition "ironic, because we are building a system where in the medium & long term fossil energy will cost more & more, that's what we want to [to fight climate change]". 2020s will be* *very good for #Oil #NatGas prices. Great report @labboudles #OOTT." Note Macron is saying medum and long term, he is not just talking about the energy crisis this winter. This is an acknowledgement that is acknowledging what our thesis has been, even before Covid, that the 2020s will be a period of stronger for longer oil and natural gas prices. FT posted the full report without subscription and there is more in it such as more natural gas supply is needed. Our Supplemental Documents package includes the FT report."*

Energy Transition – Czech President warns about "*green madness*"

Czech President warns on "green madness"

Europe is no different than any collection of provinces, states or countries, there the rich, the middle class and then the poor countries. We recognize UK is leaving the EU but they really work with the other European countries. But the rich countries (Germany, France and UK) dominate the media and messaging to the world. The rest of the world very seldom gets broad dissemination of messaging from these other countries. However, this week, we saw a couple of these other countries voice concern about the future of energy in Europe. Some directly blamed on the energy transition, whereas others tend to try to do the linkage/blame just to Russia. (i) Austria PM warns "*it will be difficult for the next five to ten winters*". It didn't get much attention in the west. The Brussels Times reported [LINK] "*During a planned visit to the port of Zeebrugge on 22 August, Belgian Prime Minister Alexander De Croo warned that the country faces long-term economic hardship due to soaring energy costs. Although De Croo affirmed his belief that Belgium will overcome its difficulties, he wasn't initially optimistic, stating that "The next five to ten winters will be difficult. A very difficult situation is developing throughout Europe. Some sectors are facing serious difficulties with these high energy prices," he told the press during a meeting with port handling company ICO Terminals."* (ii) Czech President Zeman came out with blunt comments that the green deal is the cause of the ender transition. On Friday, Prague Morning reported [LINK] on Czech President Zeman's comments, writing "*"Whether it's called the Green Deal or whatever, I'm afraid. However, I won't be here anymore when we find out where the green madness will take us. The abolition of cars with internal combustion engines will lead to the advent of far more demanding electromobility. The biggest consumers of electricity will be electric cars with a short range and a high price," said Zeman while receiving Czech ambassadors at Prague Castle on Tuesday. According to Zeman, the solution to the energy crisis is not to succumb to the Green Deal and to pursue a sovereign foreign policy. He considers it crucial that issues affecting the country's sovereignty continue to be voted on unanimously in the European Union."* Zeman also spoke of the reality of being a small country. Prague Morning wrote "*"Let's not play superpower. Let's not look at the central issues of our foreign policy through the lens of great power. We would be ridiculous. We are a small to medium-sized country with 80 percent of our gross domestic product being exported. I have always expressed that the main task of our ambassadors is to take care of the promotion of our exporters on foreign markets and, on the other hand, to bring effective foreign investments to the Czech Republic," the president stated."* Our Supplemental Documents package includes the Prague Morning report.

Energy Transition – Uniper bringing back German coal fired generation

Germany restarts coal power plant

As highlighted in our Aug 7, 2022 Energy Tidbits Memo, Germany's scramble to be able to replace Russian natural gas is now being forced to allow the return of coal-fired power generation. Coal-fired power generation has been the #1 fossil fuel target of Green parties everywhere, including the Germany Green party that is part of the government. But the reality is that coal has to come back and not just because it's cheaper than LNG. So coal-fired power generation is coming back to Germany. On Monday, Uniper announced [LINK] the Heyden 4 hard-coal-fired power plant in Petershagen will again produce electricity starting Aug 29, 2022 "probably" until April 30, 2023. The deployment of the 875-megawatt unit is part of the "Ersatzkraftwerkebereithaltungsgesetz", which serves to secure Germany's energy supply in the coming winters. Heyden 4 could remain on the market for another year, should the deadlines be extended. The operation of Heyden 4 will be restricted due to rail transportation capacity limitations of hard coal to the site, which may be lifted once additional capacity becomes available. The plant had ended commercial operation at the end of 2020 as a part of the decarbonization plan. Our Supplemental Documents package includes the Uniper release.

Energy Transition – Japan wants to restart 7 nukes next summer

Japan wants to restart 7 nukes

Reality check on the energy outlook for the 2020s is setting in around the world. And it means that countries need to find reliable, available and affordable power. As we have been noting, it means a return of coal and nuclear in Europe after Europe has been moving the past several years to get rid of both. In Japan's case, they have to try to bring back more nuclear way quicker than expected. This week, Japan announced that it plans to look for public support to restart seven nuclear reactors next summer. On Wednesday, Yomiuri reported "*The Ministry of Economy, Trade and Industry announced at a government meeting on the 24th that it aims to restart seven domestic nuclear power plants, including Tokyo Electric Power Company's Kashiwazaki-Kariwa Nuclear Power Station, from the summer of 2023. Prepare an environment for operating a total of 17 units, including the 10 units that have already restarted, and improve the supply and demand of electricity. tightness and promote decarbonization." "In addition to Units 6 and 7 at Kashiwazaki-Kariwa Nuclear Power Station, Tohoku Electric Power's Onagawa Nuclear Power Station Unit 2, Kansai Electric Power Company's Takahama Nuclear Power Station Units 1 and 2, Chugoku Electric Power Company's Shimane Nuclear Power Station Unit 2, and Japan Atomic Power Company's Tokai No. 2 Nuclear Power Station. 7 units. Local consent has already been obtained for the Onagawa Unit 2, Takahama Units 1 and 2, and Shimane Unit 2, so we aim to steadily complete safety measures and other construction work. For the other three reactors, including Kashiwazaki-Kariwa, the national government will take the lead in coordinating with local governments. The Ministry of Economy, Trade and Industry intends to appeal that a political decision to bring together the collective strengths of those concerned is necessary for the restart of nuclear power plants. In addition, it is requested to consider extending the operating period, which is 40 years in principle and 60 years at the longest, and accelerating the development of the nuclear fuel cycle."* Our Supplemental Documents package includes the Yomiuri report.

Energy Transition – EV price increases primarily mean increased up front cash cost

EV prices up again

EV price increases have been the common story for the past few months with price increases in Tesla, Rivian, Lucid, GM and Ford. This was happening before the Biden signed Inflation Reduction Act. (i) One of the price increases that got some media attention was Ford announcing price increases for its Mustang Mach-E. Automotive News tweeted [LINK] "*Breaking: @Ford announces it's increasing Mustang Mach-E prices between $3,000 and $8,100, depending on trim, as order banks re-open. It's also increasing shipping costs by*

$200 on all models. Here's the breakdown:" Below is the Automotive News table. (ii) unfortunately, this price increase will translate directly into increased purchase price for EVs. We tweeted [LINK] *"Unfortunately, this just means higher up front purchase price as #Ford Mustang Mach-E was already eligible for $7,500 federal tax credit under the existing #EV tax credits so no added $$ benefit under new EVs tax credit system in #Biden Inflation Reduction Act. #OOTT*." The Mach-E was already getting the full $7,500 federal tax credit so there isn't any incremental tax credit under the new Inflation Reduction Act.

Figure 37: Ford Mustang Mach-E Price Increases Aug 25, 2022

Model	Current MSRP		Updated MSRP		Adjustment	
Select RWD Standard Range	$	43,895	$	46,895	$	3,000
Select AWD Standard Range	$	46,595	$	49,595	$	3,000
California Route 1 AWD Extended Range	$	55,475	$	63,575	$	8,100
Premium RWD Standard Range	$	49,100	$	54,975	$	5,875
Premium AWD Standard Range	$	51,800	$	57,675	$	5,875
GT AWD Extended Range	$	61,995	$	69,895	$	7,900
Destination and Delivery	$	1,100	$	1,300	$	200
Extended Range Battery for Premium RWD	$	6,000	$	8,600	$	2,600
GT Performance Package	$	6,000	$	6,000	$	-
Dark Exterior Package	$	-	$	800	$	800

Source: Automotive News

Energy Transition – Good reference for US federal tax credits by EV model

US federal tax credits for EVs

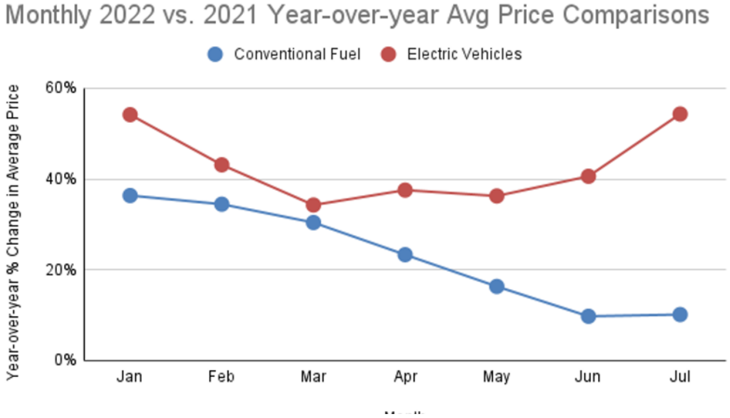
We haven't done our own analysis of how the revised EV tax credit program in Biden's Inflation Reduction Act impact every EV model. Rather, we tweeted [LINK] "Listing by #EV for its tax credit eligibility under #Biden Inflation Reduction Act. "*Here's every electric vehicle that qualifies for the current and upcoming US federal tax credit". Thx @ElectrekCo @SCOOTERDOLL. #OOTT. Here is the link. [LINK]."* Last week, Electrek posted a good recap of the new US federal tax credit on EVs and then a comparison of how each EV model was under the current EV federal tax credit and the new EV federal tax credit under the Inflation Reduction Act. We used this as a reference for our tweet indicating there was no incremental tax credit benefit for the Ford Mustang Mach-E under the IRA. Our Supplemental Documents package includes the ElectrekCo report.

Energy Transition – July used EV prices +54.3% YoY vs ICE prices +10.1% YoY

Used EV prices +54.3% YoY

The biggest challenge for broader EV penetration is the high upfront cost makes it too expensive for most Americans. It is also an issue for used EV prices. There was a lot of criticism on Biden's Inflation Reduction Act's tax credit on used EVs purchases. There were a lot of conditions that mean the headlines don't translate into the implied broad benefit. Putting that aside, the reality is that used EVs have had huge price escalation and any help, even if not the best, is needed. On Tuesday, ISeeCars posted its report "*Electric Car Prices Continue to Increase Much More Than Gas-Powered Models*". [LINK]. ISeeCars reported on July data and wrote "*Used car prices remain elevated in the wake of the global microchip shortage, but they began to level off in the second half of 2022. However, according to iSeeCars' recent analysis, over the same period prices for electric cars continued to increase significantly. In July, electric car prices saw an increase of 54.3% from the same month last year while gas-powered cars were up just 10.1%. ISeeCars analyzed the prices of over 13.8 million 1-5 year old used cars sold between January and July of 2021 and 2022 to determine* *the price growth of electric cars compared to conventional fuel vehicles.*" Our Supplemental Documents package includes the ISeeCars report.

Figure 38: Monthly 2022 vs 2021 Year-over-year Avg Price Comparisons



Source: ISeeCars

Energy Transition – California says only ZEV new car sales by 2035

California new ZEV rule

On Thursday, California Governor Newsom announced [LINK] "*Governor Gavin Newsom today issued the following statement after the California Air Resources Board (CARB) approved a rule requiring 100 percent of new car sales in California to be zero-emission vehicles (ZEVs) by 2035: "We can solve this climate crisis if we focus on the big, bold steps necessary to cut pollution. California now has a groundbreaking, world-leading plan to achieve 100 percent zero-emission vehicle sales by 2035."* CARB approved the new rule "*Proposed Advanced Clean Cars II Regulations: All New Passenger Vehicles Sold in California to be Zero Emissions by 2035*", which also interim targets of 35% ZEV sales by 2026, 68% ZEV sales by 2030 and 100% by 2035. The CARB rule is also a good reminder of the importance of being in government. CARB is a regulatory board ie. this is a regulatory action and not a new law approved by the California state government. Our Supplemental Documents package includes the CARB rule. [LINK]

Energy Transition – Toilet paper from recycled fibers gets cut as it uses more energy

Toilet paper from recycled fibers

Another victim of high natural gas and electricity prices is European toilet paper. There is probably right now a flashback to 2020 with Europeans rushing to load up on toilet paper. Yesterday morning, we tweeted [LINK] "*Headline is #ToiletPaper shortage in EU. But also a reminder of overlooked added climate impact cost to be Green. #Metsa "will speed up the move towards fresh fibre focused strategy, which enables lower energy use in the paper making, compared to recycled fibers." #NatGas #OOTT*." Metsa is one of the biggest toilet paper producers in the world and, on Friday, announced the energy crisis was leading to additional curtailments in toilet paper production. Metsa wrote "*Metsä Tissue announced earlier this year temporary production stops due to extremely high energy prices driven by the energy crisis in Europe. The situation has been continuously worsening, and is impacting all of Metsä Tissue's markets in Europe, and is especially During the recent weeks, Metsä Tissue has had to curtail its production both in its Zilina and Kreuzau mills for several days because of the high energy price peaks. With the high energy cost inflation, further* *production curtailments are likely and they may also impact the availability of daily Tissue products in the markets, as substantial amounts of daily production losses will occur."* This follows their July 11 warning of some temporary production stops due to high energy prices. But amidst the toilet paper rush in Europe, there is a good reminder that green isn't as green as most believe. We should say that doesn't include Metsa who has analyzed the carbon footprint of toilet paper. But for most, it's kind of like people forgetting that EVs require a lot of mined product if you look at full cycle climate impact. It's the same thing for recycled toilet paper. Just because it's recycled doesn't mean it doesn't have a higher carbon footprint on a full cycle basis. Our Supplemental Documents package includes the Metsa Aug 26 [LINK] and July 11 [LINK] releases.

Toilet paper from recycled fibers also has a higher carbon footprint
Most people automatically assume anything labeled recycled has a lower carbon footprint. That isn't the case for toilet paper. In the above item, we said Metsa doesn't assume that because they actually did a carbon footprint analysis or toilet paper made from recycled fiber vs toilet paper made from fresh fibre. On Nov 25, 2021, Metsa said "*When we use premium fresh fibre based products for hygiene purposes, we create a smaller carbon footprint than when using products made of recycled fibre*." And *"Fresh fibre is the hygiene material of the future. By using fresh-fibre products, consumers get sustainably produced tissues with high quality. The production of fresh-fibre paper consumes less energy and water at the tissue mill, and more than 90 per cent of the raw material can be utilised. The use of recycled fibre is less efficient, as only around 60 per cent of the raw material ends up in hygienic tissues and the rest is waste that needs to be processed. In other words, a responsible tissue consumer does not need to compromise on pleasant quality, product safety or sustainability," Kesti adds."* Our Supplemental Documents package includes the Metsa Nov 25, 2021 release. [LINK]

Capital Markets – USDA consumer price index for food +10.9% YoY

USDA consumer price index for food

The USDA's official food price data keeps going up, but we continue to believe it is nowhere as much as what Americans feel when they go to the grocery stores in the US. This feels like what we heard last summer about inflation being transitory, the real food price increases are way higher than per government data. The USDA posted its consumer price index for food data for July on Thursday [LINK], which is +1.1% MoM and +10.9 % YoY, compared to June at +10.4% ; while it is up over 10%, it still seems low given the rapidly increasing grocery bills being reported. This is for the overall food price index, which weights various changes like beef/veal +3.4% YoY, pork +7.6%, eggs +38.0% with changes like fresh vegetables +7.3% YoY, dairy products +14.9% YoY and cereals & bakery products +15.0% YoY. We also just don't see how the USDA won't be low in their 2022 forecast which predicts price escalation between 5.0-6.0% throughout the year.

Capital Markets – IFIC: Mutual funds and ETF assets +4.3% in July

Mutual Fund & ETF assets increase MoM

On Thursday, IFIC (Investment Funds Institute of Canada) reported [LINK] mutual funds and ETF sales for July. IFIC does not provide any commentary on the numbers. Market price increases accounted for majority of the overall increase in net assets. For July, the IFIC reported "*Mutual fund assets totalled $1.864 trillion at the end of July 2022. Assets increased by $76.2 billion or 4.3% compared to June 2022. Mutual funds recorded net redemptions of*

$4.5 billion in July 2022. ETF assets totalled $303.7 billion at the end of July 2022. Assets increased by $14.8 billion or 5.1% compared to June 2022. ETFs recorded net sales of $1.5 billion in July 2022." Our Supplemental Documents package includes the IFIC release.

Capital Markets – No surprise, US home sellers dropped their asking prices in July

On Monday, Redfin reported [LINK] home sellers in popular pandemic homebuying cities are increasingly dropping prices as buyers back out of the market. More than 15% of home sellers dropped their asking price in every major US metro. The worst of which was Boise, ID, where nearly 70% of homes for sale had a price drop in July. Next come Denver, where 58% of homes for sale had a price drop, Salt Lake City (56.4%) and Tacoma, WA (54.8%). Those four metros also topped the list in June, and Boise, Salt Lake City and Tacoma were also among the 10 metros with the biggest upticks in their price-drop rates from a year earlier. Redfin stated "*Individual home sellers and builders were both quick to drop their prices early this summer, mostly because they had unrealistic expectations of both price and timelines. They priced too high because their neighbor's home sold for an exorbitant price a few months ago, and expected to receive multiple offers the first weekend because they heard stories about that happening.*" As sellers come to terms with the market, Redfin expects price drops to flatten out.

Home sellers dropping asking price

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

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

@Energy_Tidbits on Twitter

LinkedIn – Look for quick energy items from me on LinkedIn

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

Look for energy items on LinkedIn

Misc Facts and Figures.

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

Big day for Cdn LPGA Maddie Szeryk and Alena Sharp in CP Women's Open

Today is the final round of the LPGA CP Women's Open being played in Ottawa. It hasn't been a great tournament for superstar Brooke Henderson who is at -3. It isn't likely for our Cdn LPGA players to win but it will be a big day for both Maddie Szeryk. Szeryk is -9 and T11 at six strokes behind the leaders. But she is a rookie on the LPGA tour this year and she has only made $4,800 this year so tomorrow will be huge for her. Alena Sharp is -6 and T33. She is a veteran with $2.9 million in career earnings but has had a tough last couple years. So a good finish will be a huge boost for both Szeryk and Sharp. I will be rooting for both of them.

Sept 2, 1972, Soviet Union shocked Team Canada in Game 1 of Summit Series

Any hockey fan of the 70s will remember Sept 2, 1972, which was Game 1 of the Summit Series between Team Canada and the Soviet Union in Montreal. Prior to the start, the pundits were all calling for Canada to win all 8 games. And Canada jumped out to an early lead with Phil Esposito scoring after 30 seconds, and then Paul Henderson at 6:32 of the first period. But anyone who watched the game could see the Soviets gain confidence and looked like they were in a higher gear than Canada. The game ended up in a shocking 7-3 win for the Soviets. Coach Harry Sinden made some big changes to the lineup for Game 2 in Toronto on Sept 4. He dropped some top scorers like Vic Hadfield and Rod Gilbert to replace with tough defensive forwards Wayne Cashman and JP Parise. Canada won 4-1 in Toronto with one of the memorable goals when Peter Mahovlich (younger brother of the Big M) shorthanded goal.

Farmer's Almanac vs Old Farmer's Almanac

This week we highlighted the Farmer's Almanac winter forecast and next week's memo will include the winter forecast from the Old Farmer's Almanac that is being released in the next few days. The difference is that the Farmer's Almanac started over 200 years ago in 1818, whereas the Old Farmer's Almanac started in 1792. The Old Farmer's Almanac started life as the Farmer's Almanac but added the old in 1832. We have to believe there weren't strict naming rights in 200 years ago, when the Farmer's Almanac started up in 1818 using the same name as the original Farmer's Almanac.

Lions Coach Campbell reminds of Bill Belichick's winning & losing views

A lot of the concepts on winning teams in sports are really the same concepts on winning financial companies. I am often reminded of my former partners at then Griffiths McBurney & Partners in how we were able to be the best both before and following the global economic crash. Our trading head, Mike Wekerle and institutional sales head Kevin Sullivan would never let the firm have a couple bad days in a row. And that was the key, they led the firm and kept it from an losing streak. If there was a bad day on the desk, everyone knew what was going to happen in the morning meeting. Just like sports, there was a lot of colorful language, but they ensured we didn't have two bad days in a row. I was reminded of their post global crash leadership when seeing the Hard Knocks clip of Detroit Lions Head Coach Dan Campbell's colorful speech to the team about how they have to get the list bit of losing out of here. Anyone who has played sports knows that coaches use colorful language to make their point. NFL commentators all linked Campbell's speech to the same concept as New England Patriots Head Coach Bill Belichick's view on losing. He is well known for his view "*you can't win until you keep from losing".*

Imagine coming from Ukraine and trying Kraft Dinner, Tim's double-double, etc

There was a feel-good video this morning on CTV News. Imagine coming to Canada from Ukraine and trying for the first time Canadian staples like Nanaimo Bars, Tim Horton's double-double, Kraft Dinner, popcorn with butter, etc. The early morning

CTV National News 30-min recap included a short report on a 19-yr old Ukrainian, Andrian Makhnachov, sharing his new experiences in Canada. Makhnachov came to Canada in May to join his two brothers in Regina. Makhnachov's TikTok [LINK] now has 163.3k on these TikTok video first experiences. The CTV news report is at [LINK].