Energy Tidbits

Oct 30, 2022

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Overlooked IEA Warning “In Practice, the Future of Energy Markets is Likely to be Disjointed” ie. a Bumpy Energy Transition

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. An overlooked IEA World Energy Outlook 2022 comment was “in practice, the future of energy markets is likely to be disjointed”. (Click Here)

2. Shell CEO on EU natural gas crisis “*But a short term fix, I’m afraid is not going to be available other than demand response*.” (Click Here)

3. Biden warns oil companies “*They talk about me picking on them. They ain’t seen nothing yet*.” (Click Here)

4. Halliburton CEO says need every type of oil and gas capex to fix the oil and gas supply shortfall (Click Here)

5. CPG’s tightly spaced multi leg horizontal wells without fracking is working well and should work in a wide range of Cdn oil plays (Click Here)

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

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

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Table of Contents

Natural Gas – Natural gas injection of +52 bcf, storage now -142 bcf YoY deficit

YoY storage at -142 bcf YoY deficit

The YoY storage deficit started last winter at -282 bcf YoY at Oct 31 and is now -106 bcf YoY. The EIA reported a +52 bcf build (+61 bcf expectations) for the Oct 21 week, which was above the 5-yr average build of +45 bcf, but below last year's injection of +87 bcf. Storage is 3.394 tcf as of Oct 21, with a widened YoY deficit of -142 bcf YoY vs -106 bcf YoY last week and is -197 bcf below the 5-year average vs -183 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 (10/21/21)		Historical Comparisons: 5-year average (2017-21)	
Region	10/21/22	10/14/22	net change	implied flow	Bcf	% change	Bcf	% change
East	825	812	13	13	882	-6.5	893	-7.6
Midwest	1,007	987	20	20	1,048	-3.9	1,054	-4.5
Mountain	199	195	4	4	212	-6.1	214	-7.0
Pacific	248	249	-1	-1	255	-2.7	290	-14.5
South Central	1,116	1,099	17	17	1,139	-2.0	1,140	-2.1
Salt	277	271	6	6	301	-8.0	295	-6.1
Nonsalt	839	828	11	11	838	0.1	845	-0.7
Total	3,394	3,342	52	52	3,536	-4.0	3,591	-5.5

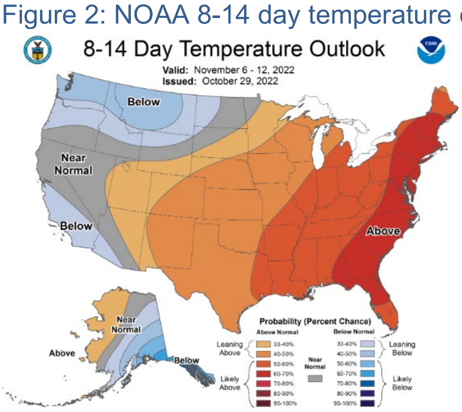
Source: EIA

Natural Gas – NOAA's 8-14 day calls for a warm 1st half of Nov in eastern half of US

NOAA 8-14 day temperature outlook

Yesterday, we tweeted [LINK] "*Negative tone should continue to HH #NatGas prices. @NOAA updated 8-14 day outlook calls for above normal temps for most of US in 1st half of Nov, and well above for entire east coast. #OOTT."* It looks like it's going to be a very warm start to the winter natural gas season, which starts on Nov 1. We know weather forecasts are far from perfect, but the very near term forecasts tend to be reasonably good. NOAA updates its 6-10 day and 8-14 day outlooks every day, normally at 1pm MT. Yesterday's 8-14 day outlook for Nov 8-12 [LINK] calls for a much warmer than normal first half of November for the eastern half of the US, and a well above normal temperatures for the key natural gas for home heating regions in the around the Great Lakes and in the eastern seaboard.

Figure 2: NOAA 8-14 day temperature outlook as of Oct 29



Source: NOAA

Natural Gas – US LNG exports were flat MoM in Aug at 9.7 bcf/d

US Aug LNG exports

We had looked for the EIA Natural Gas Monthly on Friday as the website had indicated it was to be posted Oct 28. It wasn't so we expect it will be posted on Monday. The Natural Gas Monthly is the reference report used by analysts for the EIA's "actuals" in this case it would be for the month of August for US natural gas production, pipeline exports to Mexico and US LNG exports. But, as we noted in last week's (Oct 23, 2022) Energy Tidbits, US LNG exports for August are separately released by the DOE. Here is what we wrote last week. "*As a reminder, the US Dept of Energy posts monthly US LNG export data at least a week before the EIA (part of the US Dept of Energy) posts US LNG export data in its monthly Natural Gas Monthly report (next report is Sept 30). Normally, the data points are the same. On Thursday, the DOE posted its LNG Monthly for US LNG exports in Aug. [LINK] The headline numbers as the US exported 9.7 bcf/d of LNG in Aug, which was down 0.1% MoM vs July 2022, and up +0.7% YoY vs Aug 2021. Our table below is rounded numbers to one decimal and the the actual Aug is 9.67 bcf/d. Reminder, US LNG is down because of the continued outage at Freeport LNG. The advantage of the DOE report is that it provides other LNG insights. The DOE reported "Top five countries of destination, representing 55.9% of total U.S. LNG exports in August 2022 o Netherlands (50.4 Bcf), South Korea (36.0 Bcf), France (33.9 Bcf), Spain (26.1 Bcf), and United Kingdom (21.3 Bcf)." Below is our table of EIA's monthly LNG exports. Our Supplemental Documents package includes excerpts from the DOE LNG Monthly."*

Figure 3: US LNG Exports (bcf/d)

(bcf/d)	2016	2017	2018	2019	2020	2021	2022
Jan	0.0	1.7	2.3	4.1	8.1	9.8	11.4
Feb	0.1	1.9	2.6	3.7	8.1	7.4	11.3
March	0.3	1.4	3.0	4.2	7.9	10.4	11.7
Apr	0.3	1.7	2.9	4.2	7.0	10.2	11.0
May	0.3	2.0	3.1	4.7	5.9	10.2	11.3
June	0.5	1.7	2.5	4.7	3.6	9.0	10.0
July	0.5	1.7	3.2	5.1	3.1	9.7	9.7
Aug	0.9	1.5	3.0	4.5	3.6	9.6	9.7
Sept	0.6	1.8	2.7	5.3	5.0	9.5	
Oct	0.1	2.6	2.9	5.7	7.2	9.6	
Nov	1.1	2.7	3.6	6.4	9.4	10.2	
Dec	1.3	2.7	4.0	7.1	9.8	11.1	
Full Year	0.5	1.9	3.0	5.0	6.6	9.7	10.8
Full Year bcf	186.8	707.5	1,083.1	1,819.4	2,390.0	3,560.8	2,317.7

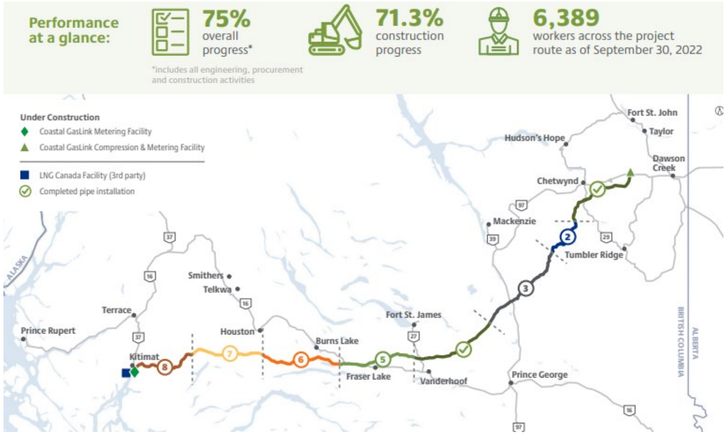
Source: EIA, DOE

Natural Gas – Coastal GasLink 75% complete, on track to support LNG Canada timing

Coastal GasLink 75% complete

On Friday, TC Energy's Coastal GasLink pipeline posted its Construction Update [LINK] and, at 75% construction completion, it appears on track to support LNG Canada's plan to have first LNG shipments by the middle of the decade. They wrote "*Coastal GasLink reaches 75% overall completion, positioning Project for a strong finish to 2022 This September, construction of Coastal GasLink reached 75 per cent completion overall, with a number of milestone completions and major advancements well underway. Favourable weather conditions over the summer enabled crews to begin pipe installation at Cable Crane Hill, a steep slope in the Coast Mountains, resulting in 30 per cent of pipe being installed ahead of schedule."* Besides being ahead on the Coast Mountains pipeline install, Coastal GasLink also highlighted "*Nearly all major watercourse crossings complete. Our dedicated construction and environment teams are working together to ensure we are protecting and caring for critical waterways across the 670-kilometre project route. With the recent completion of the Crocker Creek Direct Pipe Installation (DPI) in Section 3, we have now safely and successfully completed 9 out of 10 major watercourse crossings.*" Our Supplemental Documents package includes the summary page of the 10-pg update.

Figure 4: Coastal GasLink Construction Update posted Oct 28, 2022



Source: Coastal GasLink

Natural Gas – Shell LNG focus is where have established strength, LNG Canada?

Shell held its Q3 call on Thursday. We were surprised that there were no mgmt. prepared comments or analyst questions on the under construction 1.8 bcf/d LNG Canada Phase 1, or the reportedly being discussed with British Columbia 1.8 bcf/d LNG Canada Phase 2 potential FID. Each project is a major project for Shell's future. So for people like us who expect Shell to FID LNG Canada Phase 2, the only encouragement was Shell's comments on their priorities. On Thursday, we tweeted [LINK] "*#Shell CEO "Or whether we want to play our upstream & integrated gas business in areas where we have established strength. Maybe from the way I pose that question, you can probably deduce where the answer is going to be". How about #LNGCanada 1.8 bcfd Phase 2 FID? #OOTT #NatGas*". The last question on the Q3 call as if the with the geopolitical situation, did mgmt. have any reason to think this will cause governments to develop projects in the North Se or other places in the world to create new opportunities for Shell. We created a transcript of outgoing CEO van Beurden's response *"I think it will be very interesting to watch this. As I said in other forums, it's been a long time since we've had so many and so many good discussions with governments, who for a long time of course have taken certainly the availability but maybe also the affordability of energy as a given. And had a somewhat singular focus on one side of the trilemma taking the other two for granted. I think we have a better discussion now, and I am sure that will lead to new insights. And therefore it may well be indeed that governments are going to significantly focus also on developing their own natural resources again. I think it is, then for companies like us to decide if that is where we want to play. Or whether we want to play our upstream and integrated gas business in areas where we have established strength. Maybe from the way I pose that question, you can probably deduce where the answer is going to be.*

Shell focus where have established strength

But let's see how that plays out. There may indeed be new opportunities for us for instance in the North Sea, but let me also say that I will look at Europe much more as a play for us to demonstrate our energy transition capacity and credentials . find out how we're going to make money. Many of our customers and counterparts here, particularly also as they need that even moreso than they needed before. But I am sure that geopolitics of the moment will continue to shape the energy system for a long time to come, and the other way around for that matter." Our tweet included Shell's updated Integrated Gas Portfolio & Major Projects, which still includes the brownfield LNG Canada 1.8 bcf/d Phase 2 FID as one of its pre-FID options. So nothing specific, but LNG Canada Phase 2 would fit with their priorities.

BC says it is in discussions with LNG Canada on potential Phase 2

Here is what we wrote in our Oct 23, 2022 Energy Tidbits. "*It looks like it is coming down to British Columbia to decide if LNG Canada will proceed with its brownfield 1.8 bcf/d Phase 2. We have a clear statement from British Columbia that they are in discussions with LNG Canada on their wish for the potential Phase 2. Last week's (Oct 16, 2022) Energy Tidbits highlighted the separate comments from Canada Deputy Prime Minister Freeland and External Affairs Minister Joly that seemed to point to LNG Canada Phase 2 coming and that the Liberals would be onside. We haven't seen comments from the BC Govt on Phase 2 until this week. On Monday, we tweeted [LINK] "#LNGCanada 1.8 bcfd Phase 2 FID. Liberals seem onside see 👎 @cafreeland. BC. @brentcjang reports @BruceRalston "LNG Canada has expressed the wish to explore the possibility of proceeding with Phase 2, and we're engaged in discussions with them. #OOTT [LINK]." The Globe and Mail wrote "In a recent media briefing in Kitimat, however, LNG Canada chief executive officer Jason Klein said LNG from B.C. will play a crucial role in helping displace coal used in Asia for electricity generation. "The climate challenge isn't a B.C. challenge. It is a global challenge," Mr. Klein said. "It's not just about displacing coal. It's also about getting people out of energy poverty around the world." He said Shell, Petronas and the three other co-owners of the megaproject will ultimately decide whether it makes economic sense for Phase 2 to use lower-carbon hydroelectricity from BC Hydro to power motors to produce LNG. There isn't sufficient infrastructure today for BC Hydro to provide enough hydro power for electric-drive technology at the Kitimat facility, but new transmission lines are possible. B.C. Energy Minister Bruce Ralston, who is the cabinet minister responsible for BC Hydro, said electrification would be an important aspect of LNG Canada's potential expansion. "LNG Canada has expressed the wish to explore the possibility of proceeding with Phase 2, and we're engaged in discussions with them," Mr. Ralston said." Our Supplemental Documents package includes the Globe and Mail report.*

Natural Gas – Mexico's natural gas production still stuck below 5 bcf/d, +1.1% YoY

On Friday, Pemex reported [LINK] its oil and gas data for September. Pemex reported natural gas production of 4.798 bcf/d, which was +1.1% YoY and +0.04% MoM. For the past 3 years, an ongoing theme of the Mexican energy sector, has been their inability to grow domestic natural gas production. Mexico's unchanged production over the past five years has created the need for increased US pipeline exports to Mexico as Mexico builds out its domestic natural gas infrastructure. Pemex does not provide any commentary along with its

Mexico natural gas still stuck below 5 bcf/d

production data. Below is our ongoing table of Pemex reported monthly natural gas production.

Figure 5: 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%	4.796	3.0%
Sept	5.619	4.302	4.913	5.017	4.926	4.746	-3.7%	4.798	1.1%
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 – Qatar's LNG to be operational in 2026 (not 2027), Shell is latest partner

Qatar names Shell as 2nd partner

We had seen this news last Sunday well before our 7am MT news cut off, but forgot to include Qatar Energy's announcement [LINK] that Shell would be the 2nd international partner in Qatar's Phase 2 LNG expansion – the North Field South expansion that is to add 2.1 bcf/d to be operational in 2027. TotalEnergies was the first named international partner. Pursuant to the agreement, Shell will have an effective net participating interest of 9.375% in the NFS project, out of a 25% interest available for international partners. Qatar Energy will hold the remaining 75% interest. Our Supplemental Documents package includes the Qatar Energy release.

Qatar's LNG expansion is two Phases to add 6.5 bcf/d in total

Here is an excerpt from our June 12, 2022 Energy Tidbits. "*Our tweet this morning [LINK] reminded that Qatar's expansion is two phases. We tweeted We tweeted "Qatar names @TotalEnergies as 1st partner. Reminder Qatar's #LNG expansion is 2 phases. Phase 1 North Field East, adds 4.4 bcfd BY 2026. Phase 2 North Field South adds 2.1 bcf operational IN 2027. Current 10.1 reaches 16.6 bcfd. Thx @SimoneFoxman @V_Ratcliffe. #NatGas #OOTT". (i) Phase 1: North Field East: increases existing LNG capacity from 77 to 110 million tons by 2026 ie. operational in 2025. This is an increase of 4.4 bcf/d from current 10.1 bcf/d to 14.5 bcf/d. (ii) Phase 2: North Field South: increases then 110 million tons to 126 million tons but won't be finished until 2027 ie. operational in 2027. This is an increase of 2.1 bcf/d from then current 14.5 bcf/d to 16.6 bcf/d. (iii) So total expansion of 6.5 bcf/d from current 10.1 bcf/d to 14.5 bcf/d sometime in 2025, and then to ultimate 16.6 bcf/d sometime in 2027.*

Natural Gas – No mention of Mozambique LNG in TotalEnergies Q3 call

No TotalEnergies Mozambique LNG update

TotalEnergies held its Q3 call on Thursday. We were surprised that there was no mention by management on the force majeure that halted construction on its Mozambique LNG. And even more surprised that there were no analyst questions on the status of one of TotalEnergies most significant growth projects. We tweeted [LINK] *"#MozambiqueLNG.*

@TotalEnergies Q3 call just ended. No mgmt comment, no analyst questions on any potential restart to its under force majeure Mozambique LNG. Have to believe would have been some hint or mention of watching if a restart was really soon. #NatGas #LNG #OOTT." No one knows what TotalEnergies is thinking about a restart date. But, given the public statements from Mozambique over the past few months and looking forward for a potential construction restart around year-end, we would have assumed that TotalEnergies would have made some sort of positive comments on the Mozambique security situation if a restart was potentially soon.

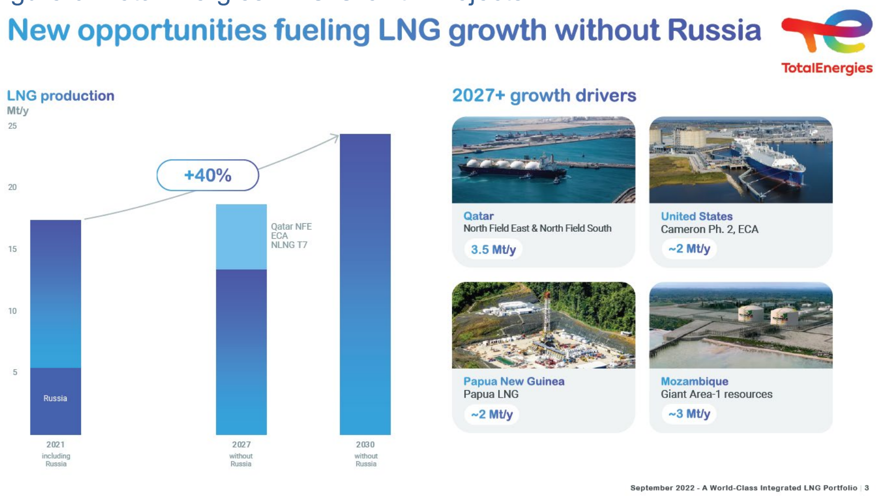
More support why TotalEnergies puts 1st Mozambique LNG after 2027

Here is what we wrote in our Oct 9, 2022 Energy Tidbits. *"It looks like TotalEnergies is resisting the urging from Mozambique to restart its flagship Mozambique LNG around year end TotalEnergies does not estimate any time frame to make a restart decision, but they don't point to a restart in early 2023. TotalEnergies CEO Patrick Pouyanne presented at the Energy Intelligence Group forum in London. On Thursday, we tweeted [LINK] "More support for why @TotalEnergies doesn't include #MozambiqueLNG until after 2027. @EI_Forum "we will think to restart" the Mozambique #LNG project only on the day Pouyanne himself can visit without a military escort, says Pouyanne. #EIForum". #NatGas. [LINK]." Assuming Pouyanne is serious that this is the test, it's relatively high bar and one that we have trouble believing will be met within the next year.*

TotalEnergies Sept outlook didn't include Mozambique LNG until after 2027

Here is what we wrote in our Oct 2, 2022 Energy Tidbits. "*TotalEnergies held its investor day on Wednesday and did not give any expected restart to its Mozambique LNG. Circumstances can change, but, on the call, mgmt gave no indication or inference that they might be close to a restart around year end. Rather they just said a normal type line "And in Mozambique, I will come back on it. Of course, security is today improving, but yet to have to improve before we can restarted to project, but the project is there, and we are working to see how we can relaunch it." But it looks like TotalEnergies is not assuming any early 2023 restart at Mozambique LNG. We tweeted [LINK] "#TotalEnergies just posted #LNG slides for today's investor day. Not planning a quick restart to Mozambique LNG as NO volumes are included in LNG growth until AFTER 2027. #OOTT #NatGas." TotalEnergies includes Mozambique LNG in their forecast for sometime after 2027. Last week's (Sept 25, 2022) Energy Tidbits memo noted comments from TotalEnergies country manager. We then wrote "The latest Cabo Ligado Weekly: 12-18 September 2022 was posted on Tuesday. [LINK] The weekly highlighted Nyusi's comments from last week. But interestingly, the weekly also had comments from TotalEnergies Mozambique country manager. Cabo Ligado Weekly wrote "This recognition that there is still much work to be done was echoed by her colleague Stéphane Le Galles, Director of TotalEnergies' Mozambique liquefied natural gas (LNG) project, who said there are "visible signs of people coming back to the region but we are not there yet." "The journey is long but the direction is very good," he concluded."*

Figure 6: TotalEnergies LNG Growth Projects



Source: TotalEnergies

A TotalEnergies restart sets in motion 5 bcf/d of Mozambique LNG

It is important to remember that a restart of TotalEnergies Mozambique Phase 1 is more than a restart of the 1.7 bcf/d for Phase 1 – it's really sets in motion 5.0 bcf/d of Mozambique LNG. This is why we have highlighting TotalEnergies force majeure on its Mozambique LNG Phase 1 for the past 17 months as the game changing event for LNG markets. TotalEnergies Mozambique Phase 1 at 1.7 bcf/d is significant, but our view has been because TotalEnergies delaying Phase 1 of 1.7 bcf/d is actually leading to a delay of 5.0 bcf/d. This was the reason why, on April 28 2021, we posted a 7-pg blog "*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*" [LINK] We thought, and still think, there has been a major change to the outlook for LNG supply in the 2020s and one that is still being overlooked – there is a big new LNG supply gap starting around 2025 that is hitting faster and bigger than anyone expects. We saw Total's April 27, 2021 announcement of force majeure at its Mozambique Phase 1 LNG of 1.7 bcf/d was much more significant that viewed. We just didn't see market focused on the fact that this situation backs up an additional 3.3 bcf/d of LNG supply that is also being counted on in all LNG supply forecasts. Total's Phase 2 of 1.3 bcf/d was to follow, and Exxon's Rozuma Phase 1 of 2.0 bcf/d was originally expected to go FID in 2019 but is now not expected to have a FID decision until 2022 at the earliest. Mozambique is considered a premium LNG supply region for Asia and is in LNG supply forecasts. Total's original in service for Phase 1 is 2024. We had been warning that Mozambique has a major LNG market impact and its why we posted the April 28 blog. Its also why earlier we said that this is starting the clock running for other LNG projects wanting to go FID to make their mind up ie. like LNG Canada Phase 2. Our Supplemental Documents package includes our 7-pg April 28, 2021 blog.

Natural Gas –Sounds like Eni/Galp/XOM will have more FLNG offshore Mozambique

FLNG offshore Mozambique

Galp Energia is a partner in the Exxon/Eni offshore Rozuma Mozambique LNG block. Galp reported Q3 on Monday. (i) Eni, the operator of Coral FLNG, held its Q3 call on Friday and they did not mention any last minute delays to Coral FLNG tanker loadings or any subsequent FLNGs on the Exxon/Eni Rozuma block. (ii) Exxon operated Rozuma LNG project. Rozuma LNG was planned to follow TotalEnergies Mozambique LNG as a way to have the lowest capital instead of competing against TotalEnergies for services. As a result, the force majeure of TotalEnergies Mozambique means Exxon Rozuma is delayed. There was no indication from Galp that they see any status change or need to plan differently for Exxon Rozuma. So we have to assume, there is no discussion of any plans to move ahead on this soon. There was no mention by Galp of Rozuma in the Q3 report or presentation or Q3 call. (iii) Galp is also in the Mozambique Coral FLNG (floating LNG) offshore from the same offshore block. This is the Eni operated 0.45 bcf/d FLNG that is supposed to have its first LNG cargo loaded in the coming weeks. Galp seemed to point to the likelihood that the partners will have additional FLNG units in addition to the Exxon operated Rozuma LNG project. In the Q&A, mgmt. said "*we've seen is floating LNG is working, is working well. It's cost effective on time and on budget. So there is an opportunity clearly. If you wanted to stay well offshore, would be to build another. Or you can get nearer to the coast, you can go modular, you can get small scale or the big scale scheme that we had before. And the partners are looking at all these schemes. And I have to say, that there is no decision at this stage. But what I think Coral has done, it creates optionality even in a deteriorated onshore security position, it does clearly show that the asset has significant value even on offshore solutions. That's not to say, that's the way we're going, but it creates the optionality for that. So just underlining, first of all, Coral seems to be really, really well done, it's on time and it's below budget. And we got first LNG drop in October. We do see that by doing a second one, you can actually optimize and make it even more efficient. So that is a natural that we study. But as Andy said, we have not taken decision, in my mind, the likely case forward will be that you will be doing both. He will both, because the resources are so enormous in Rovuma, we're talking 85 trillion cubic feet. So, a dual development offshore onshore is most likely, the way it will go forward. But the partnership is now starting the solutions and also learning from the various successful modular developments that has been achieved in the U.S., which might be applicable also for a situation in Mozambique.*"

Eni wants to FID in 2023 a 2nd FLNG for offshore Mozambique

As noted above, Eni made no comments on a potential 2nd FLNG in their Q3 call on Friday. Whereas the Galp Q3 comments are consistent with Eni's view that, in addition to the Exxon operated Rozuma LNG, the size of the resource means there should also be more FLNG. Here is what we wrote in our Oct 9, 2022 Energy Tidbits. "*Eni is focusing on small scale FLNG like Coral South FLNG as a key to their LNG supply strategy with short times to get to first LNG cargos. So unless there is a fundamental design flaw with the FLNG, we wouldn't expect to see this delay cause any change to this small scale FLNG strategy. Here is what we wrote in or Aug 7, 2022 Energy Tidbits. "On Tuesday, Bloomberg interviewed Eni COO Guido Brusco, who advised that Eni is looking to move ahead with its second FLNG vessel offshore Mozambique as a way to develop more of the massive offshore Mozambique natural gas. This is in the Exxon operated block that has had its massive Rozuma LNG 2.0 bcf/d Phase 1 delayed due to the onshore violence that delayed TotalEnergies*

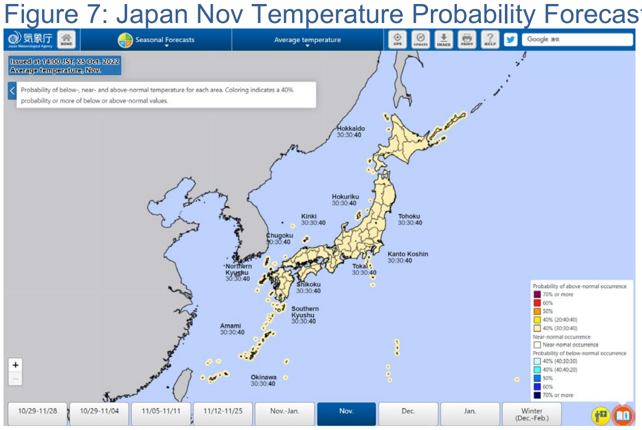
Mozambique LNG. Eni and Exxon are in the process of having 1st LNG cargos in Q4/22 from the Eni operated Coral FLN G in the Rozuma block. Bloomberg reported "If Eni decides to proceed by early 2023, output could begin even before TotalEnergies SE's $20-billion onshore project that abruptly halted construction last year due to security issues." Eni made it clear that, before any FID, they would need to have to have agreement with their partners – Exxon, CNPC and Mozambique state owned Empresa Nacional de Hidrocarbonetos. Eni looks at FLNG as an addition to develop the natural gas. Bloomberg wrote ""I believe that to fully develop Mozambique's considerable gas resources, the right decision is to move toward both an onshore concept and an offshore concept," Brusco said."

Natural Gas – Japan forecasts colder than normal Dec and Jan

JMA forecasts below average temps

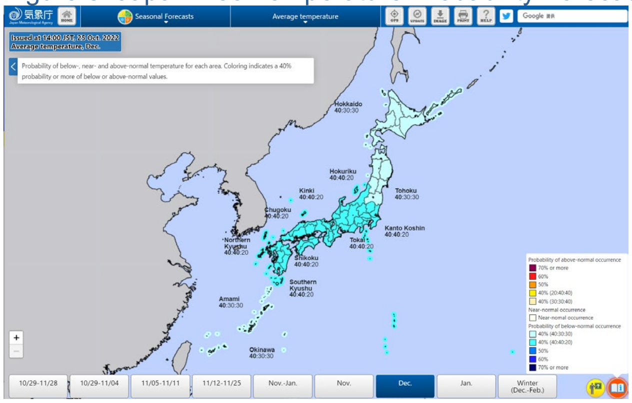
On Thursday, we tweeted [LINK] "*Still early, but Japan Meteorological Agency 10/25 forecast calls for colder than normal Dec and Jan. Nov expected warmer than normal. #NatGas #LNG #OOTT".* With winter right around the corner, Japan expects a warmer end to fall with November being warmer than normal, but then switching to below normal temperatures in December and January. On Thursday, the Japan Meteorological Agency posted its seasonal forecast for Nov 2022 – Jan 2023 and overall it is a positive indicator for electricity demand as residents look to heat their homes [LINK]. So far in 2022, Japan has been trying to maximize coal and petroleum products due to the sky-high prices of LNG. But a cold Dec/Jan should lead to increased natural gas/LNG consumption. The JMA forecasts that most of the country should expect colder than average winter temperatures, especially in the southern regions of the island. Below is the current JMA forecast for Nov 2022 – Jan 2023.

Figure 7: Japan Nov Temperature Probability Forecast



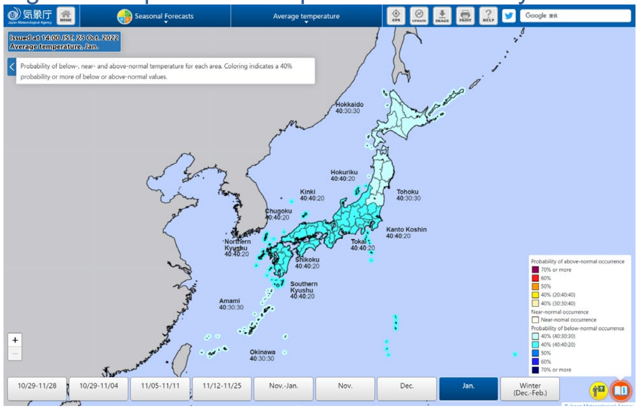
Source: JMA

Figure 8: Japan Dec Temperature Probability Forecast



Source: JMA

Figure 9: Japan Jan Temperature Probability Forecast



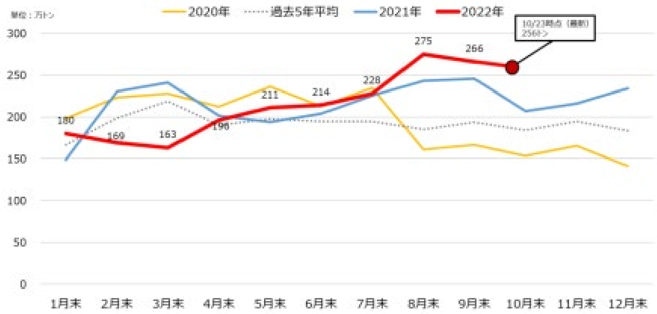
Source: JMA

Natural Gas – Japan's LNG stocks up +1.6% from last week

Japan LNG stocks +1.6% 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 Oct 23 were ~123 bcf, +1.6% WoW from 121 bcf and up from the 5-yr average of 99 bcf. Below is the LNG stocks graph from the METI weekly report.

Figure 10: Japan's LNG Stocks



Source: METI

Natural Gas – China's LNG imports -12.6% YoY in September

China LNG and pipeline imports

We have been warning that China's LNG imports will be less in 2022 for three key reasons - higher pipeline imports of cheaper Russian natural gas via Gazprom's Power of Siberia, increasing domestic natural gas production, and sky-high LNG prices are seeing China switch to coal where possible. China Customs posted it's September natural gas imports split by pipelines vs LNG. The customs data is at [LINK]. The customs data reports China September LNG imports of 9.45 bcf/d, -12.6% YoY but +29.2% MoM. And China natural gas pipeline imports of 6.8 bcf/d, +9.8% YoY and +6.34% MoM. Below are our running tables of China LNG and pipeline imports.

Figure 11: China LNG Imports

bcf/d	2018	2019	19/18	2020	20/19	2021	21/20	2022	21/22
Jan	8.03	10.20	27.1%	10.31	1.1%	13.15	27.6%	12.10	-8.0%
Feb	6.84	7.46	9.1%	7.26	-2.7%	9.52	31.1%	8.34	-12.4%
Mar	5.04	6.28	24.8%	6.49	3.3%	8.74	34.6%	7.17	-17.9%
Apr	5.43	7.27	34.0%	8.16	12.3%	10.77	32.0%	6.96	-35.4%
May	6.39	6.87	7.6%	8.10	18.0%	10.89	34.4%	7.64	-29.9%
June	6.31	7.25	14.9%	9.27	27.8%	10.76	16.1%	7.72	-28.3%
July	6.40	7.56	18.1%	7.79	3.1%	8.78	12.7%	7.34	-16.4%
Aug	7.26	8.04	10.8%	9.23	14.8%	10.30	11.6%	7.31	-29.0%
Sept	7.00	8.16	16.7%	9.17	12.4%	10.81	17.8%	9.45	-12.6%
Oct	7.13	4.09	-42.6%	7.78	90.0%	9.56	22.9%		
Nov	9.59	10.42	8.7%	10.58	1.6%	11.05	4.4%		
Dec	9.75	10.01	2.7%	11.76	17.5%	11.82	0.5%		
Full Year Avg.	7.10	7.80	9.9%	8.83	13.1%	10.51	19.1%	8.23	-21.8%
Note: Jan/Feb 2020 figures are averaged. Not applicable for YoY comparison									

Source: Bloomberg, China Customs

Figure 12: China Pipeline Imports

bcf/d	2018	2019	19/18	2020	20/19	2021	21/20	2022	22/21
Jan	4.0	5.0	24.9%	5.2	3.5%	4.9	-4.5%	5.4	8.8%
Feb	5.0	5.5	9.0%	5.7	3.8%	6.1	7.2%	6.4	3.9%
Mar	4.2	4.5	6.4%	4.2	-5.2%	4.8	12.8%	5.2	9.1%
Apr	5.5	5.0	-9.3%	4.2	-15.5%	5.5	30.1%	6.0	9.4%
May	5.1	4.8	-4.3%	4.0	-16.6%	5.1	26.2%	6.4	26.1%
Jun	5.3	4.8	-10.3%	4.1	-15.0%	5.6	37.4%	6.2	11.7%
Jul	4.7	4.7	0.0%	3.6	-23.3%	5.7	58.9%	6.1	7.9%
Aug	4.7	4.9	3.1%	5.3	7.9%	5.9	11.5%	6.4	9.0%
Sep	5.2	5.0	-4.2%	4.7	-6.0%	6.2	32.1%	6.8	9.8%
Oct	4.2	3.8	-8.1%	3.9	1.0%	5.0	28.0%		
Nov	5.1	4.7	-6.9%	4.1	-13.0%	6.1	48.9%		
Dec	4.6	4.7	3.9%	5.6	18.9%	6.2	10.7%		

Source: Bloomberg, China Customs

Natural Gas – Shell warns no short term EU natural gas fix other than cutting demand

Shell warns EU has to cut natural gas consumption

Shell CEO van Beurden didn't give much hope for short term solutions to EU's natural gas crisis – he doesn't see any other than hope for warm weather and for EU to cut natural gas consumption. We tweeted [LINK] "*Buckle up! Hope for a very warm winter in Europe. #Shell CEO on solutions for current Europe #EnergyCrisis. "Yes, we will but it won't' be without pain. It won't be easy" "But a short term fix, I'm afraid is not going to be available other than demand response." #OOTT #NatGas.*" In the Q&A of the Q3 call on Thursday, mgmt. was asked what Shell sees as solutions for the current energy crisis in Europe. Our tweet included the transcript we made of van Beurden replying "*I wish I could give you a very simple, one liner answer to your question. There isn't really, I think this is a very difficult position we find ourselves in Europe. It's not necessarily a global picture, of course, but it's a European challenge. Will we manage to solve this? Yes, we will but it wont' be without pain. It won't be easy. So very simply put, if you have to deal with such a significant drop away of supply of natural gas coming out of Russia, there's only a few things that you can do of course to offset it. First of all, it is responding with reducing demand. And I think that is happening quite by the fact that if you have seen how much already in Europe demand has been reduced, that's quite encouraging. Some of it has to do with reasonably warm weather still. Some of it has to do with turning down industrial activity, which is not a great way to reduce demand, but, there is definitely a very strong response. The other thing of course is to bring on more supply. And this is exactly where we come in. In addition, by the way, to reducing demand, we have reduced very significantly in our operations as well. But bringing more gas into Europe, we have doubled the amount of gas, LNG, coming into Europe already. Here in the UK, it's three times as much compared to the last 12 months or the 12 months before that. And of course, we are bringing on, where we can, short term projects like for instance, the North Sea project Pierce. We are working on [?]. We are looking here and there what we can do with near field tie-backs, etc. to bring new supply on. All of these things will have to be done and will bring some form of relief. And then finally, what we also have to do is to accelerate the energy transition. At the moment what we are seeing out of necessity almost is a certain amount of gas to coal switching, we have to reverse that again. We have to make sure if you bring on more renewable capacity, it's not going to be a short term fix either. But this better be the wake up call for policymakers to see where we can accelerate permitting processes, where we can do other things to award contracts just to make sure that we are seeing an effect over the next few years. But a short term fix, I'm afraid is not going to be available other than demand response.*

Natural Gas – Shell: EU industrial losses = pressures on economies & political system

Reality check of EU natural gas crisis

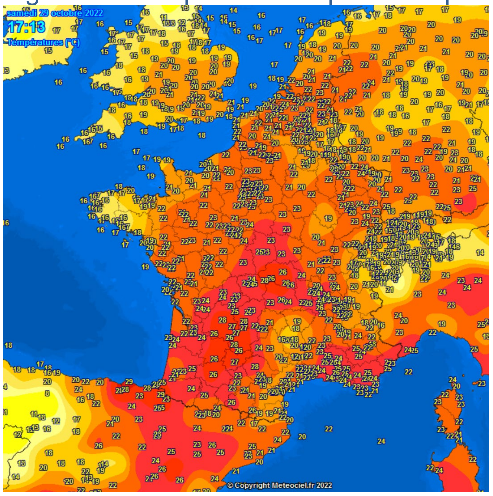
As much as Shell CEO was warning in the Q3 call on Thursday, Shell CEO van Beurden had a much tougher warning for Europe when he was in Qatar last weekend for the signing of Shell's participation in Qatar's LNG expansion. Last Sunday night, we tweeted [LINK "*Must read @VanBeurdenShell EU industrial losses = pressure on economies & political system in EU. Can EU leaders accept long term pain from #EnergyCrisis? or will reality check force them to accept they need more #NatGas #Oil #Coal for longer? #OOTT.*" Van Beurden warns that the cutting of industrial natural gas demand is not a good thing for Europe and how the economy being hit will bring pressures on the political system in Europe. So yes, good for natural gas to get thru the winter but bad for the impact of industrial hits. Yahoo's report "*Europe faces long-term pain from energy crisis: Shell CEO*" wrote ""*A lot of people* *say, turn down the thermostat, or maybe don't switch on the air conditioning," he said. "But there is also 'why don't we switch off the fertiliser plant that we have' or 'let us scale down on some petro chemicals production in general'. And that rationalisation, if it goes on long enough, becomes permanent." - 'Pressure' - Van Beurden said there have been "some victory laps" in Europe over the way it has reduced demand, but added "some of it is actually bad news for the long term, namely economic or industrial rationalisation." The Shell chief, who will retire at the end of the year, said industrial cuts could spark some "rejuvenation", but also brought risks. "To do it at this scale, this abruptness, at a time of economic challenges in general, I think will bring quite a bit of pressure on European economies, and perhaps also a lot of pressures for the political system in Europe," he said."* Our Supplemental Documents package includes the Yahoo report. [LINK]

Natural Gas – It was crazy warm in Europe, a huge help to natural gas storage

It was hot in Europe

It was another week of very warm weather in Europe, which has been great to reducing demand for heat and natural gas. These are temperatures more like September than the end of October. In fact, there were record high temperatures in many parts of Europe. Yesterday morning, Extreme Temperatures Around the World tweeted [LINK] *"(1) European Warm Spell: Another insane day in France with up to 33.3C at Lomnè,Monthly record at Lammenezan with astonishing 30.3C at 640m asl. 10 monthly records were broken. 13 stations above 30C. It's 29 October! In Belgium latest 25C ever (in Brussels),24C in Netherlands..."* and [LINK] *"(2) European Warm Spell: More records for Germany and Switzerland today. 700m of elevation ! New October records: 26.3C Holzkirchen 25.2C Stotten Switzerland: 25.3C Ebnat Kappel 625m 21.9C Napf 1400m ! record 22.9C Hornli 1133m record 25.8C also in Austria and Liechtenstein."*

Figure 13: Temperature map for Europe Oct 29 late afternoon



Source: Extreme Weather Around the World

Natural Gas – Russia says UK involved in Nord Stream bombing

Russia says UK involved in Nord Stream

No surprise that Russia says someone else was responsible for the explosions on the Nord Stream pipeline, but it has been a bit of surprise that it has said UK special services were involved in the explosions that knocked out Nord Stream pipeline. On Friday, TASS reported

[LINK] on comments from Russian Foreign Ministry spokewoman Maria Zakharaova. TASS reported *"Russian defense officials reported that they have information about the complicity of the British intelligence agencies also in the series of explosions on the Nord Stream 1 and Nord Stream 2 gas pipelines in the Baltic Sea. Russia has repeatedly called for a joint investigation into these terrorist attacks," the diplomat said, indicating that similar proposals had been submitted to the government of Denmark, Sweden and Germany. "The fact that the Western countries turned this proposal down proves that they have something to hide. Now we understand what exactly they are hiding," Zakharova stressed."* In a separate accusation on the UK, yesterday, TASS reported [LINK] "*Russia works on measures regarding UK's involvement in Black Sea terrorist attack – MFA*". *"The Russian Foreign Ministry alongside the Russian specialized agencies is considering practical steps regarding British specialists' involvement in the preparations for the terrorist attack in the Black Sea on October 29 and the training of the Ukrainian military, as stated by the Russian Defense Ministry," the diplomat said."*

Natural Gas – German Finance Minister wants fracking in Germany

Fracking in Germany

You never know, but we have to believe the probability is low for a return to fracking in Germany, but earlier this morning, German media, tagesschau, reported [LINK] "*German Finance Minister Christian Lindner is pushing for a quick start on the extraction of domestic shale gas by means of fracking. "We have considerable gas deposits in Germany that can be extracted without endangering drinking water," the FDP chairman told the newspapers of the Funke media group.The promotion is "also responsible under ecological conditions," explained Lindner. "It would be rather irresponsible to renounce fracking for ideological reasons." The background to the demand is the energy crisis as a result of the Russian war of aggression against Ukraine. In order to ensure security of supply, the FDP had already pushed for anextension of the operating times for nuclear power plantsandhad already repeatedly called for fracking*." The reason why we say low probability is that Chancellor Olaf Scholz came out a week ago against fracking, as has Vice Chancellor Robert Habeck. Scholz, Habeck and Lindner are from different parties that make up the coalition. Our Supplemental Documents package includes the tagesschau report.

Exxon thinks Germany could go back to fracking?

Here is what we wrote in our July 31, 2022 Energy Tidbits. "*We listened to the Exxon Q2 call and were surprised by part of Exxon CEO Woods answer to the first question on how Europe can deal with their energy challenge. We tweeted [LINK] "Relevant to #VermilionEnergy. Exxon Q2 Q&A right now, #Exxon CEO asked re Europe energy security, think Europe will be driven to leverage resources available to them ie. fracking & unconventional #NatGas potential in Germany, thinks industry has proven it can be done safely #OOTT". It doesn't sound crazy when you think of what Europe is doing to deal with the accelerated energy crisis. Germany has increased coal-fired generation, getting LNG import terminals, and maybe forced to keep nuclear going. So why not, let fracking for unconventional gas on German's oil and gas leases. We noted Vermilion as we remember Vermilion got into Germany years ago in part for the unconventional potential. The first question on the Q2 call included "And so would love your perspective on the European energy challenges that are being faced right now. How does the continent ultimately work its way through it?" CEO Woods replied "I think you touched on what is a very challenging situation today. And that* *reflects, I think, the complexity associated with making a massive change to a system that's so critically important to people's lives. And so I think going forward and what we are seeing happening today is a what I'd say is a broader net being cast with respect to how we think about the transition and how that evolves. Making sure that we have got a diversified portfolio of energy and one -- and sources of energy that are not dependent on any one nation state -- stay which is I think an important step that we are seeing being taken. I think they'll be a drive over time to make sure that they're leveraging the resources available to them. And I'll just make one example would be the potential that we see for fracking an unconventional gas in Germany. I think the industry has proven over the years that unconventional gas can be produced safely, and you then have a secure source of supply and economically and reliable sources supply. And so I think there's an opportunity where certainly ExxonMobil could play a key role."*

UK Rough gas storage back in operations

Natural Gas – Centrica re-opens Rough UK gas storage

On Friday, the Centrica announced [LINK] the reopening of the Rough gas storage facility. This comes after having completed significant engineering upgrades over the summer and commissioning over early autumn. Centrica noted that the Rough storage will only be at 30 bcf right now, which is ~20% of the total capacity. Rough is an offshore natural gas storage facility. This is the first gas injection into Rough in over five years and will be used for UK homes and businesses over winter 2022/23, boosting energy resilience in the UK. Chris O'Shea, Centrica CEO stated *"our long-term aim remains to turn the Rough field into the world's biggest methane and hydrogen storage facility, bolstering the UK's energy security, delivering a net zero electricity system by 2035."* Important to note that this future conversion into methane and hydrogen is to be done "by" 2035, which infers its won't be until then. Even at a 20% operating capacity this winter, it is still UK's largest gas storage site once again and adding 50% to the UK's gas storage volume. Our Supplemental Documents package includes the release.

In July, Centrica thought Rough UK natural gas storage can reopen for winter

The reopening of Rough is in line with Centrica's summer comments. But what isn't clear is what deal Centrica got from UK to re-open. Here is what we wrote in our July 31, 2022 Energy Tidbits memo. "*Centrica is trying to get a deal done with the UK govt so it can reopen its Rough natural gas storage for winter. On Thursday, Bloomberg reported "Centrica Plc, the owner of the Rough facility, is still hammering out a deal with the government on details including subsidies for getting the retired storage site back in regular operation. Capacity would be brought back gradually, providing further relief for surging gas prices next winter, too. "Physically it's possible, but there's a whole bunch of things that we need to go through and we are working on it right now," Centrica Chief Executive Officer Chris O'Shea told reporters on Thursday. "We are right now doing the engineering to make sure that it can physically happen and we're doing that at our own cost." And "Centrica will pay to make Rough operational but is seeking longer-term guarantees from the government on price, such as a contract for difference, O'Shea said." We recognize this is being portrayed as linked to Russia's invasion of Ukraine, but the reality is that last October, Centrica was already at reopening Rough because of the massive natural gas price spike (energy crisis) in Europe last year, well before Russia invaded*

Ukraine. And it's also a reminder example of why natural gas will cost more under the energy transition. The UK got more involved in talks in June (see our June 5, 2022 Energy Tidbits), and now O'Shea is saying Centrica can get this done soon if they can finalize the terms of a deal with the government."

Last Oct, Centrica talked about reopening its Rough UK natural gas storage
Here is another excerpt from our July 31, 2022 Energy Tidbits memo. "*On Tuesday, we tweeted [LINK] "Reminder #Centrica was already looking to reopen Rough #NatGas storage in Oct. The #EnergyTransition was already going to take longer, be bumpy & cost a lot more. RUS has just made it worse. Positive for #Oil #NatGas for the 2020s. #OOTT." Here is what we wrote in the Oct 31, 2021 Energy Tidbits "There was another good example of why energy, in this case natural gas, will cost a lot more under the Energy Transition. Reportedly, there are discussions to look to restart Centrica's Rough gas storage site that shut down four years ago. So 4 years ago, it wasn't worth spending the capex to fix the problems, but now it may now be worth spending the capex. It's a good example that illustrates why natural gas prices and energy should be higher in the 2020s. On Wednesday, Bloomberg reported "Rough Gas Storage Site May Be Reopened to Bolster Strategic Reserves. Britain's biggest energy supplier is in talks with the Government about reopening a mothballed gas storage facility in a bid to protect the industry from surging power costs. Centrica, the owner of British Gas, is seeking to restore the defunct Rough site off the Yorkshire Coast to boost the country's energy reserves. It comes after gas prices spiked to as much as 11 times normal levels in the wake of surging demand." Centrica reportedly talking about going back in to fix Rough storage so it can be restarted first as the major UK gas storage facility and then over time to hydrogen. And Centrica reportedly says don't need govt subsidies to do so, just can charge out to customers. This was abandoned because the cost to fix it wasn't worth it in 2017. The reality check is that the costs to fix it today have to be way higher than before. Yet Centrica can now make the math work by charging customers. ie. the costs of using storage are going much higher."*

Centrica shut down UK largest gas storage, Rough, in 2017
Our October 10, 2021 Energy Tidbits also included a recap of Centrica shutting down its Rough UK gas storage in 2017. At that time, we wrote "*One of the big criticism on the UK natural gas system is that there is a lack of gas storage. In September, Energy UK estimated there was 141 bcf in UK natural gas storage and wrote [LINK] "Britain has over 4bcm of storage capacity that can be called upon to deliver over one quarter of national gas demand on a cold winter's day. Gas is sent to storage facilities throughout the summer and at other times of the year to make sure we have gas supplies available when we need them." UK natural gas storage was much higher in 2017. In 2017, Centrica ceased operations at the largest UK gas storage facility, Rough. Our July 2, 2017 Energy Tidbits noted that, at the time of its cessation, Centrica estimated there was 183 bcf of recoverable cushion gas.   They had massive problems with the storage that led to pre tax charge of £176 in 2016 results. Made the decision to shut it down in early 2017. We went back and couldn't see what the "working gas" level was prior to the problems. But Rough was the largest UK storage and believed to have represented something like 70% of the*

storage send out capacity. Rough was a depleted reservoir being used for storage. As a rule of thumb, we would use 50/50 split between cushion gas and working gas. So its probably reasonable to roughly assume working gas was about the same at 183 bcf. The closing of Rough is why UK has relatively low natural gas storage."

Natural Gas – Progressives want Biden direct talks with Russia for Ukraine settlement

Progressives want Biden to step in Russia Ukraine

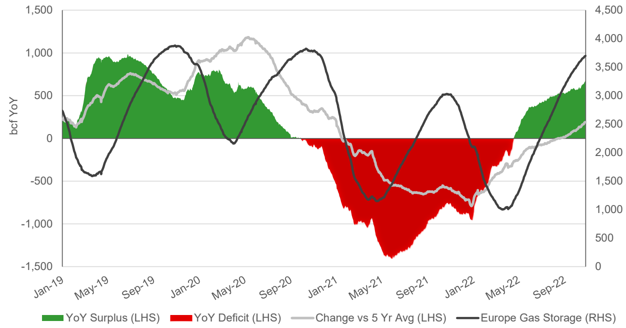
With just over a week until the midterm, it's hard to see what issues will gain traction once the election is over. And one that we wonder about (but is also tough to gauge) is the potential for the US to try to get some sort of Russia/Ukraine deal. No one expected Biden to want to do anything before the midterm or else he would lose his key talking point about blaming Putin for pretty well everything. But we have to wonder Biden's view post midterms as he looks to the last two years of his term. And the reason we note this question is something we raised in the summer – any deal would likely see some sort of opening up of Russian natural gas to Europe. It's why we are including the letter that 30 progressive Democrat sent Biden this week. We tweeted [LINK] "*Wonder what Zelensky thinks of 30 progressive Dems urge #Biden "to make vigorous diplomatic efforts in support of a negotiated settlement & ceasefire, engage in direct talks with Russia .." Wonder if Dems incl #NatGas when they expect include some form of sanctions relief? #OOTT*.' We have to believe that there is an increasing number of politicians that just want the Russian/Ukraine war over but, at the same time, worry that that won't happen if it's just left to Putin and Zelensky to figure it out. The 30 progressive that sent Biden the letter. The progressives suggest that *"such a framework would presumably include incentive to end hostilities, including some form of sanctions relief*……" Our big fear is that if there is a deal, in the next couple months, sanctions relief with winter coming would likely see Germany wanting Russian natural gas. If so, this would be a big hit to TTF and flow thru to LNG and back to HH. It was interesting to note they put in the letter the reminder that US is spending tens of billions of taxpayer dollars. Our Supplemental Documents package includes the body of the letter, we didn't' include all the signature pages of the 30 Democrats.

Natural Gas – Europe storage is now +16.92% YoY ie. 93.93% full vs 77.01%

Europe storage now 93.93% full

It was a successful natural gas storage refill season in Europe with the continued strong LNG imports and massive industrial demand response to sky-high natural gas prices. And October has been warmer than normal so there hasn't been any real home heating demand. So even with Nord Stream volumes down to zero, Europe storage continues to have increasing YoY levels. Europe gas storage began the year in a YoY deficit, but the YoY Europe storage deficit 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 16.92%. Inventories are rising all across Europe, as is normal during spring and early summer. Europe gas storage started 2020 winter (Nov 1/20) at basically full levels at 94.66% and had dropped by 65.77% to be 28.89% at Apr/21. Europe storage levels bottomed in late Apr/22 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 Oct 26 is at 93.93%, which is +16.92% greater than last year levels of 77.01% and are +4.93% above the 5-year average of 88.99%. Below is our graph of Europe Gas Storage Level.

Figure 14: Europe Gas Storage Level



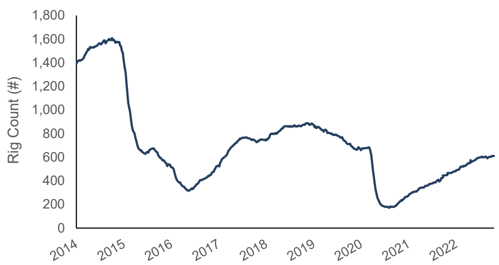
Source: Bloomberg

Oil – US oil rigs down -2 to 610 oil rigs at Oct 28

US oil rigs -2 WoW

Baker Hughes released its weekly North American drilling activity data this morning. This week US oil rigs were -2 to 610 oil rigs. There looks to be no significant changes across the basins. US oil rigs hit a 14-week low of 591 seven weeks ago. US oil rigs are now +431 oil rigs since the Covid Sept 17, 2020 oil rigs of 179 oil rigs. And US oil rigs are +166 oil rigs YoY. US gas rigs were -1 WoW at 156 gas rigs.

Figure 15: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – US frac spreads -5 to 293 spreads for the week ending Oct 28

Frac spreads -5 to 293

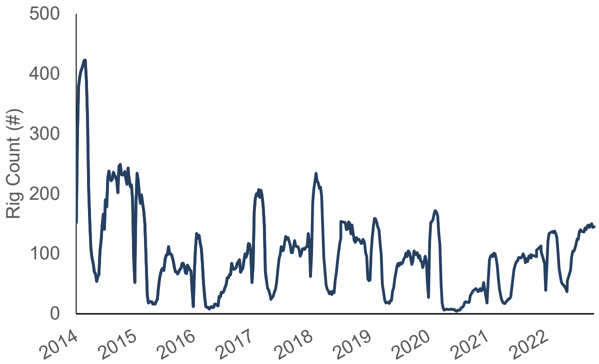
Please note that we won't be having this item in the future as the weekly YouTube frac spread is moving behind a paywall. Mark Rossano (C6 Capital Holdings) held his weekly US frac spread recap for the week ending Oct 28 on the Primary Vision network. YouTube video is at [LINK]. For the week ending Oct 28, US frac spreads at the high point in the week were -5 to 293 spreads. Here are some of his comments on the week. As noted, this will be the last weekly comment on frac spreads as he is moving it behind a pay wall. It was hard to tell if he was surprised by the drop, but called the drop a bit of a pause, doesn't go in a straight line, but kind of waffles back and forth as equipment comes down a bit. Western Gulf came down a bit, Anadarko came down a bit. Rossano said the feedback from E&Ps is that the equipment isn't going back to the yards, just getting deployed somewhere else ie. he still expects the frac spreads to bounce back up.

Oil – Total Cdn rigs up +2 WoW to 212 total rigs, +50 rigs YoY

Cdn rigs up WoW

Total Cdn rigs were +2 to 212 rigs as of Oct 28, 2022. Cdn oil rigs were +1 to 145 oil rigs. Cdn gas rigs were +1 to 67 rigs. We still expect rigs to remain fairly flat ahead of winter drilling season. Total rigs are now +126 vs the comparable Covid period of 86 rigs on Oct 30, 2020. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 98 and Cdn gas rigs were 68 for a total Cdn rigs of 166, meaning total Cdn oil rigs are +47 YoY to 145 oil rigs and Cdn gas rigs are +1 to 67 gas rigs.

Figure 16: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production flat at 12.0 mmb/d

US oil production flat WoW

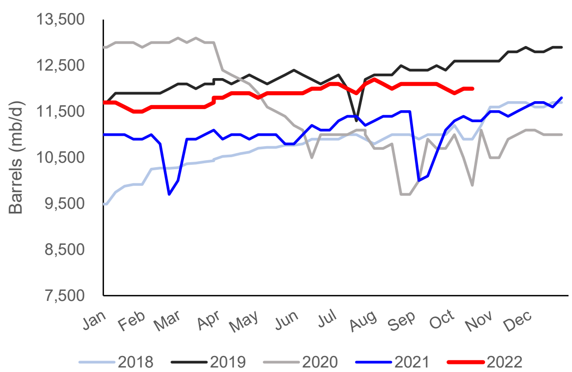
Our Oct 2, 2022 Energy Tidbits highlighted EIA Form 914 actuals for oil production in July, and how US oil production growth has been below expectations and was only +166,000 b/d from Dec 2021 thru July 2021. The EIA provides weekly estimates of US oil production, which was flat at 12.0 mmb/d for the week ended Oct 21. US oil production has been range bound between 11.9 to 12.1 mmb/d for the past 21 weeks. Lower 48 production was flat WoW at 11.6 mmb/d this week and Alaska was also flat WoW at 0.4 mmb/d. US oil production is up YoY at +0.710 mmb/d but is still down significantly at -1.1 mmb/d since the 2020 peak of 13.1 mmb/d on March 13.

Figure 17: EIA's Estimated Weekly US Oil Production

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

Source: EIA

Figure 18: US Weekly Oil Production



Source: EIA, SAF

Oil – Halliburton reminds the higher US oil production means higher levels of fracking

Halliburton on US oil growth

Halliburton didn't specifically say "high decline rates" on US shale is a key challenge for US oil growth, but that seemed to be the implied message from their comment on their Q3 call on Tuesday. The CEO message was simple – the more US oil production is, the more the service sector has to drill and complete. On Tuesday morning, we tweeted [LINK] "*Quote of the Day! "North America, the more [#Oil #NatGas] you produce, the more we have to work and I think we are seeing that play out" $HAL CEO Miller. A reminder of the challenge for sustainable strong US #Oil #NatGas production growth with high US shale decline rates. #OOTT.*" Our tweet included the transcript we made of mgmt's comments. In the Q&A, at 7:14 am MT, CEO Jeff Miller is asked about US activity, customer mix and if seeing budget exhaustion. Miller replies "*we are certainly not seeing budget exhaustion. We remain sold out for the remainder of the year and into next year. So the market is strong and activity remains strong. As we look at what kinds of inbounds we are getting, I'd say it's a mix but a little stronger towards larger companies. Let's just say it that way. Just given they want to be certain they have equipment for 2023. I expect that North America, the more you produce, the more we have to work and I think we are seeing that play out.*"

Did Exxon CEO suggest US shale oil potential is less than everyone assumes

Here is what we wrote in the July 3, 2022 Energy Tidbits on Exxon CEO's comments on US shale oil growth potential. "*This decline issue was The headlines on Exxon CEO Darren Woods comments on Monday were all on his bullish oil outlook views and his saying "They always say that the cure to high prices is high prices. And that's exactly what I think we'll see. So it's a question of how high prices eventually rise." But there was a Woods comment that was potentially huge to the future oil call. Exxon is one of the leading US shale oil players and US shale is considered is universally accepted as the major potential oil growth region for the world. And Woods seemed to raise doubt about the potential growth for US shale. On Monday, we tweeted [LINK] "Buckle Up. What if US #Oil production growth is less than assumed by most? #Exxon CEO Woods "And so you've got a dynamic happening where more emphasis is being put on unconventional & that's not as productive as it has been in the past". Thx @gmfus @thomas_m_wilson #OOTT." Woods saying the unconventional plays areas productive as in the past make sense. The reality is that, to the most part, the best acreage has been the focus of drilling so it stands to reason that the average well has to be in a lesser reservoir quality. No question technology has got better, but the rock quality has to be less on average. Which, if true, brings the big picture question on how much can the US shale grow? For oil, and for natural gas. And, as opposed to an analyst, shouldn't Exxon, being a US shale leader, know more than others? It's why we thought Woods US shale comments were potentially huge to the oil call. We made a transcript of Woods comment "A lot of emphasis has been placed on the unconventional in the US, which has a much shorter time horizon an cycle. So if you look at the investment in upstream. And in oil, there has been a skewing into the unconventional sector of the business. And that's got its own challenge today with the resource limits that they're having. And with what I'd say is greater emphasis on returning more cash to investors. And so you've got a dynamic happening where more emphasis is being put on unconventional and that's not as productive as it has been in the past. And so I think that's the challenge that you see. And getting out of that will require greater development across the spectrum, not only in unconventionals but some of these longer lead".*

Oil – Sounds like Granholm didn't like industry's views on products exports

Potential ban on products exports

This will not surprise, but the recent Energy Secretary Granholm meeting with industry didn't seem to find any meeting of the minds or, at least, Granholm hasn't embraced any of industry's suggestions including on banning US exports of petroleum products. (i) Exxon. On Friday, we tweeted [LINK] "*Should be a big day of #Biden attacks on #BigOil. #Exxon CEO re recent @SecGranholm industry meet. policy like products export ban may solve a short term political problem, but "carry significant long term negative consequences". reminds of* 👎

10/13 #Chevron CEO comments. #OOTT". In the Q3 call Q&A, mgmt. was asked on the recent Granholm meeting and risks by legislators on things like export bans on products. CEO Woods replied "*"I am going to pass on trying to predict where different governments or administrations here in the US are going to go with respect to policy. We've been very explicit, me along with many of the peers in the industry, around what I would say are the mechanics and the fundamentals of our industry and how it works. And the implications for some of the policies being considered and I would say that in the short term, it may solve a political problem, but it will carry, all the policies people talking about, export bans in particular, windfall profit tax, those will carry significant long term negative consequences. And it's just a question, I think, of how they balance out the political equation versus what I would say are some of the fundamentals."* (ii) Valero held its Q3 call on Tuesday and was asked about the recent Granholm meeting. Valero's recount seemed the same as Exxon. Valero replied ". On the recent industry meeting with Granholm, Valero "*So on the visit to the White House, Lane and I went in and of course there were seven companies I think represented there. We ended up meeting with Secretary Granholm and I would say that it was a constructive conversation. She was looking for things that the industry might suggest that would try to bring down the cost of fuels. And so we did -- we provided her with several suggestions which would have an effect on increasing the supply of fuel into the marketplace. Thus far, I don't believe any of those have been embraced, but at least it was put on the table for her to give some consideration to."* So it the discussion may be called constructive, but Granholm hasn't agreed to any of industry's suggestions."

Oil – Biden warns oil companies "they ain't seen nothing yet"

Biden warns oil companies

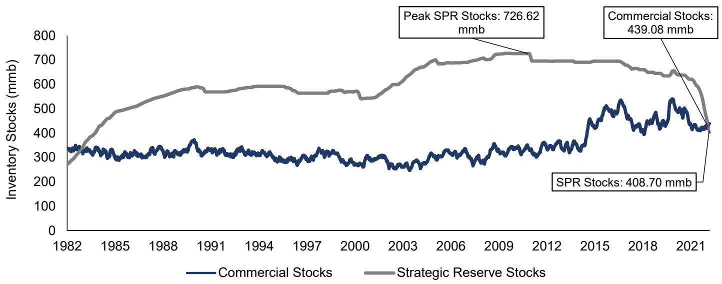
There shouldn't be any doubt for how Biden feels about the oil and gas sector. It's not just that he has refused to meet with any of the oil company CEOs despite his focus on gasoline prices being a major priority. He just can't help telling everyone that he will keep getting tougher on them. He needs an enemy to go after in public that he can blame for his major issue and it's the oil and gas sector. And even though it's election rhetoric time and he is preaching to the converted at a Democrat fundraiser, he must also realize that he is giving the progressives in the party the reason to keep pushing him more and more against the oil sector. Yesterday, we tweeted [LINK] "*Yes, it's rally the troops talk but Dems will push Biden to put his money where his mouth is vs #Oil sector. See 👇 Biden "they talk about me picking on them. They ain't seen nothing yet". How can #Oil #NatGas co's not stay with disciplined capex/focus on returns strategy? #OOTT*". Biden's #1 target in his Friday night speech was the oil sector. Part of his comments got the headlines. The White House transcript wrote "*And these companies raised their dividends as well. They say that's how it's getting back to the taxpayers. I wonder how many people in South Philly have that Exxon stock with them. Look, those excess profits are going back to their shareholders and their executives instead of going to lower prices at the pump and give relief to the American people who deserve it and need it. (Applause.) And I'm going to keep harping on it. They talk about me picking on them. They ain't seen nothing yet. (Applause.) I mean it. It outrages me."* Our Supplemental Documents package includes the White House transcript on Biden's oil comments. [LINK]

Oil – US SPR reserves continue to go lower than commercial crude oil reserves

SPR reserves continue to decline

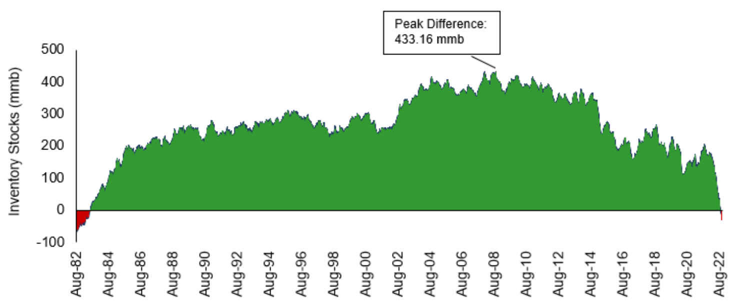
Oil in US Strategic Petroleum Reserves (SPR) moved below total US commercial crude oil reserves in the Sept 16 week for the first time since 1983, and and the deficit continues to widen each week. The EIA's new weekly oil data for Oct 21 has SPR reserves at 401.72 mmb vs commercial crude oil reserves at 439.95 mmb. The below graph highlights the difference between commercial and SPR stockpiles.

Figure 19: US Oil Inventories: Commercial & SPR



Source: EIA

Figure 20: US Oil Inventories: SPR less Commercial



Source: EIA

Oil – Upside to many Cdn oil plays following CPG tightly spaced multi leg no frac wells

Upside to many Cdn oil plays

We think its worth noting this "technology" development from that is applicable to a wide range of oil plays for a wide range of Cdn oil producers. This should provide upside to many Cdn oil and gas oil plays. On Wednesday, we tweeted [LINK] "*It's Working! Upside is applicable to many Cdn #Oil plays by small/big producers. See 👇$CPG tightly spaced multi-leg horizontal wells without need for fracking cost/execution. Works in Viewfield, looking at Shaunavon & "see if "can apply it throughout our other assets". #OOTT*". Crescent Point held its Q3 call on Wednesday. This seems straightforward and not any proprietary technology. It's a simple drilling concept and the reality of the world is, it's the part of drilling a well (the horizontal section) that would seem difficult to not execute. Afterall, industry has been drilling horizontal wells, especially in SE Sask, since the late 80s. This can be copied easily by any company especially small ones that are disadvantaged by not being able to access the frac spreads. Technology advancements are on plays that we have called for years crappy conventional oil zones that became way better with multi stage frac wells. We don't think the math will work as well for true shale plays, but, the reality is that most of the "*new"* oil plays over the past decade are crappy conventional oil zones in Canada and the US. This should make more of any potential recoverable oil reserves economic, extend the recovery factor of these pools by sweeping up more of the pool edges. This will add to reserve values as it makes previously uneconomic oil reserves economic. The concept is drilling multi-leg horizontal wells on a tight spacing without fracking. So it is a drilling cost play. And not a fracking play. Crescent Point is doing it in the Viewfield Bakken and say also the Shaunavon, but there is no reason why the concept shouldn't work in the other crappy conventional plays. And they also note that they are looking to apply it "*throughout our other assets*". Here is what CPG said in the opening statement, and then in the Q&A where they explained it. It's not huge but we suspect the payouts are very quick. And the other advantage is that it becomes impossible to screw up a well, which could happen with a bad frac job. This is drilling several legs so each leg is an independent well bore. *"For example, in our Viewfield Bakken play, we drilled our first multilateral open horizontal well and are now drilling a second based on the success of the first. By adopting a new well design, we have removed the need for fracture stimulation in these multilateral horizontals, expanding the economic boundaries of the play. We also continue advancing our decline mitigation projects throughout our Saskatchewan operations to enhance secondary recoveries and moderate future capital requirements"* "*Yeah, thanks for the question, Michael. So this is something that our teams have been looking at. Trying to figure out how to expand the economic boundaries of the play as you step out from the core. So with this, I think drilling has -- the drilling technology has gotten so good that -- it's a little bit cheaper now to attack some of the areas in this play with just drilling instead of having to frac. So these multilaterals are obviously tighter space than our frac wells and if you look at total recovery and initial production from a section under these multilateral wells versus our conventional frac well, you get higher production and higher reserves potentially for lower capital. So we're pretty excited about it. It's early days, 125 plus boe per day per well, and if our production hangs in and it hits our UR estimates, we probably have over 100 or more locations to go and incorporate that into our five-year plan in Viewfield. And we are looking at other areas in our portfolio i.e. like Shaunavon, obviously this area and Viewfield has a little bit better porosity permeability maybe then say Shaunavon does. So early days still, but we will to see if we can apply it throughout our other assets*." There was nothing specific in the slide deck.

Oil – Valero explains why Cdn oil differentials have been hit

Explaining Cdn oil differentials

We try to look at as many earnings call transcripts as possible. Not being a stock analyst, we have the luxury of looking for sector and commodity insights. And we normally find the best insights come in the Q&A. Valero held its Q3 call on Tuesday and included a good explanation for their view of why Cdn oil differentials have been hit. Valero reminded that Cdn oil differentials have been hit this year the redirection of Russian crudes from Europe to China/India and forcing more US Mars crude to stay in the Gulf of Mexico. We tweeted [LINK] *"#Valero EVP Simmons explains why Cdn #Oil diffs have been hit - China/India refiners taking lot more RUS Urals crude backed up Mars & Cdn heavy into Gulf Coast refineries. Cdn normally narrow in spring but didn't this year and widened in summer/fall. Thx @business. #OOTT".* Our transcript was Valero EVP Gary Simmons comment in the Q&A. "*"Yeah, so this is Gary. As Joe touched on a few of these things, but there is a number of factors that have been really driving the heavy sour discounts. First the sanctions put on Russia have caused some rebalancing, a lot of the Indian and Chinese refineries are running Urals, it's backed-up Mars and heavy Canadian into the Gulf, which are driving those discounts wider. So we talked about the higher prices in natural gas around the world cause the operating expenses running heavy and medium, sours to be higher so that causes discounts to be wider, there's a higher naphtha content in heavy Canadian crude, naphtha* *has been discounted so that drives the discounts wider, we've seen some unplanned maintenance in the U.S., which has also contributed. But overall, I think we continue to see weakness in high sulfur fuel oil combined with higher refinery utilization putting more product on the market. So some of that what we expected in IMO 2020, we're finally starting to see in the market, lack of Chinese demand is certainly also contributing to that. So for us, when we look at the market going forward, seasonal maintenance in Western Canada is coming to an end, you'll see higher diluent volumes as we head into winter, so all of that's putting more heavy Canadian on the market. We expect to see even more rebalancing occur if sanctions are wrapped up in Russia. And so we expect this market to continue, we're certainly maximizing heavy Canadian in our system today and seeing a lot of opportunity to buy high-sulfur fuel blend stocks as you mentioned that we're putting into our Cokers."* Below is Bloomberg's current WCS–WTI differential.

Figure 21: WCS less WTI oil differentials

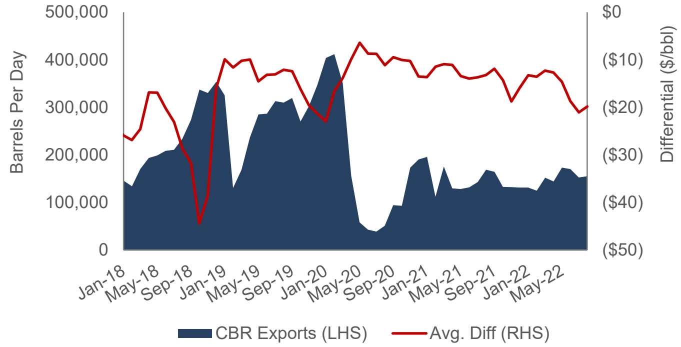
Source: Bloomberg

Oil – Cdn crude by rail exports at 155,146 b/d in August, down -8.57% YoY

Cdn crude by rail exports

The Canadian Energy Regulator (successor to NEB) reported Canadian crude by rail exports were basically flat at +1,954 b/d MoM in August to 155,146 b/d vs 155,146 b/d in July [LINK]. This puts August export volumes at -14,549 b/d YoY (-8.57%) vs August 2021 of 169,695 b/d. CBR volumes are +116,279 since the Covid July 2020 bottom of 38,867 b/d. August WCS-WTI differentials decreased to -$19.82, but an increase YoY 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 22: Cdn Crude by Rail Exports vs WCS Differential



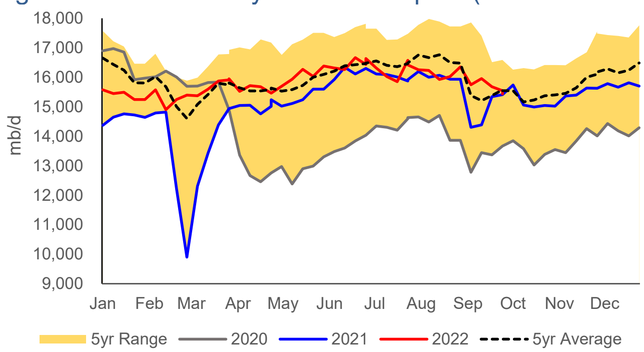
Source: Canadian Energy Regulator, Bloomberg

Oil – Refinery inputs -0.114 mmb/d WoW to 15.436 mmb/d

Refinery inputs down WoW

Sept and Oct are normally seasonal periods that see the trend to lower crude oil inputs to refineries as they do turnarounds to produce more winter blends. There can be up weeks, but the general trend is down as we saw this week. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended Oct 21. The EIA reported crude oil inputs to refineries down -0.114 mmb/d WoW to 15.436 mm/d, which is +0.388 mmb/d YoY from 15.048 mmb/d for the week ended Oct 22, 2021. Note last year's week ended Oct 22, refineries continued to recover from the impacts of Covid, Hurricane Ida, and maintenance season. Total products supplied (i.e., demand) decreased WoW, down 0.174 mmb/d to 20.587 mmb/d, and Motor gasoline was up 0.253 mmb/d at 8.930 mmb/d from 8.678 mmb/d last week. The 4-week average for Motor Gasoline was down -0.555 mmb/d YoY to 8.837 mmb/d.

Figure 23: US Refinery Crude Oil Inputs (thousands b/d)



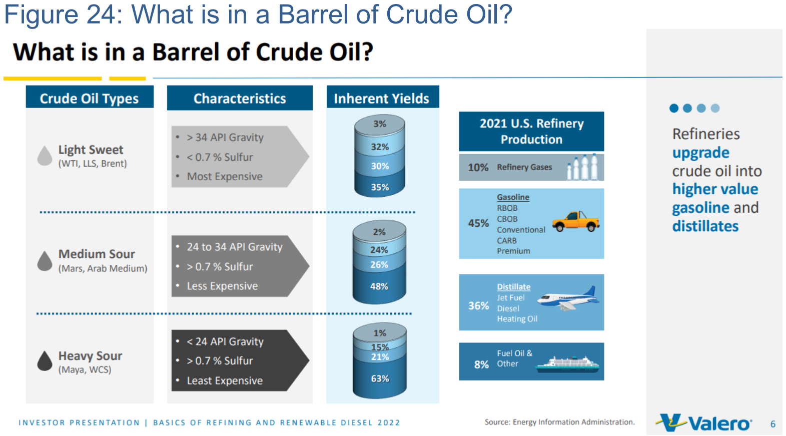
Source: EIA

Oil – Valero's Basics of Refinery and Renewable Diesel is must add to libraries

Excellent refining basics slide deck

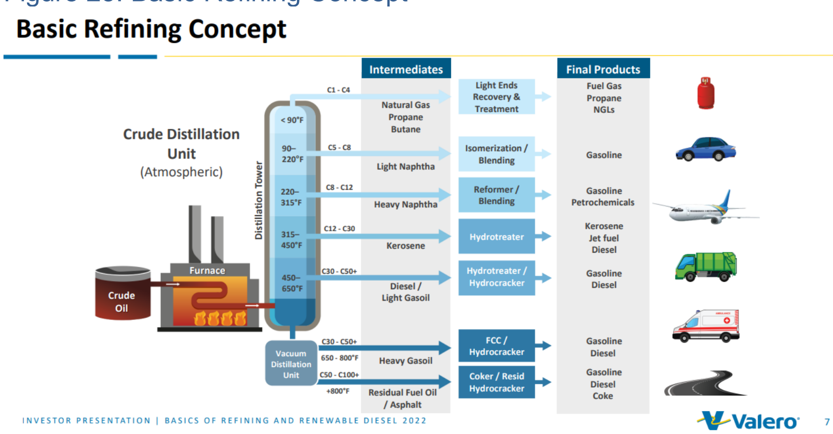
We always like having good reference material that provide the answers to basic questions on oil and gas. One such report is Valero's "*Basics of Refinery and Renewable Diesel*" [LINK], which we recommend adding to reference libraries. It is as the title suggests, a step through the basics of refineries from crude oil quality, light sweet vs medium sour vs heavy sour, basics refinery concept, coking, etc. and then a step thru renewable diesel refining. It is an excellent reference report. Below are a couple of the slides. We recommend adding the entire 30+ slide presentation to reference libraries. Our Supplemental Documents includes a small portion of the slide deck.

Figure 24: What is in a Barrel of Crude Oil?



Source: Valero

Figure 25: Basic Refining Concept



Source: Valero

Oil – US "net" oil imports down -0.718 mmb/d WoW at 1.051 mmb/d

US "net" oil imports down WoW

US "NET" imports were down -0.718 mmb/d to 1.051 mmb/d for the Oct 21 week. US imports were up +0.273 mmb/d to 6.180 mmb/d. US exports were up 0.991 mmb/d to 5.129 mmb/d. The WoW increase in US oil imports was driven almost equally by "other" countries and Top 10 with increases of 0.133 mmb/d and 0.139 mmb/d, respectively. Some items to note on the by country data. (i) Canada was up this week by 0.111 mmb/d to 3.483 mmb/d. (ii) Saudi Arabia was up 0.095 mmb/d to 0.325 mmb/d this week. (iii) Colombia was relatively flat WoW at 0.001 mmb/d. (iv) Ecuador was up 0.067 mmb/d at 0.201 mmb/d. (v)

Iraq was up 0.090 mmb/d to 0.220 mmb/d. (vi) Mexico was down -0.238 mmb/d to 0.509 mmb/d.

Figure 26: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d)	Aug 19/22	Aug 26/22	Sep 2/22	Sep 9/22	Sep 16/22	Sep 23/22	Sep 30/22	Oct 7/22	Oct 14/22	Oct 21/22	WoW
Canada	3,834	3,093	3,538	2,937	3,868	3,775	3,298	3,300	3,372	3,483	111
Saudi Arabia	247	330	423	425	489	422	398	370	230	325	95
Venezuela	0	0	0	0	0	0	0	0	0		0
Mexico	503	440	965	484	855	598	539	759	747	509	-238
Colombia	143	289	261	288	212	72	360	242	214	215	1
Iraq	225	401	222	343	120	202	275	109	130	220	90
Ecuador	278	231	144	199	319	191	203	136	134	201	67
Nigeria	72	137	2	232	0	0	0	0	29	42	13
Kuwait	0	0	0	0	0	0	0	0	0		0
Angola	0	0	0	0	0	0	0	0	0		0
Top 10	5,302	4,921	5,555	4,908	5,863	5,260	5,073	4,916	4,856	4,995	139
Others	869	1,035	1,224	884	1,084	1,189	874	1,147	1,052	1,185	133
Total US	6,171	5,956	6,779	5,792	6,947	6,449	5,947	6,063	5,908	6,180	272

Source: EIA

Oil – Pemex oil production still stuck around 1.7 mmb/d, and partners up to 70,000 b/d

Pemex September oil 1.685 mmb/d

On Friday, Pemex released its September production for its interests, it was 1.685 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 at 70,000 b/d in September and has averaged 69,000 b/d for YTD September 30. As a result, total Mexico oil production (Pemex and non-Pemex) was 1.755 mmb/d for September and 1.694 mmb/d for YTD September 30. Below is our chart tracking Pemex oil production.

Figure 27: 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	1,691	2.1%
Sept	2,271	2,113	1,730	1,808	1,705	1,643	1,709	1,685	-1.4%
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 Sept oil exports 1.022 mmb/d in Sept

Pemex Sept oil exports

On Friday, Pemex posted its oil exports for September, which were 1.022 mmb/d, up 4.0% YoY from 0.983 mmb/d in Sept 2021, and up 11.7% MoM from 0.915 mmb/d in Aug 2022. Aug exports were lower than normal as Mexican exports normally are +/- 1.0 mmb/d. Mexico oil exports to US were 0.580 mmb/d, which was the lowest in 2022 that has mostly seen oil exports to the US over 0.650 mmb/d. There is no explanation, but we suspect the lower exports to the US are linked to the increased competition in the US Gulf Coast as noted above in Valero's commentary on why Cdn differentials have been hit. Below is our table of the Pemex oil export data.

Figure 28: Pemex Mexico Oil Exports

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%	915	-16.7%
Sept	1,425	1,159	1,206	995	1,023	983	-3.9%	1,022	4.0%
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 – Brazil September oil production of 3.15 mmb/d, up +4.9% YoY and +2.0% MoM

Brazil oil production +4.9% YoY

Brazil is expected to have YoY growth in oil production in both 2022 and 2023. OPEC's Oct MOMR forecasts Brazil oil production to be +0.13 mmb/d YoY in 2022, and +0.20 mmb/d YoY in 2023. On Tuesday, Brazil (ANP) reported [LINK] Brazil oil production of 3.15 mmb/d in Sept, which is up +4.9% YoY and +2.0% MoM from 3.09 mmb/d in August. Brazil continued to recover from the planned maintenance stoppages in October and is expecting to increase production throughout 2022.

Oil – Exxon CEO, shouldn't' be surprised when OPEC uses its pricing power

Exxon CEO on OPEC

Exxon CEO Darren Woods was on CNBC Squawk Box on Friday morning after the Exxon Q3 release. Yesterday, we tweeted [LINK] *"#Exxon CEO Woods with #Biden longer term objective to shut down #Oil #NatGas, "shouldn't be surprised when #OPEC leverages and uses that pricing power", Admin ought to focus on "ensuring we have affordable & reliable energy" See 👇 transcript. Thx @andrewrsorkin @SquawkCNB #OOTT."* We created a transcript of Woods comments on this. At 4:45 min mark [LINK], CNBC's Andrew Ross Sorkin asks "*…. report out from the New York Times that there was a deal made by the Biden Administration with the Saudis on production, in part for him to go over there and have that meeting with MBS and that they've now gone back on that, Is Saudi our friend or not?"* Exxon CEO Darren Woods "*Well I think If you step back and look at some of the stated policies of the Biden Administration where they have a longer term objective to put the oil and gas business in the US, to shut that down, that hands pricing power to OPEC. And I guess we shouldn't be surprised then when OPEC leverages and uses that pricing power. So I think what we ought to be focused on is not the political equation, but the long term fundamentals. This is a national security problem. This is an economic problem. Ensuring that we have affordable and reliable energy here in the US is I think a very high priority that the Administration ought to focus on*".

Oil – Saudi Energy Minister Abdulaziz says "*let the dice fall*" on US/KSA relations

US/Saudi relationship crumbling

More Saudi comments this week supporting the view that no one should be surprised that Saudi Arabia isn't just giving in to Biden. (i) On Tuesday, we tweeted [LINK] "*Ominous warning for Dec/Jan/Feb? "Let the dice fall" says Saudi Abdulaziz on US/KSA relations. Fits prior 👇MBS view. Is Biden counting on continued China Covid & global slowdown holding back #Oil demand, plus Putin not taking oil off the market post EU Dec 5 ban? #OOTT*. Saudi Energy Minister Abdulaziz spoke at the Saudi FII global conference. AFP, and others similarly, wrote "*It also came on the heels of a decision by the Opec+ oil cartel, which Riyadh* *co-leads with Moscow, to cut oil production by 2 million barrels a day from November. The cartel's decision has drawn intense criticism from the White House, which has said it amounted to "aligning with Russia" in the Ukraine war. Prince Abdulaziz pushed back against that assessment on Tuesday. "I keep listening, are you with us or against us? Is there any room for, 'We are for Saudi Arabia and for the people of Saudi Arabia'?" he said to applause. Asked about getting the decades-old partnership between Riyadh and Washington back on track, he said: "I think we as Saudi Arabia decided to be the maturer guys and let the dice fall."* Reminding that Saudi Arabia is for Saudi Arabia first and let the dice fall doesn't sound like Saudi is giving in to give in to US threats. (ii) Saudi is likely even more firm following the clip of US Amos Hochstein and Israel PM Lapid [LINK]. They were about to start a press conference and the microphones picked up Lapid, saying in Hebrew, "*Good, listen, you will even be forgiven for screwing up the relations with Saudi Arabia*". Hochstein and Lapid respond with a big smiles and laughs. And then Lapid says "*That's why I whispered. Oh my god*." Hochstein says "*Who's editing*?". Then they sit down at the table to start the press conference. If you believe that what people say in private is the truth, the Saudis won't be too happy with either US or Israel.

WSJ reports MBS mocks Biden in private

It makes it extremely difficult to see any goodwill on either the Saudi or US side. On Monday, we tweeted [LINK] "*Ouch! #MBS "mocks President Biden in private, making fun of the 79-year-old's gaffes & questioning his mental acuity". Support for #Oil with no easy off-ramp for increasing US/KSA animosity. Thx @stephenkalin @summer_said @DionNissenbaum. #OOTT [LINK]." We find it a little surprising that there are leaks within Saudi Arabia. But the WSJ report "U.S.-Saudi Relations Buckle, Driven by Animosity Between Biden and Mohammed bin Salman: Lack of personal trust accelerates a years long split driven by geopolitical and economic forces."* [LINK] "N*ow, it is fracturing under two leaders who don't like or trust each other. Saudi Crown Prince Mohammed bin Salman, the kingdom's 37-year-old day-to-day ruler, mocks President Biden in private, making fun of the 79-year-old's gaffes and questioning his mental acuity, according to people inside the Saudi government. He has told advisers he hasn't been impressed with Mr. Biden since his days as vice president, and much preferred former President Donald Trump, the people said*." Our Supplemental Documents package includes the WSJ report.

No one should be surprised MBS doesn't just give in to Biden

On Oct 11, we tweeted [LINK] "*save yourself time if you are wondering how Saudi will respond to #Biden reevaluating the US/KSA relationship. see 👇#MBS addressed this specific issue "Go for it!". positive for #Oil. OOTT*." Our tweet included a link to The Atlantic's March 3 interview with MBS. Here is what we wrote in our March 6, 2022 Energy Tidbits memo. "*The Atlantic's March 3 report "Absolute Power" [LINK] based on its interviews Saudi crown prince Mohammed bin Salman got some good headlines. MBS says their "aim is to keep it and strengthen it" talking about their long historical relationship with the US. The headlines were on his Biden comments and warning to not interfere in Saudi domestic issues. The Atlantic wrote "We asked whether Biden misunderstands something about him. "Simply, I do not care," he replied. Alienating the Saudi monarchy, he suggested, would harm Biden's position. "It's up to him to think about the interests of America." He gave a shrug. "Go for it."*

For now, MBS's main request to the outside world, and especially the United States, is the usual request of misbehaving autocrats—namely, to stay out of his internal affairs. "We don't have the right to lecture you in America," he said. "The same goes the other way." Saudi affairs are for Saudis. "You don't have the right to interfere in our interior issues." It reminds that no one should expect the Saudi's to bend over in anyway to the US on oil. The problem for Biden and the Democrats is that it's difficult to reverse their view on MBS. We look at it as another of the situations where Biden and the Democrats like to have a villain to make sure they can get people onside their views. But by doing so, it makes it difficult for Biden to back track in a public way. It's like now with the oil companies, they really can't say anything positive about them or ask them to help without looking very weak. They made the oil companies the villains to sell energy transition for so long. How can they go back and say something good. They made MBS out to be a huge villain, Biden's team making it clear that Biden wouldn't meet or talk with MBS, only the King, they pulled out a Patriot missile defense system from Saudi Arabia, and have supposedly not given in to Saudi's request for more Patriot missiles to replace the shot missiles. So no surprise by the MBS comments on US. And unfortunately for the US, it means that Saudi isn't likely to help the US unless it helps them. We will be watching to see if there are reports on restocking Patriot missiles and any potential MBS/Biden meeting. Our Supplemental Documents package includes The Atlantic report."

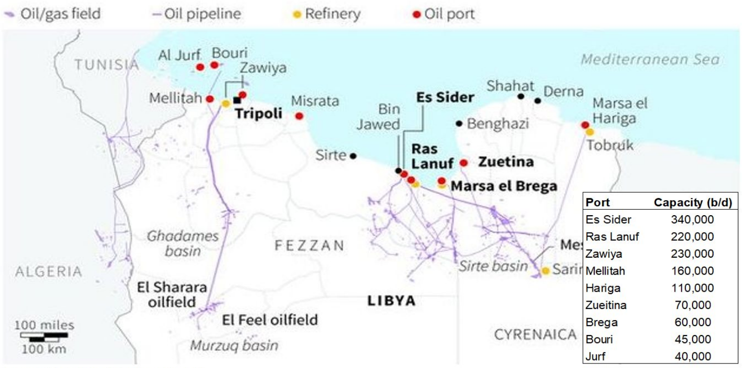
Oil – Another week of no major Libya oil issues

No major Libya oil issues this week

We should still keep an eye on Libya despite not having seen any reports out of Libya of major skirmishes or production interruptions despite Haftar's Oct 17 call (see Oct 23, 2022 Energy Tidbits) for protests across the country. At that time, we tweeted [LINK] "*Haftar fan or not, his call for protests has to bring risk for interruptions to LIbya #Oil production that has been solid for the past couple months. Coming up on anniversary of last moment cancelled 12/24/21 election. #OOTT*." Our tweet forward the Libyya Observer (pro Tripoli and anti Haftar) tweeted [LINK] *"#Libya's renegade general Khalifa Haftar told his supporters in Sabha city that the political solution to the crisis has failed. He called "Libyan people" to stage protests across the country, promising that his so-called army will protect them."* But on Wednesday, the Libya Observer reported [LINK] "*French website, Africa Intelligence, has reported that Khalifa Haftar is threatening to block oilfields in territories controlled by his forces in order to regain his footing in the struggle for power, saying this is coming from Egyptian pressure. "There have been several pointers over the past few days: the flare-up of unrest in Fezzan, near where the Sharara and El Feel fields are located, and Haftar's announcement, during his showy military parade in Sebha on 17 October, of a potential offensive against Tripoli. These threats come from a man in a difficult position." The website said."*

Figure 29: Libya Ports, Major oilfields and Terminals map

SAF Group Compiled Libya Ports & Terminals Status



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: Bloomberg, HFI Research, SAF

Source: SAF Group

Oil – Chevron CEO comments remind of Trafigura's case for a serious upcycle in oil

Oil supply struggling to catch up

Chevron CEO Mike Wirth was on CNBC's Squawk Box following the Q3 release on Friday. He noted how oil is in an up market right now. He noted how *"oil supply is struggling to keep up."* Yet, he also noted "*Demand is coming back strong. And we still don't see office commuting, business travel or international travel really at the levels it was pre-Pandemic. There's likely still further demand growth ahead of us*." Oil supply struggling right now to keep up and more demand growth ahead. Yesterday, we tweeted [LINK] "*Is #Oil in a serious upcycle for 2020s? #Chevron CEO oil "supply struggling to keep up". See 👇09/14 tweet @Trafigura thesis prices spike, cause demand destruction, but because supply investment never catches up, each subsequent low is actually higher. Thx @BeckyQuick. #OOTT."* Our concern for economies is that it's like the world struggles to catch up on supply, but never gets ahead. That doesn't mean we don't have periods of temporary demand destruction, but a struggling supply should mean that subsequent price troughs should be at higher levels. That is, unless there is a fundamental change to the equation, either a return to the oil sector focus on oil growth or a return of Russia and Iran oil so that supply can catch up and have surplus near term growth capacity, or oil demand hits peak oil demand and starts to decline. And the end of demand growth can't be just people forecasting lower oil demand, it has to be an actual end to demand growth and the start of demand decline. Our Supplemental Documents package includes the full transcript we made of Chevron CEO's comments.

Struggling oil supply is why Trafigura sees the case for a serious upcycle in oil

Our Chevron CEO tweet yesterday forwarded our Sept 14 tweet on Trafigura Chief Economist Saad Rahim's comments on the significance of oil supply investment not catching up to demand growth. Here is what we wrote in our Sept 18, 2022 Energy Tidbits memo. "*We weren't able to see Trafigura Chief Economist Saad Rahim's presentation at the Pareto Securities conference on Wednesday, but did see the subsequent webcast Q&A. [LINK]. Rahim clearly had a very bullish view for oil. Rahim highlights the lack of investment in oil, and that investment never gets a chance to get caught up so the end result is a series of upward spikes with the lows keep getting higher. We tweeted [LINK] "#Trafigura case for a serious upcycle in*

#Oil. Prices spike to where causes demand destruction, but because haven't had enough time to catch up on investment, each subsequent low is actually higher. See 👇 SAF Group transcript. Thx @saadrahim @paretosec. #OOTT." We created a transcript of his comments. At the 9:00 min mark, Pareto asks ".. you believe that you believe we are in the start of a serious upcycle in oil. And saw in your presentation this morning you describe the current market as spike. I think it's time we debate." Rahim replies ".. for me, I don't think these things are mutually exclusive. I think you can have a series of spikes that actually when you put them together, effectively are a cycle. Or at least an upcycle. If you are in a position where you're ultimately, the spikes I was referring to because of the underinvestment, you get to a point where prices spike to a level that then causes demand destruction. And you come off, but because you haven't had enough time to catch up on investment, your lows. Each subsequent low is actually higher. Right, so again if you put all those series together you maybe end up in a cycle."

Oil – China expected to continue Covid Zero with Xi's new Politburo team

China Covid Zero expected to continue

The market story this week was the negative view on China post the closing of the national congress last Sunday. And the negativity was also on oil given the expectation that Li Qiang will end up being the next Premier ie. the #2 spot in China. And how Li Qiang was tough on Covid in his role as party secretary of Shanghai. On Monday morning, we tweeted [LINK] "*#Oil. Expectation for no major relaxation to China #CovidZero? Li Qiang, party secretary of Shanghai, walked out second behind Xi at a meeting with press on Sunday. Li is a known Xi loyalist & oversaw stringent Covid controls in Shanghai earlier this year. Thx @chengevelyn #OOTT."* Our tweet included the CNBC report [LINK] "*China names Xi Jinping loyalists for core leadership group*" and the picture with the story that showed the new Politburo walking out to the stage for the first time with Li Qiang in the #2 spot. The #2 spot was watched closely. CNBC wrote "*Li Qiang, party secretary of Shanghai, walked out second behind Xi at a meeting with press on Sunday. Li is a known Xi loyalist and oversaw stringent Covid controls in Shanghai earlier this year. State positions such as president and premier won't be confirmed until the next annual meeting of the Chinese government, typically held in March. Outgoing Premier Li Keqiang had walked out second behind Xi at a similar meeting with press after the conclusion of the party's 19th National Congress in 2017."*

Figure 30: Xi walking out with new Politburo incl Li Qiang in #2 spot

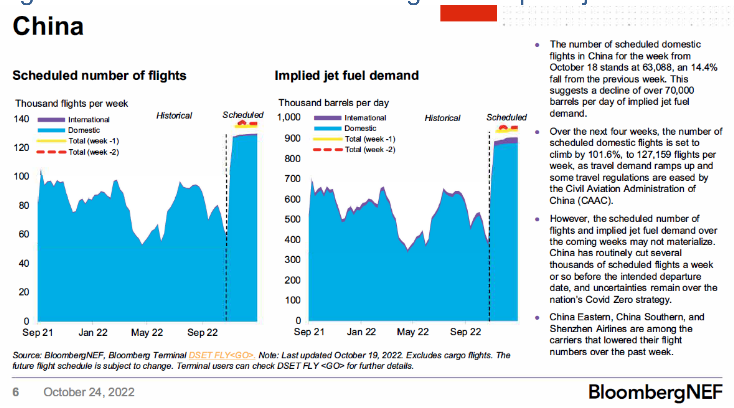
Source: CNBC

Oil – China's Covid efforts leads to many cancelled air flights

Many cancelled China air flights

It looks like the worries that China's air flights would be hit by China not having a broad reopening have come true. There were many cancelled air flights and there was a big -14.4% WoW drop in air flights. And the concern is that, as noted above, the signaling of Li Qiang as the next Premier is a sign that supports continued Covid Zero approach and not a broad relaxation that was expected/hoped in the run up to the national congress. On Monday, we tweeted [LINK] "*More support China not reopening quickly, especially now 👎with stringent Covid fighter Li expected to be Premier. @BloombergNEF number of scheduled China airflights for Oct 18 week was -14.4% WoW. Thx Claudio Lubis, Sisi Tang. #OOTT*". Our tweet included the below graph from BloombergNEF's Aviation Indicators Weekly. BNEF wrote "*The number of scheduled domestic flights in China for the week from October 18 stands at 63,088 , an 14 .4% fall from the previous week. This suggests a decline of over 70,000 barrels per day of implied jet fuel demand.*"

Figure 31: China Scheduled # of flights & Implied jet fuel demand



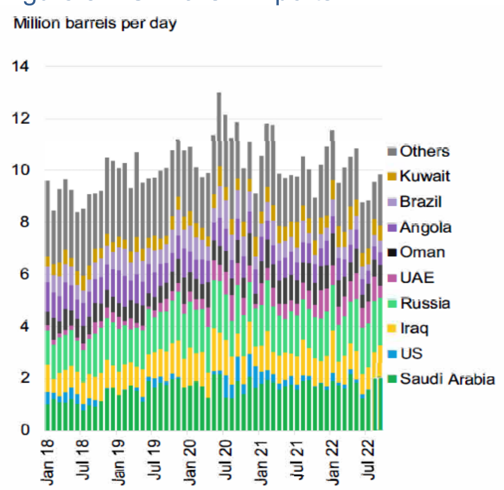
Source: BloombergNEF

Oil – China's Oil imports decreased in September, still up YoY on restock activities

China September Oil Imports

After months of lockdowns in China, oil imports rose to a three-month high in August MoM but slipped MoM in September. Last Sunday, Bloomberg reported China imported 9.51 mmb/d in Sept, down 0.3% from August and still well below the 2021 average of 10.3 mmb/d. The overall seasonal rise in inflows is partially attributed to refiners replenishing their stockpiles ahead of the winter season. Domestic demand in the coming months remains unclear as the uncertainty associated with Covid-19 lockdown measures remains a key threat to China's oil demand. China's refineries run on about 70% by oil imports, the balance from China domestic production. Crude imports rebounded from the nadir over June-July to 9.83 mmb/d in September. Increase led by a jump in imports from Iraq, Oman, and the U.S.

Figure 32: China Oil Imports



Source: Bloomberg

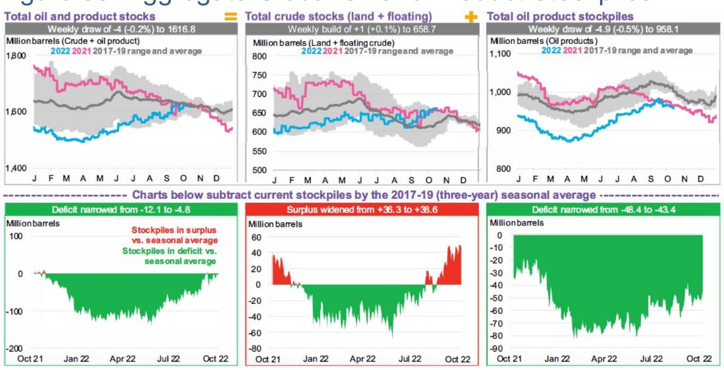
Oil – BNEF: global oil and product stocks deficit narrowed

BNEF's global oil inventories

For those with a Bloomberg terminal we recommend flipping thru BloombergNEF's "Oil Price Indicators" weekly that came out on Wednesday as it provides good charts depicting near-term global oil demand and supply indicators. The global oil and products stockpile deficit narrowed for crude and products from 12.1 mmb to 4.8 mmb. The stockpile deficit against the five-year average (2015-19) widened from 14.5 mmb to 20.4 mmb. Total crude inventories increased by 0.1% to 658.7 mmb, including global floating inventories. Product stocks were down 0.5% WoW with the stockpile deficit against the 3-year average widening from 48.4 to 43.4 mmb. Gas oil and middle distillate stocks have widened against their three-year average deficit (2017-2019) from 35.7 mmb to 32.3 mmb. Jet fuel consumption by international departures decreased by 2,100 b/d WoW while consumption by domestic passenger departures decreased by 34,500 b/d. The global mobility index increased over the past week, down 1.0% in the week to Oct 15. Below is a snapshot of aggregate global stockpiles. Our Supplemental Documents package includes excerpts from the BloombergNEF report.

SAF GROUP

Figure 33: Aggregate Global Oil and Product Stockpiles



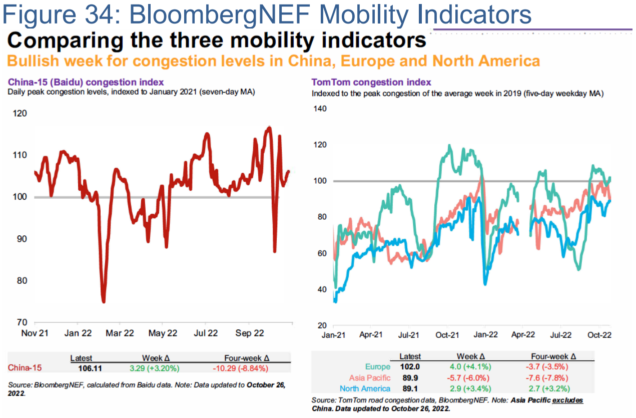
Source: BloombergNEF

Oil – BNEF, Mobility up WoW, while Asia Pacific ticks down

Mobility up globally, Asia Pacific down

We are big fans of the BloombergNEF weekly indicators reports as they provide updates on WoW changes, but also provide some good graphs that show trends. But the reminder is that WoW changes do not necessarily mark a trend. On Friday, BloomergNEF posted its Global Road Traffic Indicators which included a surprise jump in China's mobility, as well as North America and Europe, while the Asia Pacific dropped WoW. The softness in the TomTom indicators we highlighted in last weeks memo continued this week. Over the last couple weeks TomTom trends are moving lower relative to 2019 as two of the three regions dropped WoW. So it's worth keeping an eye on these indicators as they are happening at the same time as places like the US have seen lower gasoline prices. TomTom congestion index showed Europe up 4.1%, Asia Pacific down 6.0%, China up 3.2%, and North America up 3.4% from last week. Europe and North America are bearish and subject to drivers responding to rising cost, including high gasoline prices. China's mobility data surprised given the increasing impact of the zero-covid policy and various lockdowns throughout the country. Our Supplemental Documents package includes excerpts from the BNEF Global Road Traffic Indicators report.

Figure 34: BloombergNEF Mobility Indicators



Source: BloombergNEF

Oil & Natural Gas – Halliburton, every type of capex is needed to fix supply shortage

Halliburton's very bullish outlook

We don't often hear new ways to describe what is needed to fix the oil and natural gas supply challenge for the 2020s, but did so on the Halliburton Q3 call on Tuesday. Halliburton believes that multiple years of every type of oil and gas capex, "all of it" is needed to fix the supply shortage. The call started at 7am MT and management's opening remarks in the macro oil and gas outlook made us immediately tweet [LINK] "*Buckle up! $HAL Q3 call ongoing, See 👇CEO Miller believes need increased investment in existing/new production sources, conventional/unconventional, deep/shallow water, short/long cycle - "All of It" to fix #Oil #NatGas short supply and it will take years not months. #OOTT".* We made a transcript of the Halliburton CEO comments "At 7:05am MT, CEO Jeff Miller "*turning to our macro outlook, oil and gas supply remains fundamentally tight due to multiple years of underinvestment. This tightness is apparent in historically low inventory levels ,production levels well below expectations, and temporary actions such as the largest ever SPR release. Against tight supply, demand for oil and gas is strong and we believe it will remain so. While broader market volatility is clear, what we see in our business is strong and growing demand for equipment and services. There is no immediate solution to balance the world's demand for secure and reliable oil and gas against its limited supply. I believe that only multiple years of increased investment in existing and new sources of production will solve the short supply. The effective solution to short supply is conventional and unconventional, deep water and shallow water, new and existing developments, and short and long cycle barrels. All of it. I expect progress to towards increased supply will be measured in years, not months, as behaviour in both operating and service companies have changed. Operators remain disciplined. Their commitment to investor returns requires a measured approach to growth and investment. Service companies follow the same discipline delivering on their commitments to investor returns and taking a measured approach to growth and investment. What I think is underappreciated is how this results in more sustainable growth and returns over a longer period of time."*

Oil & Natural Gas – sector/play/market insights from Q3 calls

Sector insights from Q3 calls

It was a busy week of Q3 reporting. This is our favorite time each time of each quarter as it is quarterly reporting and this is when we get the best insights into a range of oil and gas themes/trends, sectors and plays. As a reminder, our Energy Tidbits memo does not get into the quarterly results, forecasts, or valuation. Rather the purpose of highlighting a company is to note themes/trends and plays that will help shape a reader's investment thesis to the energy sector. In the conference calls, we also tend to find the best insights from the Q&A portion as opposed to the prepared remarks. Plus, we tend to get the best E&P sector insights from services, pipelines, refineries, and utilities

Halliburton – increasing activity from smallest to largest countries & producers

Halliburton reported Q3 on Tuesday. Earlier in the memo, we noted Halliburton CEO's call that every type of oil and gas capex is needed for years to try to fix the supply shortages. There was also another reminder that producers better lock up their services soon because demand is very strong. When we saw the release and the CEO comments therein, we tweeted [LINK] "*WOW. $HAL "in North America, i see continued revenue growth - the inbounds for calendar slots are stronger than i have ever seen at this point in the year" "looking forward, we see activity increasing* *around the world - from the smallest to the largest countries & producer" #OOTT."* Halliburton CEO had very bullish comments on oil and gas activity. He said "*"In North America, I see continued revenue growth -- the inbounds for calendar slots are stronger than I have ever seen at this point in the year. Our solid performance in the third quarter was the result of our strategy to maximize value and cash flow in this extremely tight market. Looking forward, we see activity increasing around the world -- from the smallest to the largest countries and producers. We intend to continue to execute on our strategic priorities and drive free cash flow and returns for our shareholders. I believe these strategies equip Halliburton to outperform under any market condition, but especially to maximize returns through this upcycle."*

PrairieSky – Big increase in heavy oil recovery with multi-lateral wells

PrarieSky held its Q3 call on Tuesday. (i) Something that should be noted for any Cdn oil player in conventional heavy oil lands. Multi-lateral wells in heavy oil are having big success and there is big potential to significantly increase recovery factor of heavy oil. This sounds significant to the basin as it would support basin heavy oil growth potential. Mgmt said "*The significant investments that we have made in the large heavy oil in place accumulations across the Western Canadian Sedimentary Basin at the inflection point of a new technology used to significantly increase recovery factors."* Then in the Q&A, mgmt. said "*typically on a lot of these heavy oil reservoirs, we'd have a 5% to 7% recovery factor, maybe slightly higher if there is water polymer flood opportunity on it. What's happening with these multilaterals is you're achieving far-higher recovery factors and probably having a far more optimal water -- water or polymer flood in the future. So what it's basically done is the same, this is a neat thing about technology and the great optionality that you have when you own a royalty asset base is, we've owned a lot of this stuff for almost a decade now and we've always said, okay, well, the total recovery is going to be a 100,000 barrels on this section and low and behold, you could probably get another 1 million barrels out of it with the new technology. So that's kind of the major change in the multilateral technology, has kind of advanced this specifically on the heavy oil reserves that the Company owns. So it just gives us confidence that that should continue to grow as more of these different zones within the Mannville staff have developed with those other multilaterals*." (ii) There was a good reminder that these heavy oil plays have been well known. In the Q&A, mgmt. said "*Precisely. And having said that, there are some new discoveries as well that are completely brand new discoveries, but a lot of this heavy oil resource has been known accumulations over the last 50 years, there just hasn't been a way to exploit it until this technology evolves in a low cost manner*." (iii) Upside on Clearwater with EOR potential. In the Q&A, mgmt. was asked about the Clearwater and replied "*So we should see – we should see some pretty significant growth probably in the 50% range growth year-over-year over the next 12 months. And then in terms of performance expectations, two things that have positively surprised, the 90-day IPs have been a positive surprise across all the plays and then the second surprise has been the success of some of the water and polymer opportunities across the land base. So I think the recovery factors will probably be a little higher than we initially anticipated*."

Precision Drilling – Super triple rigs fully booked for the winter

Precision Drilling held its Q3 call on Thursday. (i) There was a good reminder that it will be almost impossible for any producer to get a high end rig this winter if they haven't yet booked a rig. Precision highlighted the continuing theme in the US and Canada – the high end rigs are basically fully booked. Mgmt said "*Now, as we've been saying for several quarters, the Canadian drilling market is very strong for Precision. Today we have 73 rigs running, which as expected exceeds our winter peak from earlier this year. Our Super Triple fleet is fully booked for the upcoming winter and should have 100% utilization during Q1."* (ii) Plus inflation has cranked up the cost for rig upgrades so Precision won't do a rig upgrade without a two year term contract. Mgmt said *"First of all, Precision's cost to operate a rig with labor and supply inflation has risen more than CAD4000 per day. But in addition to the inflationary factors, we have cost inflation driven by increased maintenance due to the accelerated wear on equipment and the higher pace of drilling today." "These requirements also impact the potential new build or replacement cost for a rig. 2014's CAD25 million rig with today's Super Spec equipment, scope, and steel inflation would likely cost CAD35 million to build and that's only if the components are available in the supply chain which is highly unlikely" "So because we want cash-on-cash payback within the term contract, we're likely going to need to see a two-year contract and a day rate approaching CAD40,000 before we undertake that upgrade."* (iii) Clearwater oil play has driven super single rig demand. Mgmt said "*"With strong commodity prices and a weaker Canadian dollar, conventional heavy oil and Clearwater activity is accelerating, driving high customer demand for our Super Single rigs, which are achieving the highest utilization levels since 2014 and we expect continued growth into next year".*

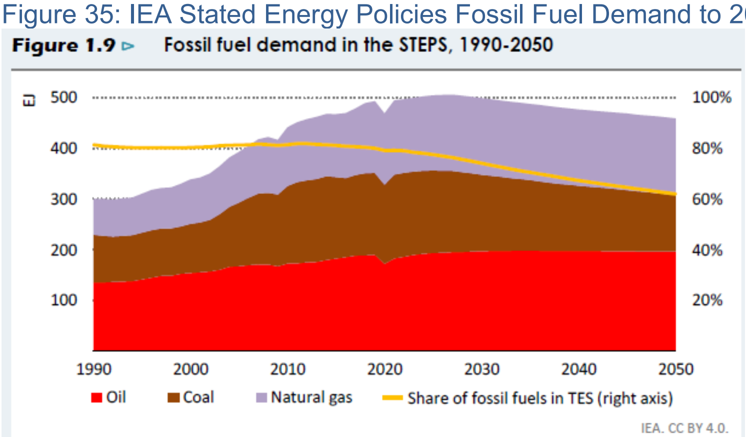
Valero – Diesel shortage is a real risk

Valero held its Q3 call on Tuesday. (i) Earlier in the memo, we noted Valero's explanation for why Cdn oil differentials have been hit. (ii) Diesel shortage was the key theme during the call, management commented, *"diesel on the other hand, looks to us to be remain very, very tight and I think you'll continue to see volatility in the markets due to very low inventory"*. Linked to the diesel shortages is that is leads to wider discounts for sour crude. (iii) Valero doesn't see the same risk for gasoline. Mgmt said "*I think we feel like through the winter period of time, you could see some restocking of gasoline which could prevent some of these market dislocations from happening at least in the short term."* (iv) Recent industry meeting with Energy Secretary Granholm. She didn't embrace any of the industry suggestions. And she apparently asked about restarting shuttered refineries, which industry said wasn't something to be done. Valero said "*and industry told her a potential ban on exports wouldn't have the desired impact*." (iv) Valero noted how Europe/Russia is hitting sour differentials. Mgmt said "*Our refining system also benefited from wider sour crude oil differentials to the Brent light sweet crude oil benchmark. But the wider sour crude oil differentials are attributed to increased sour crude oil supply, the impact of the IMO 2020 regulation for lower sulfur marine fuels and high natural gas prices in Europe that incentivize European refineries to process sweet crude oils in lieu of sour crude oils."*

IEA's warning was overlooked

Energy Transition – IEA's overlooked warning "in practice, the future of energy markets is likely to be disjointed"
On Thursday, the IEA posted its 500+ pg annual "*World Energy Outlook 2022*". All of the coverage was on the IEA "*For the first time ever, a WEO scenario based on today's prevailing policy settings – in this case, the Stated Policies Scenario – has global demand for every fossil fuel exhibiting a peak or plateau. In this scenario, coal use falls back within the next few years, natural gas demand reaches a plateau by the end of the decade, and rising sales of electric vehicles (EVs) mean that oil demand levels off in the mid-2030s before ebbing slightly to mid-century. This means that total demand for fossil fuels declines steadily from the mid-2020s to 2050 by an annual average roughly equivalent to the lifetime output of a large oil field."* The big surprise was that IEA calls for natural gas demand to peak by 2030. We don't disagree that the western leaders have put the world on a path to reducing fossil fuels, but, our longstanding view is unchanged, the energy transition will take longer, be a bumpy/rocky road and cost a lot more. We were disappointed but not surprised that the IEA's press release to announce the outlook did not include the key warning/caveat in the IEA report. It's why we tweeted [LINK] "*Buckle up! 500+ pg @IEA WEO2022 explains the priced to perfection scenarios western leaders will be using for policy. But 👇one key caveat "IN PRACTICE the future of energy markets is likely to be disjointed .... In practice = reality check = #NatGas needed for longer. #OOTT".* The IEA models an "orderly process of change", which as we have seen in 2021 and 2022 is not reality. The IEA wrote "*Our scenarios model orderly processes of change in which markets are always in equilibrium, with investment rising and falling in different sectors to allow for a balance of supply and demand. However, today's energy crisis has underscored that, in practice, the future of energy markets is likely to be disjointed, subject to geopolitical friction and prone to regular market imbalances."* This is a pretty clear warning that reality isn't theory. We have only read in detail the first 100+ pages so will have more comments in future memos. Our Supplemental Documents package includes the IEA release on the report, executive summary and excerpts from Chapter 1 Overview and key findings.

Figure 35: IEA Stated Energy Policies Fossil Fuel Demand to 2050



Total fossil fuel use sees a definitive peak for the first time in this year's STEPS. The share of fossil fuels in the energy mix falls to around 60% in 2050, a clear break from past trends

Source: IEA

Energy Transition – Schlumberger's Future of Energy needs more oil & natural gas?

On Monday, Schlumberger announced [LINK] "*Schlumberger Becomes SLB, a Technology Company Driving the Future of Energy*". It was a release on their "n*ew name—SLB—underscoring the company's vision for a decarbonized energy future and affirming its transformation from the world's largest oilfield services company to a global technology company focused on driving energy innovation for a balanced planet."* When we read SLB's second short paragraph, we couldn't help think this is another message on the future of their energy transition. SLB may not say it directly, but they also throw in some key words that remind oil and natural gas demand is growing. It is why we tweeted [LINK] "*Hmm! Sounds like a need for more, not less, #Oil #NatGas in 2020s? $SLB "we face the world's greatest balancing act—providing reliable, accessible and affordable energy to meet growing demand, while rapidly decarbonizing for a sustainable future" #OOTT."* Here what SLB wrote "*Today we face the world's greatest balancing act—providing reliable, accessible and affordable energy to meet growing demand, while rapidly decarbonizing for a sustainable future," said Olivier Le Peuch, chief executive officer, SLB. "This dual challenge requires a balance of energy affordability, energy security and sustainability. It requires a balance of innovation and decarbonization in the oil and gas industry as well as clean energy solutions. It requires a balanced energy mix for a balanced planet."*

Schlumberger's Future of Energy

Energy Transition – Aramco CEO: hydrogen costs $250 to $300/boe

We recognize that hydrogen is a huge aspiration for the world and it is being counted on as a critical component of the Net Zero push. But after hearing Aramco CEO's comments, it's hard to see it having a big impact on the energy system for 15 or 20 years, or at least until there is enough certainty that buyers and sellers can reach long term 20-year offtake deals to support the capex needed for large scale hydrogen supply. On Wednesday, we tweeted [LINK] "*Big ramp in #Hydrogen to take decades, need long-term offtake deals like start of LNG. "Everybody talks about hydrogen, but, in reality, hydrogen, in barrel of oil equivalent, is going to be costing, talking about $250-$300 per barrel of oil equivalent" #Aramco CEO Nasser #OOTT*." Saudi Aramco CEO Nasser spoke at the Saudi FII conference on Tuesday. Nasser was speaking about Aramco's energy transition push, which includes blue hydrogen. Our tweet included the transcript we made of his comments "*and also in low carbon energy like blue hydrogen that is going to be a huge investment for the company" "it [the market for hydrogen] is building up. Everybody talks about hydrogen, but, in reality, hydrogen, in barrel of oil equivalent, is going to be costing, talking about $250 to $300 per barrel of oil equivalent. So we are talking about blue hydrogen. And so far, the market that is identified is merely in Japan and South Korea. But it's still picking up in Europe and other parts of the world. But it is going to take time for the market to pick up because everybody is looking at technology and the cost going down. But for companies like Aramco, we need an offtake agreement for these projects because these are costly projects and without an offtake agreement, you cannot grow that market big time"*.

Aramco CEO on hydrogen

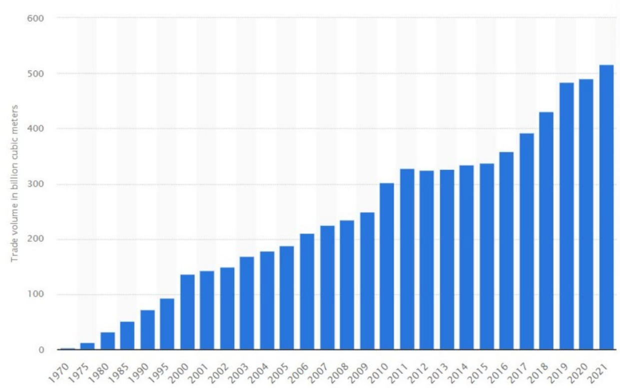
Need long-term offtake deals to support major hydrogen capex builds

Our big concern for the speed of major hydrogen supply deals is that any big hydrogen deal will require long-term offtake commitments and, at least as of now, the price would be too high for buyers. So, unless governments step in to bridge the gap, it's hard to see buyer and supplier agree on a price at this time that would support the capital for any large term hydrogen supply project. The key warning from

Nasser's comment was "*But for companies like Aramco, we need an offtake agreement for these projects because these are costly projects and without an offtake agreement, you cannot grow that market big time*". And Nsser warned the cost now be talked about $250 to $300 per boe. We find it difficult to believe that buyers will step up for long-term commitments at that price levels ie. we think its too early to find an acceptable price point for a long-term deal. And without a long-term offtake deal, it's hard to see who will commit the capital for any large hydrogen project. So, unless governments step in to bridge the gap, it's hard to see buyer and supplier agree on a price at this time that would support the capital for any large term hydrogen supply project

It was a different era in the early 70s – pollution was a visible priority issue
This reminded us of the early days for LNG where buyers of LNG deals had to commit to long term deals with a huge price. But it was a totally different era in the late 60s/early 70s – it was the era of visible pollution around the world. And LNG was seen as a key way to help reduce pollution. So there were different priorities and must-do's. We don't expect that the required terms will be 50-years, when, in 1970, a consortium of Japanese utilities did its 50-year deal with Pertamina. It was a different era, visible pollution was a major issue for many cities around the world. Today, we have to believe at least a 20-year hydrogen deal will be the expectation. And, if so, we don't see many large hydrogen buyers stepping up for long term deals at $250 to $300 per boe. In the first 30 years from the start of LNG shipping, LNG trade only went to approx. 13 bcf/d.

Figure 36: LNG trade volume worldwide from 1970 to 2021 (bcm/yr)



Source: Statista

Energy Transition – Good CO2 capture/storage insights from Exxon Q3 Q&A
There were some good insights from the Exxon Q3 call Q&A on CO2 capture and storage economics. Exxon was asked how the returns on CO2 capture/storage compare to conventional upstream or downstream. Mgmt didn't answer that question, but gave some insight into the really important variables for CO2 economics – dilution and distance to transport to storage. They also noted that they need better CO2 markets or more policy to make the marginal players work because CO2 goals will require diluted CO2. Exxon's

CO2 capture & storage insights

approach is focus on best in class CO2 as that means they will get the lift from any policy changes that help marginal projects. Exxon may not have answered the question, but the inference is certainly that CO2 returns aren't close to conventional upstream or downstream returns. We tweeted [LINK] "*See 👇#Exxon CEO transcript. Not all CO2 is equally. Dilution & distance to storage have big cost impact. Need better CO2 markets or more policy. CO2 returns can't compete vs #Oil #NatGas, but best in class CO2 projects benefit as more policy comes to help marginal players. #OOTT".* Our tweet included the transcript we created of Exxon CEO comments. Our Supplemental Documents package includes our transcript.

Energy Transition – Saudi FM: energy transition is inevitable, just might take 30 years

Saudi on energy transition

Earlier this morning, we tweeted [LINK] "*Hmm! Saudi FM accepts #EnergyTransition is inevitable, but possibly take 30 yrs. If inevitable, reinforces why Saudi priority will be to maximize oil price/value for as long as possible especially if it keeps deterring others from investing in long-term #Oil supply. #OOTT*." Half full or half empty is probably how climate change side saw Saudi Finance Minister Mohammed al-Jadaan's comments on the global energy transition. He accepts that the energy transition is happening, but it will possibly take 30 years. That's actually not too bad as it is 2050. But when we saw his comments, our thoughts were that if Saudi believes the energy transition is happening, then their focus for the 2020s and 2030s will be how to maximize the value of their oil reserves. And we also see an advantage that the Saudi acceptance of the energy transition will be another factor that helps deter others from making long-term investments in oil supply. ie. does anyone believe there is a chance for another major oil sand project? On Wednesday, Reuters report "*Global energy transition might take 30 years, Saudi finance minister says*" [LINK] wrote "*The thinking about energy and renewables and climate change..(has) now became more realistic that actually transition will take not only a year, not 10 years, (but) possibly 30 years," Jadaan said. "So we need to invest in our energy security, but at the same time not neglect climate change."* Our Supplemental Documents package includes the Reuters report.

Capital Markets – IFIC: Mutual funds and ETF assets -3.9% in September

Mutual Fund & ETF assets decrease MoM

On Monday the IFIC (Investment Funds Institute of Canada) reported [LINK] mutual funds and ETF sales for September. IFIC does not provide any commentary on the numbers. Market price decreases accounted for majority of the overall increase in net assets. For September, the IFIC reported "*Mutual fund assets totalled $1.756 trillion at the end of September 2022. Assets decreased by $71.9 billion or 3.9% compared to August 2022. Mutual funds recorded net redemptions of $9.0 billion in September 2022. ETF assets totalled $287.6 billion at the end of September 2022. Assets decreased by $11.1 billion or 3.7% compared to August 2022. ETFs recorded net sales of $1.8 billion in September 2022."* Our Supplemental Documents package includes the IFIC release.

Capital Markets – 30-Year fixed-rate mortgage >7% for first time since 2002

Freddie Mac Primary Mortgage Market Survey

On Thursday, Freddie Mac (Federal Home Loan Mortgage Corporation) released the results of its Primary Mortgage Market Survey [LINK]. The results of the survey highlighted the 30-year fixed-rate mortgage rate which averaged 7.08%. Sam Khater, Freddie Mac's Chief Economist was quoted, *"as inflation endures, consumers are seeing higher costs at every turn, causing further declines in consumer confidence this month. In fact, many potential homebuyers are choosing to wait and see where the housing market will end up, pushing demand and home prices further downward"*. Other notable metrics include the 15-year fixed-rate mortgage averaged 6.36%, up 3.99% YoY and the 5-year Treasury-indexed hybrid adjustable-rate mortgage averaged 5.96%, which is up 3.4% YoY. Below is a table showing the difference between the monthly and annual mortgage payments on a $200,000 versus $500,000 home and their differences. Our Supplemental Documents package includes the Freddie Mac report.

Figure 37: Mortgage Payment Differences

Mortgage Value				
Value	$200,000		$500,000	
Rate	Monthly Payment	Total Annual Payment	Monthly Payment	Total Annual Payment
3.0%	$841	$10,095	$2,103	$25,236
4.0%	$951	$11,412	$2,378	$28,531
5.0%	$1,067	$12,809	$2,668	$32,021
6.0%	$1,190	$14,276	$2,974	$35,689
7.0%	$1,317	$15,807	$3,293	$39,516

Source: CMHC, SAF

Capital Markets – USDA consumer price index for food +11.2% YoY in September

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 that people pay at the grocery store are way higher than the consumer price index for food. The USDA posted its consumer price index for food data for September on Tuesday [LINK], which is +0.7% MoM and +11.2 % YoY, compared to July at +11.4% ; while it is up over 10%, it still seems very low. Whenever we ask US friends what they think their grocery bills have increased YoY, we have never heard anyone say something like 11% YoY. Rather, most tend to think up at least 25%. The +11.2% YoY is for the overall food price index, which has a relative weighting for the various food categories. Some of the YoY % increases that just don't sound anywhere near reality are fats/oils +21.6% YoY, pork +6.7% YoY, fresh fruits & vegetables +10.4% YoY, and fish & seafood +8.0% YoY. We wonder what their forecasts are used for as they forecast overall food price escalation of 3.0% to 4.0% for 2023.

Capital Markets – California Proposition 30 would raise taxes on high income

California Proposition 30

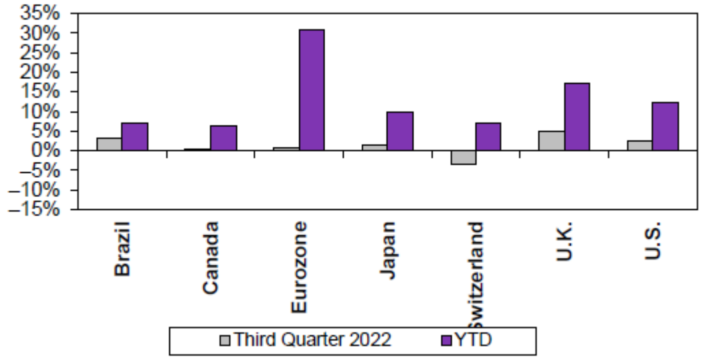
US election date is just over a week away so US news is covering a range of items including some of the state propositions on the ballet that could become law. One of the propositions to watch on election day will be California Proposition 30, which would increase marginal tax rates on high income earners and also add a "marriage penalty" for high income earners. But what makes this interesting is that this is not a straight tax the rich, it also includes a use of these proceeds with the majority of the added tax revenues to go for zero-emission vehicle infrastructure and purchasing incentives. On Oct 17, the Tax Foundation posted an article on California Proposition 30 [LINK]. Tax Foundation writes the legislation will functionally increase the top marginal income tax rate by 1.1% in 2024 and potentially bring it to 1.5%. While a pending ballot measure would add a new 1.75% surcharge on the income of the highest earner. If the ballot initiative passes, the state's top individual income tax rate would be 16.2%, with the potential to increase to 16.6%. Notably, like the existing surtax on income above $1 million, currently 13.3% top rate, brackets would not be doubled for married filers, creating a marriage penalty. The tax would kick in at $2 million for both single and joint filers. And this bracket's kick-in, like the existing surtax but unlike other brackets, would not be adjusted for inflation. Again, with most of the proceeds to go to EV infrastructure. Our Supplemental Documents package includes the Tax Foundation article.

Capital Markets – WTW, pensions are stronger with high interest/discount rates

WTW Pension Finance Watch

We continue to see the pension funds being stronger because of increasing interest rates means higher discount rates used to present value future pension liabilities. On Tuesday, WTW posted its Pension Finance Watch Q3 2022 [LINK], which showed strong overall valuation impact on pensions because of an increasing discount rate reduces the present value of pension liability. This is more than offsetting the negative investment returns on their portfolio. The Pension Fund Watch update for Q3 2022 highlighted negative investment returns. WTW stated *"The overall impact of these changes resulted in positive pension index returns for all markets during Q3 apart from Switzerland where the negative asset returns outweighed the liability gains. In addition, multinational companies are facing shifts in exchange rates, with a notable strengthening of the U.S. Dollar."* Our Supplemental Documents package includes excerpts from the WTW Pension Finance Watch Q3 2022.

Figure 38: Change in WTW Pension Index



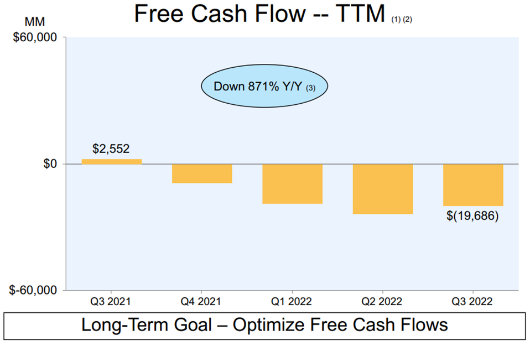
Source: Willis Towers Watson

Capital Markets – Amazon's free cash flow down 871% Y/Y

Amazon's free cash flow

We don't follow Amazon from a markets perspective, but couldn't help flipping thru the slide deck given the shares dropped post the quarterly results. And what jumped out and we have to give Amazon credit for their Q3 call slide deck as they didn't try to hide the results in how they presented their slides. Amazon shares were down 13% this week on their Q3 results. Prior to last year, a key strength was free cash flow. But the first slide in the slide deck is the Free Cash Flow slide, and we have to love their highlight bubble that draws your eyes to free cash flow is "down 871% Y/Y".

Figure 39: Amazon Free Cash Flow



Source: Amazon

Capital Markets – Phillies World Series wins have correlated with bad markets ahead

Phillies vs Astros World Series

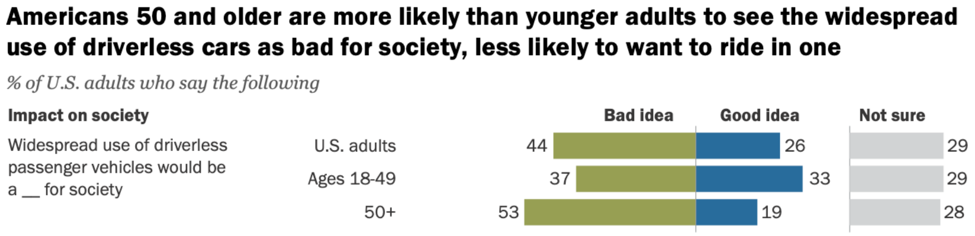
The World Series is now tied at 1-1 between the Phillies and the Astros. We probably should have put this in Misc Facts and Figures but it is a stock markets fact – Every Phillies World Series win has been followed by a big economic slowdown. On Friday, we tweeted [LINK] "*Is it up to @astros to save US from a lasting recession? Every time the @Phillies win the World Series, the market crashes. 1929 then Great Depression. 1980, recession thru 1983. 2008, the global financial crisis. Thx @BillPowerWSJ.*" The WSJ wrote "*If the Philadelphia Phillies Win the World Series, Prepare for an Economic Crisis It happens every time a team from the city succeeds" "The Philadelphia Phillies are in the World Series. Hold on to your wallets. When Philadelphia baseball teams do well, in a pattern that has held for a century, financial markets tend to strike out. It started with the old Philadelphia Athletics (before they left town). Their 1929 championship preceded the stock crash and Great Depression. In 1980, the Phillies won their first World Series, and a recession raged right through 1983, when the team again got to the final round and lost. The Phils won the World Series a second time in 2008, and boom: a home-run financial crisis."* Our Supplemental Documents package includes the WSJ report.

Demographics – Older people are more wary about driverless cars, by a fair margin

Older people more wary of driverless cars

On Monday, The Pew Research Center (PRC) posted its survey "*Older Americans more wary than younger adults about prospect of driverless cars on the road"* [LINK] on Americans views of the prospect of driverless cars on the road. The results of the survey show that older individuals are more wary, by a fair margin, than younger people about driverless cars. However no group is anywhere close to a majority that it was a good idea. The headline question was "Widespread use of driverless passenger cars would be a [bad idea, good idea, not sure] for society". 50+ age Americans were 53% bad idea, 19% good idea, 28% not sure. 18-49 age Americans were 37% bad idea, 33% good idea, 29% not sure. It is important to note that the one area there is not much of a gap between age groups is all groups want strong safety for driverless passenger cars. Below is a graphic containing the survey results of if driverless vehicles would be more acceptable in each of the following circumstances.

Figure 40: Widespread use of driverless passenger cars bad/good idea or don’t know



Source: Pew Research Center

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.

Day of the Dead celebration in Mexico is on Nov 1 and Nov 2

If you are in Mexico this week, it is a big week for celebrations with Halloween for kids on Oct 31, and the Day of the Dead (Dia de Muertos) that most celebrate on Nov 1 and Nov 2. The Day of the Dead evenings are very big in many parts of Mexico. And in places like San Jose del Cabo, one of the major social events is the Day Of The Dead Altar Competition and cocktail party at the well know Flora Farms. Many of the prominent local businesses set up altars with themes to honor the dead. It’s a competition so everyone keeps their theme a surprise for the best chance of a win. But the evening itself and the cocktail party is one of the big social events in Los Cabos. Flora Farms holds it on Nov 2 and it is the first one since Covid. Below are a couple of pictures from their 2019 Day of the Dead. [LINK]

Figure 41: Flora Farms Day of the Dead Celebration Nov 2019

Source: Flora Farms

Jets have 4 QBs, incl former CFL star Chris Streveler, for the Patriots game

One of the surprise NFL stories yesterday was that the New York Jets promoted former CFL star QB Chris Streveler to the 53-man roster for today's game vs the New England Patriots. We haven't seen any comments, but we have to believe it's the first time in NFL history for any team to have four active, healthy QBs on a 53-man roster for a game. Normally teams will have two active QBs for a game, possibly three is one is a little lame. It looks like the Jets are trying to throw a last minute surprise against the Patriots, who didn't have success last week against a running QB, Justin Fields of the Chicago Bears. And the speculation is that the Jets will throw Streveler in for a handful of run/pass option plays a la Fields. There should be some more Cdn NFL fans watching the Jets/Patriots game today at 11am MT.

Oct 30, 1938 Orson Welles War of the Worlds radio broadcast panic

If you want a good listen, listen to the original 57 min Oct 30, 1938 broadcast of the dramatization of a Martian invasion. [LINK]. We listened to it again and it's actually quite. Don't forget this was in the age of radio and newspapers and not TV. Orson Welles did an updated radio dramatization of the famous H.G. Wells War of the World. It is the story of a Martian invasion. The setting is a normal evening radio broadcast of music when there are news breaks that portray a Martian invasion including, around the 15 min mark, the description of the first Martian. Also liked the "heat ray" at the 21:45 min mark. It's hard to tell how big a panic, but the reports were that perhaps 10% of Americans thought it was an Martian invasion and panicked. How did that happen if the program had a lengthy disclaimer at the start. It was the radio channel surfing. Historyy.com wrote "*The show began on Sunday, October 30, at 8 p.m. A voice announced: "The Columbia Broadcasting System and its affiliated stations present Orson Welles and the Mercury Theater on the air in 'War of the Worlds' by H.G. Wells." Sunday evening in 1938 was prime-time in the golden age of radio, and millions of Americans had their radios turned on. But most of these Americans were listening to ventriloquist Edgar Bergen and his dummy "Charlie McCarthy" on NBC and only turned to CBS at 8:12 p.m. after the comedy sketch ended and a little-known singer went on. By then, the story of the Martian invasion was well underway*."