SAF | GROUP

Energy Tidbits

May 8, 2022

Produced by: Dan Tsubouchi

Vitol: Absent Massive Oil Demand Destruction, the Supply Cushion from OPEC Will Be at a Point Which is Alarming

Welcome to new Energy Tidbits memo readers. We are continuing to add new readers to our Energy Tidbits memo, energy blogs and tweets. The focus and concept for the memo was set in 1999 with input from PMs, who were looking for research (both positive and negative items) that helped them shape their investment thesis to the energy space, and not just focusing on daily trading. Our priority was and still is to not just report on events, but also try to interpret and point out implications therefrom. The best example is our review of investor days, conferences and earnings calls focusing on sector developments that are relevant to the sector and not just a specific company results. Our target is to write on 48 to 50 weekends per year and to post by noon mountain time on Sunday.

This week's memo highlights:

1. A stark warning from Vitol's Head Asia this morning that need to see "massive demand destruction" or the supply cushion from OPEC will be at a point which is "alarming" (Click Here)

2. Shell says it doesn't see any demand destruction, rather it sees continued increased product demand around the world (Click Here)

3. More LNG buyers lock up long term LNG supply, now 7.18 bcf/d of long term LNG deals since July 1, 2021 (Click Here)

4. Shell was surprisingly silent on how their positive LNG outlook has been affected by Europe's new push for LNG and also any comments on LNG Canada Phase 2 potential (Click Here)

5. Direct comments from Saudi Prince Al-Faisal on how Saudi's relationship has deteriorated since Biden's win (Click Here)

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

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

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

Ryan Dunfield
Principal, CEO
rdunfield@safgroup.ca

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

Ryan Haughn
Principal, Energy
rhaughn@safgroup.ca

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Table of Contents

Natural Gas – Natural gas injection of +77 bcf, storage now -382 bcf YoY deficit....6
Figure 1: US Natural Gas Storage....6
Figure 2: Record Spring Heat: Sat - Tues....6
Figure 3: Air Conditioning Demand Forecast....7
Figure 4: Temperature Departures from Normal....7
Natural Gas - Whistler Pipeline to add 0.5 bcf/d Permian takeaway in-service Sept 2023....7
Figure 5: Gulf Cost Natural Gas Pipelines Map....8
Natural Gas – ARC to supply long term natural gas to Cheniere Corpus Christi LNG....8
Natural Gas – Chevron wants to add natural gas and US LNG capacity or supply....9
Natural Gas – Seems like TC Energy forecasts FID on LNG Canada Phase 2....9
Figure 6: TC Energy's LNG Export Forecast....10
Natural Gas – Wonder why Shell said nothing on LNG outlook & LNG Canada Phase 2?....11
Figure 7: Shell Pre-FID LNG supply options – Indonesia, LNG Canada, Tanzania....12
Natural Gas – Mexico's natural gas production still stuck below 5 bcf/d, down YoY....13
Figure 8: Mexico Natural Gas Production (bcf/d)....14
Natural Gas – Is Galp pointing to an earlier than expected Mozambique LNG restart?....14
Natural Gas – Three more long-term LNG supply deals....15
Figure 9: Long Term LNG Supply Deals since July 1, 2021....17
Natural Gas – Thailand's LNG imports hit record as domestic production declines....17
Natural Gas – India's power crisis, increasing thermal coal imports, also some LNG....18
Natural Gas – Shell "simple unfeasible" EU can replace Russian gas with pipeline/LNG....18
Natural Gas – Shell, Europe needs to do term deals to attract long term LNG supply....18
Natural Gas – Germany rents floating LNG hubs to cut reliance on Russian gas....20
Natural Gas – Europe storage YoY surplus is now 4.31% ie. 34.95% full vs 30.64%....21
Figure 10: Europe Gas Storage Level....22
Oil – US oil rigs +5 WoW at 557 oil rigs at May 6....22
Figure 11: Baker Hughes Total US Oil Rigs....22
Oil – US frac spreads +5 to 278 for the week ended May 6....23

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Oil – Total Cdn rigs -4 to 91 total rigs, +36 rigs YoY 23
Figure 12: Baker Hughes Total Canadian Oil Rigs 23
Oil – US weekly oil production flat at 11.9 mmb/d 23
Figure 13: EIA's Estimated Weekly US Oil Production 24
Figure 14: US Weekly Oil Production 24
Oil – Major New Mexico wildfires are outside the Permian 24
Figure 15: Fire and Smoke map as of 8pm MT May 7, Federal Funding counties 25
Figure 16: Major Permian Basins 25
Oil – Diamondback, it takes several months for Permian well pads to be onstrream 25
Oil – DOE announces long-term plan to buyback oil for SPR 26
Oil – Trans Mountain apportioned by 13% for May 26
Figure 17: Trans Mountain Pipeline Apportionment 26
Oil – Refinery inputs -0.033 mmb/d WoW at 15.684 mmb/d 26
Figure 18: US Refinery Crude Oil Inputs (thousands b/d) 27
Oil – US "net" oil imports up +0.544 mmb/d WoW at 2.758 mmb/d 27
Figure 19: US Weekly Preliminary Oil Imports by Major Countries 27
Oil – Baker Hughes International rigs -9 MoM to 806 rigs in April 28
Figure 20: Baker Hughes International Rig Count and Brent Price 28
Oil – Pemex oil production still stuck around 1.7 mmb/d, but partners now 61,000 b/d 28
Figure 21: Pemex Mexico Oil Production 29
Figure 22: Pemex Mexico Oil Export 29
Oil – Colombia March oil production was up slightly MoM at 0.751 mmb/d 31
Figure 23: Colombia Oil Production 31
Oil – Japan cannot ban Russian oil and gas imports 31
Oil – How does inland Europe logistically replace Russian oil from Druzhba pipeline? 32
Figure 24: Europe refineries dependent on Druzhba oil pipeline 32
Oil – OPEC+ reconfirms July 18 production plan 33
Figure 25: OPEC+ Cut Schedule 34
Figure 26: OPEC+ June 2022 Required Production 34
Oil – Next OPEC and non-OPEC ministerial meeting (ONOMM) is Thurs June 2 34

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Oil – Saudi King admitted to hospital today to "undergo some medical checkups" 34
Oil – Saudi says its US relationship has been in the "downs" since Biden election 35
Oil – How long can the US and Iran keep dancing around JCPOA deal or no deal 35
Oil – Libya Zueitina oil port was temporarily reopened for 5 days, now closed again 36
Figure 27: Libya Ports, Major oilfields and Terminals map 36
Oil – Vitol, need "massive demand destruction" or OPEC supply cushion is "alarming" 37
Oil – Shell's not seeing demand destruction, rather demand is increasing 37
Oil – BP sees stronger oil prices for quite some time 37
Oil – Vortexa crude oil floating storage 95.39 as of May 6, -6.08 mmb WoW 38
Figure 28: Vortexa Floating Storage as of May 6 Posted on Bloomberg Noon MT Sat 38
Figure 29: Vortexa Estimates May 7 noon MT, Apr 30 2pm MT, and Apr 23 noon MT 39
Oil – US oil demand indicators still continue strong n the face of high prices 39
Figure 30: BloombergNEF Gasoline Demand and Inventory 40
Oil & Natural Gas –Worth reading NOV CEO state of the union for oil and natural gas 40
Oil & Natural Gas – sector/play/market insights from Q1 calls 40
AP Moller-Maersk – Continued impact of Covid on supply chain 41
BP – Oil prices will be stronger for longer 41
Chevron – Interest in LNG and natural gas to fill strategic gaps 42
Diamondback – Production increases would degrade capital efficiency 42
ExxonMobil – Still a tight natural gas market right now 43
Oil & Natural Gas – Energy sector is 8.8% of Canada's GDP 44
Oil & Natural Gas – API's 4 things Washington should do for energy 44
Figure 31: Oil and Natural Gas Prices 45
Energy Transition – California warns on grid shortfall risk for coming years 45
Figure 32: California electricity demand & renewable generation April 30 46
Energy Transition – Chevron sustainable aviation fuel is too expensive 47
Energy Transition – Exxon, high value opportunities are oil and gas not low carbon 47
Energy Transition – BP keeps to its 8-10% return criteria for renewables 48
Energy Transition – ATRI, only marginal CO2 saving from EV trucks vs diesel 48
Capital Markets – WTW, pensions are stronger with higher discount rate on liabilities 49

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Figure 33: WTW Pension Index 49

Capital Markets – UN FAO Food Price Index retreated slightly from all time March high 49

Figure 34: UN FAO Food Price Index 50

Twitter – Look for our first comments on energy items on Twitter every day 50

LinkedIn – Look for quick energy items from me on LinkedIn 50

Misc Facts and Figures 51

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Natural Gas – Natural gas injection of +77 bcf, storage now -382 bcf YoY deficit

YoY storage at -382 bcf YoY deficit

The YoY storage deficit started the winter at -282 bcf YoY at Oct 31 and is now -382 bcf YoY. The EIA reported a 77 bcf build (vs 67 bcf build expectations) for the Apr 29 week, which was slightly less than the 5-yr average build of 78 bcf, and above last year's injection of 60 bcf. Storage is 1.567 tcf as of Apr 29, decreasing the YoY deficit to -382 bcf, from 446 bcf last week and storage is 306 bcf below the 5-year average vs 345 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 (04/29/21)		Historical Comparisons: 5-year average (2017-21)	
Region	04/29/22	04/22/22	net change	implied flow	Bcf	% change	Bcf	% change
East	253	238	15	15	330	-23.3	319	-20.7
Midwest	324	309	15	15	440	-26.4	401	-19.2
Mountain	92	90	2	2	123	-25.2	110	-16.4
Pacific	176	171	5	5	223	-21.1	205	-14.1
South Central	721	681	40	40	833	-13.4	838	-14.0
Salt	233	215	18	18	263	-11.4	268	-13.1
Nonsalt	489	467	22	22	570	-14.2	570	-14.2
Total	**1,567**	**1,490**	**77**	**77**	**1,949**	**-19.6**	**1,873**	**-16.3**

Source: EIA

Natural Gas – Record highs in many parts of the US this weekend

Record temps this weekend

HH closed at $8.04 on Friday. There is no question Europe's agency to cut out Russian pipeline gas has led to US natural gas being the big winner. High Europe gas prices are attracting pretty well every available US LNG cargo. And the pull on US LNG has pulled Henry Hub prices. In addition, its been a good May for early weather demand for natural gas with record highs expected in a good portion of the US this week. Below is The Weather Channel's Friday map "*Record Spring Heat: Tomorrow – Tuesday*" [LINK] "*Record highs are possible for some cities over the next several days! Make sure to stay hydrated and limit your exertion outdoors.* "

Figure 2: Record Spring Heat: Sat - Tues

Source: The Weather Channel

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Natural Gas – AccuWeather calls for another warm summer

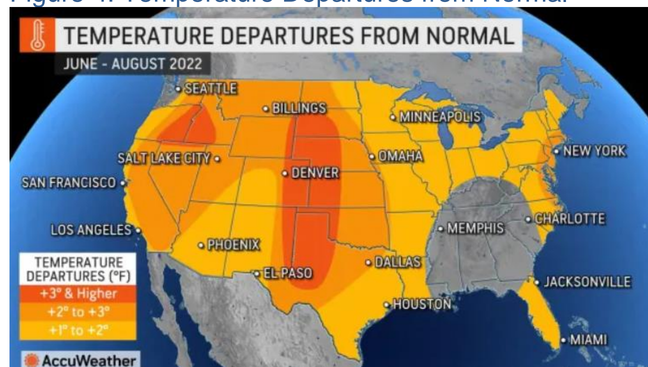
US forecasted to have a warm summer

There continues to be weather related support for natural gas this summer with expectations for a warmer than normal summer. AccuWeather's updated summer outlook [LINK] calls for above average temperatures across the US this summer, and for increased cooling demand compared to normal. The SE US is off to an early warm start with temperatures expected to continue to increase in the coming weeks, especially in Florida and the Carolina's. Below are graphics depicting the summer outlook for cooling demand and temperature deviations from normal across the US.

Figure 3: Air Conditioning Demand Forecast

Source: AccuWeather

Figure 4: Temperature Departures from Normal



Source: AccuWeather

Natural Gas - Whistler Pipeline to add 0.5 bcf/d Permian takeaway in-service Sept 2023

Another 0.5 bcf/d Permian gas takeaway

We have a similar commentary as last week's (May 1, 2022) Energy Tidbits memo that highlighted the expansion of the Permian Highway Pipeline that would add, primarily with more compression, 0.65 bcf/d of gas takeaway for in-service data of Oct 1, 2023. This week, it's the Whistler Pipeline. On Monday, Bloomberg reported [LINK] that Whistler Pipeline is adding, primarily with more compression, 0.50 bcf/d of Perman gas takeaway for in-service in Sept 2023. Whistler is a 450-mile, 42-inch diameter pipeline with current capacity of 2.0 bcf/d that will reach 2.5 bcf/d with the expansion. As we noted last week, we don't think it is

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

unfair to say that Europe's increasing determination to cut itself off Russian oil, natural gas and LNG is the biggest global game changer to energy markets seen in decades. Especially with the urgency they are moving to do so, which, in turn, creates the urgency to find replacement supply, supply capacity and infrastructure to deliver. There has been a big push on US Gulf Coast LNG because they are fastest to get to in-service so US LNG is best suited to help backfill Russian natural gas as quickly as possible. Our Supplemental Documents package includes the Bloomberg report.

Figure 5: Gulf Cost Natural Gas Pipelines Map

Source: EIA

Natural Gas – ARC to supply long term natural gas to Cheniere Corpus Christi LNG

ARC to supply gas to Cheniere Corpus Christi LNG

Cheniere has add another major Montney natural gas player to its long term natural gas feedstock supply for its Corpus Christi LNG Stage III project. On Wednesday, Cheniere Energy announced that its subsidiary, Corpus Christi Liquefaction Stage III, has entered a long-term Integrated Production Marketing (IPM) gas supply agreement with ARC Resources. We last noted a long-term supply agreement between Cheniere and Tourmaline in our July 18, 2021 Energy Tidbits and its likelihood to push the Corpus Christi Stage III project to FID. Cheniere's press release [LINK] stated *"ARC U.S. has agreed to sell 140,000 MMBtu per day of natural gas to Corpus Christi Stage III for a term of 15 years, commencing with commercial operations of Train 7 of the Corpus Christi Stage III Project. The LNG associated with this gas supply, approximately 0.85 million tonnes per annum, will be marketed by Cheniere."* Though they are yet to reach FID on Corpus Christi Stage III, Cheniere stated that this deal provides additional support to the project, and they expect to finally reach FID this summer. With respect to ARC, Cheniere stated *"We are pleased to enter into this long-term IPM agreement with one of Canada's largest natural gas producers, enabling Canadian natural gas to reach international markets."* ARC Resources noted the agreement in unison with the issuance of their Q1/22 results. The release noted [LINK] *"As part of its market diversification strategy, ARC has entered into a long-term natural gas supply agreement with Cheniere Energy, Inc.. Leveraging its scale, low-emissions profile, and operational excellence, ARC will supply 140,000 million British thermal units per day of natural gas for a term of 15 years commencing with commercial operations of Train 7 of the Corpus Christi Stage III expansion, which is expected to occur in 2027. ARC will deliver natural gas to Cheniere through existing pipeline capacity and will receive a liquefied natural gas price based on Platts JKM after*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

deductions for fixed LNG shipping costs and a fixed liquefaction fee." Our Supplemental Documents package includes the Cheniere release.

Natural Gas – Chevron wants to add natural gas and US LNG capacity or supply

Chevron wants to add natural gas

It was refreshing to hear some of Chevron's answers on the Q1 call on Fri Apr 29. Chevron was clear in wanting to add more natural gas exposure. It wasn't 100% clear if they wanted to add US LNG export capacity or LNG supply but they clearly want to add something in US LNG export. (i) Adding natural gas. Chevron says their strategic hole and an area they should add is natural gas. We were surprised by the directness of the CEO answers. Although he tried to backtrack at the end that nothing was imminent. Mgmt was asked "*Is there anywhere you would identify for one of a better expression a strategic want or a strategic hole that you would like to fill in that? What would that look like*?" Mgmt replied "*… We've talked a little bit today about gas. We're a little oilier than most and so over time can we increase some of our gas exposure would be one question."* And then "*So that'd be how we think about it, but I don't want to leave the impression that we're of to the races to do anything tomorrow because we like our portfolio as it sits today and don't feel like there's a hole that has to be filled in the short term. So we really can take a long-term look, we can be patient. We can be selective if we decide to do anything."* (ii) Want to add either US LNG export capacity or US LNG supply. It wasn't 100% clear, but, again, we were surprised mgmt was specific on US LNG. Mgmt said "*when you look at the at the US clearly we've got a lot of gas production here that largely prices and Henry Hub today and there are these projects that are in the process for LNG export facilities we've had discussions with a number of those developers nothing to say more than we've had discussions at At this point, but that's a part of our LNG portfolio that we've been very focused on the Pacific basin historically and as the Atlantic Basin markets, now look a little bit different as we flow gas from our West African assets into the Atlantic Basin. It may make sense for us to have some US supply as well*."

Natural Gas – Seems like TC Energy forecasts FID on LNG Canada Phase 2

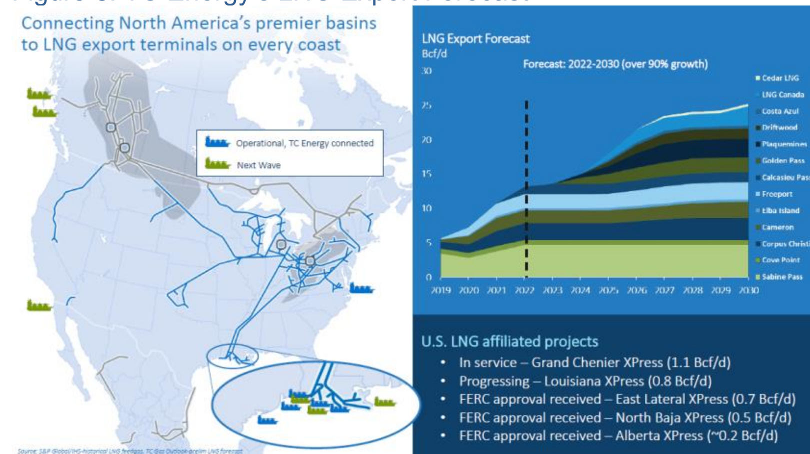
TC Energy on LNG Canada

Last Sunday, we tweeted [LINK] "*Does @TCEnergy's LNG forecast graph incl #LNGCanada Phase 2 in late 2020s? $TRP says it's a great opportunity for LNG Canada, sees NAM LNG exports growth >11 bcfd to 2030, but contractually can't say what might be "market sensitive information". #OOTT #NatGas."* TC is building the Coastal GasLink natural gas pipeline that will deliver natural gas to LNG Canada. TC held its Q1 call on Fri Apr 29. (i) TC Energy doesn't say it,, but it looks like their graph includes LNG Canada Phase 2 of 1.8 bcf/d kicks in before 2030. TC forecasts North American LNG exports to almost double by 2030, from the current 2022 peak of 13.7 bcf/d to 25 bcf/d by 2030. TC's energy outlook highlighted LNG and their very bullish view on LNG export growth in North America that calls for LNG exports to increase by ~12 bcf/d by the end of the decade. Right up front, the first energy theme they highlighted was LNG. Mgmt said "*This intersection of energy security and energy transition is not an obstacle to growth, we believe rather that it's a catalyst. We're particularly well-positioned to support exports of LNG that represents one of the most significant growth drivers in the natural gas business in North America. North American LNG exports peaked this year at 13.7 Bcf a day and we now expect that amount to grow by over 90% to 25 Bcf a day by the end of the decade. Our critical energy infrastructure assets are well situated to support connecting North America's premier basins to LNG export facilities. TC Energy is already a significant player connecting approximately 25% of supply apportioned for US LNG exports through our extensive pipeline network. Going forward, we expect to compete for and*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

win our fair share of the growth in the LNG market. We continue to evaluate new expansion potentials and execute our portfolio of sanction projects." (ii) It is important to note what TC specifically said in the Q&A that it can't say anything that LNG Canada would view as "*market sensitive information*". Mgmt was asked how markets should view the project being roughly 65% completed. Mgmt replied "*Yeah. It's Francois, Brian. We have contractual agreements with our customer, not to disclose what they view as market sensitive information. You can expect a generally linear relationship between the fact that we're 63% complete and the aggregation of the project financing and the subordinated loans, and we will -- once we reach, hopefully, an amicable solution with our customer, we will be able to provide additional details. And as Bevin mentioned, we expect that to happen here in the near future*." (iii) As a result, TC Energy comments on the potential for LNG Canada Phase 2 expansion in the Q&A on the Q1 call were general, but certainly to the positive. Mgmt was asked about how the LNG Canada Phase 2 expansion fits into the resolution on the costs with LNG Canada. Mgtm was asked "*Specifically, how much does LNG Canada go or no-go decision on expansion matter in terms of when you're going to strike an agreement?*" Mgmt replied "*So, Robert, this is Bevin. We're very aligned right now with our customer with LNG Canada. We're working towards resolving the dispute really quickly. But our prime focus right now is to also deliver the project safely and ahead of the delivery of the LNG facility. So as we focus to resolve the negotiation here fairly quickly, I'm optimistic that we'll reach an agreement that will put us in a position to update our shareholders on the path forward. With respect to Phase 2, it's a great opportunity not only for LNG Canada, but also ourselves and the Western Canadian Sedimentary Basin as we could see the delivery out of the basin move from a 2 Bcf a day export scenario to north of 4 Bcf. So that decision though is clearly in the hands of our customer, LNG Canada in terms of preparing for a final investment decision on that front*." (iv) It is not clear, but the only indication that TC Energy sees LNG Canada Phase 2 expansion of 1.8 bcf/d is to try to interpret their LNG growth forecast graph. It looks like there is a bump up in LNG from Canada towards the end of the 2020s, which is why we think they are assuming FID for LNG Canada Phase 2. Our Supplemental Documents package includes excerpts from the transcript on LNG and LNG Canada.

Figure 6: TC Energy's LNG Export Forecast



Source: TC Energy

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Natural Gas – Wonder why Shell said nothing on LNG outlook & LNG Canada Phase 2?

Silence on LNG Canada Phase 2

We listened to the Shell Q1 call on Thursday and we were surprised there was very little from Shell on its LNG outlook and almost zero mention of LNG Canada and no mention or hint of any potential FID for LNG Canada Phase 2. (i) We were surprised nothing on a revised LNG outlook considering they had a very bullish LNG outlook in their LNG Outlook 2022 that done prior to the Russian invasion of Ukraine and Europe's urgency to switch to LNG to replace Russian pipeline gas. This has only been more bullish for anyone's LNG's pre Ukraine outlook, yet Shell made no mention of how this would impact their already bullish LNG outlook for the 2020s. (ii) There was zero mention of LNG Canada Phase 2 FID, which we found surprising. For the past several months, we have been highlighting the examples of Shell's showcasing of LNG Canada, which seemed like the set up to a FID of LNG Canada Phase 2. (iii) Plus our April 17, 2022 Energy Tidbits noted The Globe and Mail report *"Shell eyes major expansion of B.C. natural gas project"* [LINK]. Shell highlighted the need for more LNG and also made the first public comments we can recall that Shell is looking at now the decision on whether to go on LNG Canada Phase 2. The Globe and Mail reported on comments from Wael Sawan, the head of Shell's integrated gas and renewables division, and Susannah Pierce, Shell Canada President. On the need for LNG, The Globe and Mail wrote ""*It raises the urgency for more LNG supply because Europe and the world desperately needs it," Wael Sawan, the head of Shell's integrated gas and renewables division, said in an interview. "There is a lot of capacity that has to be built up to be able to meet the growing LNG demand."* Then on LNG Canada Phase 2, The Globe and Mail wrote "*In our mind, we always wanted to be able to have that option to go into phase two," said Mr. Sawan, who visited Vancouver last week to attend the Globe Forum 2022 conference on sustainable business. "Now we need to be able to make sure that it makes sense on paper before we make that investment commitment*." That would have seemed to be something that might be mentioned in the Q1 call. (iii) So why showcase LNG Canada for months and then admit they are looking at the expansion and then be silent? We have trouble believe they aren't going to FID LNG Canada Phase 2 given the key role for LNG in their lower carbon plan and how the LNG market has moved since their bullish Feb LNG Outlook 2022. Nothing is 100%, but our suspicion is that they were silent for a reason. We wonder if it's related to their stated desire to have gas supply in line with their LNG offtake obligations? And we don't think the silence means they won't FID Phase 2.

Seems like Shell has been showcasing LNG Canada as prelude to Phase 2 FID

Here is what we wrote in our Feb 27, 2022 Energy Tidbits. "*We recognize that almost no one else has been believing Shell will FID LNG Canada Phase 2 this year, but we can't help still believe this following Shell's LNG Outlook 2022 and its Integrated Business Deep Dive webcast that followed the outlook webcast. We tweeted [LINK] "Was #Shell showcasing #LNGCanada or just highlighting its positives today? @Shell expects average IRR of 14-18% for its pre-FID projects, which includes #LNGCanada Phase 2. #LNGCanada "is set to deliver the lowest carbon intensity in the entire industry". #OOTT #NatGas #LNG". (i) Just like we have been highlighted over the past months, this week, Shell seemed to showcase LNG Canada on multiple fronts (i) Shell now plans assuming there is an LNG supply gap in mid 2020s and that this "focuses attention" on the need for more LNG supply FIDs. So they are saying there is a clear market need for someone to step forward. (ii) In the Integrated Gas comments, mgmt said they are making good progress on LNG*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Canada Phase 1 construction and first LNG cargos are on track for by the middle of this decade. (iii) LNG Canada is the lowest emissions LNG project in industry. This is making the case that if there is any LNG to be done in a world of reducing emissions, it is the lowest emissions and Shell says LNG Canada is the best. Mgmt said "But the long term role of gas depends on efforts to abate emissions and develop cleaner pathways for gas. This is why we continually try to reduce the carbon intensity of our new projects. Take LNG Canada currently under construction. It will run on hydropower and is set to deliver the lowest carbon intensity in the entire industry." (iv) Shell's pre-LNG FID supply projects that includes LNG Canada have high RORs. Mgmt said "For the pre-FID projects, we have an expected average internal rate of return of between 14% and 18%, and a unit technical cost below $5/mmbtu. With most of these projects clearly having lower costs than the average in the industry. These are good numbers, but you will understand that we strive to push the IRR to the higher end and to push the unit costs down even further." There were other items showcasing LNG Canada including pictures. It just feels like Shell continues to showcase LNG Canada, which we believe keeps pointing to them wanting to FID LNG Canada Phase 2 in 2022 and sooner rather than later. Our Supplemental Documents package includes excepts from the Shell Integrated Gas slide deck and transcripts we made of some of the Shell mgmt comments.

Figure 7: Shell Pre-FID LNG supply options – Indonesia, LNG Canada, Tanzania

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

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

Source: Shell

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

The other reason why we wonder about the silence is wonder if it has anything to do with their stated desire to have enough gas supply to align with tier offtake obligations. In our April 10, 2022 Energy Tidbits, we noted Shell's reporting that it had done a transfer of its Montney shale gas assets from Upstream to its Integrated Gas group. At that time, we tweeted [LINK] "*Hmm! Clean up or set up? #Shell transfers ~50 kboed of Cdn shale assets from Upstream to Integrated Gas. Clean up for reporting? Or set up ahead of #LNGCanada Phase 2 FID? Should know by Q1 on 05/05. Would be big value to all Cdn #NatGas if FID another 1.8 bcf/d #LNG. #OOTT*". Our tweet asks if this is simply a clean up transfer or it is represents a set

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

up transfer for a future event for LNG Canada such as its Phase 2 FID. The other reason why we wonder if the transfer is a set up trade is that we have always wondered about Shell looking at potential acquisitions so they have enough natural gas supply to align with their offtake capacity. Here is what we wrote in our Feb 27, 2022 Energy Tidbits memo. "*We couldn't help tweet [LINK] "Buckle up, could be huge for Cdn #NatGas M&A. @Shell just said like to align equity #NatGas supply and offtake obligations, used #LNGCanada, Shell has 40% interest so would be 1.44 bcf/d if it FIDs #LNGCanada phase 2. It's why #LNGCanada Phase 2 is the must watch event #OOTT #LNG". Shell specifically said they want to have enough natural gas supply to align with their offtake obligations at LNG Canada. There was another excellent example of mgmt showcasing LNG Canada when they really didn't have to do so. In the Q&A, the analyst asks a general question if they will align their natural gas supply with their offtake obligations for any LNG project and then the analyst asked about the Coastal GasLink attack. The percentage question was not specifically directed at LNG Canada. However, mgmt took the opportunity to answer the supply question using LNG Canada. Mgmt replied "typically, what I would say, as much as possible, having access across the entire value chain in as close of a percentage as you can, helps ensure that wherever value might rate at any point in time, you are capturing that value. So in general. Take our LNG Canada investment that you just referenced in the second question, we would look to be able to at least assure ourselves that we are not caught up by vagaries of one part of the market. let's say the gas supply, but we would want to have enough on the gas supply equity side to be able to make sure if gas prices go up there, we benefit from them while maybe disadvantaging the midstream or vice versa depending on where prices go. So we are not in the game of necessarily taking undue risk. we are in the game of creating integrated value chains that we can leverage as part of the broader portfolio." Shell has 40% in LNG Canada. Phase 1 is 1.8 bcf/d so Shell equity gas supply is 0.72 bcf/d. Our tweet included the Shell disclosure on North America natural gas supply, they don't provide Canada/US split, but that is roughly equal to North America in Q4/2021. They have some GoM natural gas but don't know the split. Maybe half or a little more in Canada? Phase 2 is 1.8 bcf/d so another 0.72 bcf/d".*

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

On Sunday, Pemex reported its oil and gas data for March. Pemex reported natural gas production of 4.766 bcf/d, which was down -1.5% YoY and up slightly +2.58% MoM, from February. For the past 3 years, an ongoing theme of the Mexican energy sector, has been their inability to grow domestic natural gas production. As a result, Mexico has relied on imports from the US which are reaching record levels; US pipeline exports to Mexico have increased ~2 bcf/d since Jan 1, 2018. Pemex does not provide any commentary along with its production data. Below is our ongoing table of Pemex reported monthly natural gas production.

Mexico natural gas still stuck below 5 bcf/d

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Figure 8: 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%		
May	5.841	5.299	4.827	4.841	4.460	4.730	6.1%		
June	5.881	5.253	4.840	4.843	4.754	4.727	-0.6%		
July	5.785	5.216	4.856	4.892	4.902	4.725	-3.6%		
Aug	5.686	5.035	4.898	4.939	4.920	4.656	-5.4%		
Sept	5.619	4.302	4.913	5.017	4.926	4.746	-3.7%		
Oct	5.583	4.759	4.895	4.971	4.928	4.718	-4.3%		
Nov	5.515	4.803	4.776	5.015	4.769	4.751	-0.4%		
Dec	5.380	4.811	4.881	5.024	4.846	4.697	-3.1%		

Source: Pemex

Natural Gas – Is Galp pointing to an earlier than expected Mozambique LNG restart?

An earlier restart to Mozambique LNG?

We recognize that no one is interpreting Galp's Q1 call comments in the same way, but we think Galp's general Mozambique LNG comments point to the potential for an earlier than expected restart of Mozambique LNG construction. Or at least, that would seem to be a logical interpretation. (i) Galp is Exxon's partner in Mozambique LNG, and Galp is not in TotalEnergies Mozambique LNG. Exxon's Mozambique Rozuma LNG first phase is 2.0 bcf/d and is planned to follow TotalEnergies Mozambique LNG Phase 1 as they have adjoining onshore LNG facilities. When TotalEnergies went force majeure on their LNG in April 2021, Exxon followed and put its project on hold. (ii) Last week's (May 1, 2022) Energy Tidbits highlighted TotalEnergies Q1 call and their comments that suggest there could be a restart to their Mozambique LNG in H1/23, which would be months earlier than the H2/23 startup that mgmt was pointing to in the Q4 call in Feb. (iii) ExxonMobil held its Q1 call on Friday April 29. There were no comments on Rozuma LNG in the Q1 release or Q1 call comments or Q&A on Rozuma. (iv) Galp held its Q1 call on Tuesday. We suspect that anyone listening to it will focus on mgmt's words that it's too early to go back on the ground to restart Rozuma Mozambique LNG, and not think about the meaning of what Galp mgmt said thereafter. We agree that is what mgmt said. However, if you just think about what mgmt said thereafter, it sounds like they are doing things that would not be done unless there was the expectation of an earlier restart. In the Q&A, mgmt noted that it was too early to tell when they would restart the project. However, it feels like there is the continued momentum for a restart sooner than later because the partners are now meeting to figure out how to optimize their onshore facilities, which sounds to us like planning to how to make up for some lost time. We don't think they would be focused on this type of what do we do differently meetings if they were still more than a year or more away from a restart because a lot could change. They must think that the worst is behind them and they can try to plan to make up for some lost time. Galp said "*Secondly, we are continuously monitoring the security situation, as you are commenting the on the ground situation seems to be improving the security forces in place seems to be getting a better grip on situation. So what we are doing in Area Four is that we are working in the Partnership. Now, to see what are the ways to further optimize and the development of the onshore development of the field and actually as we speak in the next few days, we will have another so do know Partners meeting in order to discuss optimization options. But for now, it is too early to go back on the ground and and that's why we our focus is to optimize the product and making it even more robust that even more competitive. Thank you.*"

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Natural Gas – Three more long-term LNG supply deals

Three more long term LNG deals

It was a busy week for long term LNG contracts this week for both Asian and European buyers. Our March 13, 2022 Energy Tidbits memo noted the new Europe plan for energy and our view that this will be a global game changer for energy for at least the 2020s. We have seen clear signals of the bullish LNG for 2020s call since the end of June 2021 with the abrupt shift of Asian LNG buyers to long term contracts. Now, with Russia, the rush continues and from more than Asian LNG buyers. There continues to be more long-term LNG contracts signed as rampant price appreciation in gas markets continues to boost demand for American LNG. This trend is further demonstrated by three separate long term LNG sale and purchase agreements announced on this week: (i) NextDecade and Engie announced [LINK] the execution of a 15-year agreement for the supply of LNG from NextDecade's Rio Grande LNG export project in Brownsville, Texas. This agreement will supply Engie with 0.23 bcf/d of LNG on a free-on-board basis. The LNG will be supplied from two trains, the first of which expected to start commercial operations in 2026 from the Rio Grand LNG facility in Texas. NextDecade emphasized their ability to meet their buyers' climate change initiatives, while providing them access to secure energy supply with long term LNG deals. (ii) Additionally, Energy Transfer LNG has reached a 20-year agreement with Gunvor Singapore Pte [LINK] to supply 0.26 bcf/d from its Lake Charles LNG Export Facility with deliveries expected to commence in 2026. The SPA will become fully active upon the satisfaction of the conditions precedent, including Energy transfer taking to FID. (iii) Energy Transfer LNG has also reached an 18-year agreement [LINK] with SK Gas Trading to supply 0.05 bcf/d from its Lake Charles LNG Export Facility. The Lake Charles LNG export facility will be constructed on the existing brownfield regasification facility, which will also benefit form its direct connection to the existing Trunkline pipeline system. The purchase price for both Energy Transfer deals are indexed to the Henry Hub benchmark plus a fixed liquefaction charge. Energy Transfer has now announced four new long-term contracts in the last four weeks with the total contracted LNG amount at the Lake Charles Facility now at 0.67 bcf/d. Our Supplemental Documents package includes the NextDecade and Energy Transfer releases.

Europe has a long way to go to catch up to Asia

Our March 13, 2022 Energy Tidbits memo noted that Europe LNG buyers are 9 months behind Asian LNG buyers in locking up long term LNG supply. It was clear to many that there was a major change in LNG outlook. We turned very bullish on LNG outlook for the 2020s once TotalEnergies went force majeure on its Mozambique LNG in April 2021. We posted our April 28, 2021 blog *"Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?"* as we thought the market had overlooked that this force majeure backed up 5.0 bcf/d of Mozambique LNG that was originally planned to start in phases in 2024. And that this would create an earlier and larger LNG supply gap in the mid 2020s. Then we started to see validation of this view when Asian LNG buyers in July made an abrupt change to their LNG contracting and pivoted to trying to lock in long term LNG supply. On July 14, 2021 we posted our 8-pg "*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs".* Here is an excerpt from the blog "*The last 7 days has shown there is a sea change as Asian LNG buyers have made an abrupt change in their LNG contracting and are moving to lock in long term LNG*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

supply. This is the complete opposite of what they were doing pre-Covid when they were trying to renegotiate Qatar LNG long term deals lower and moving away from long term deals to spot/short term sales. Why? We think they did the same math we did in our April 28 blog "Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?" and saw a much bigger and sooner LNG supply gap driven by the delay of 5 bcf/d of Mozambique LNG that was built into most, if not all LNG supply forecasts. Asian LNG buyers are committing real dollars to long term LNG deals, which we believe is the best validation for the LNG supply gap. Another validation, Shell, Total and others are aggressively competing to invest long term capital to partner in Qatar Petroleum's massive 4.3 bcf/d LNG expansion despite plans to reduce fossil fuels production in the 2020s. And even more importantly to LNG suppliers, the return to long term LNG contracts provides the financing capacity to commit to brownfield LNG FIDs. The abrupt change by Asian LNG buyers to long term contracts is a game changer for LNG markets and sets the stage for brownfield LNG FIDs likely as soon as before year end 2021. It has to be brownfield LNG FIDs if the gap is coming bigger and sooner. And we return to our April 28 blog point, if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? LNG Canada Phase 1 at 1.8 bcf/d capacity is already a material positive for Cdn natural gas producers. A FID on LNG Canada Phase 2 would be huge, meaning 3.6 bcf/d of Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub. And with a much shorter distance to Asian LNG markets. This is why we focus on global LNG markets for our views on the future value of Canadian natural gas." Our Supplemental Documents package includes our April and July blogs.

There have been 7.18 bcf/d of long term LNG supply deals since July 1, 2021
We first highlighted this abrupt shift to long term LNG supply deals in our July 14, 2021 8-pg "*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs".* We included a table of the deals done in that short two week period. We continue to update that table, which now shows 7.18 bcf/d of long term LNG deals since July 1, 2021. 84% of the deals have been by Asian LNG buyers, but we are now seeing rest of world long term deals post Russia/Ukraine. Below is our updated table of Asian and Europe LNG buyers new long term supply deals since July 1, 2021

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Figure 9: Long Term LNG Supply Deals since July 1, 2021

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country Buyer / Seller	Volume (bcf/d)	Duration Years	Start	End
Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
Jul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037
Jul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034
Jul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045
Sept 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037
Oct 7, 2021	Shenzhen	BP	China / US	0.04	10.0	2023	2032
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035
Nov 4, 2021	Unipec	Venture Global LNG	China / US	0.46	20.0	2023	2043
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5	2022	2040
Nov 22, 2021	Foran	Cheniere	China / US	0.04	20.0	2023	2043
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0	2024	2034
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0	2023	2033
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2023	2043
Dec 29, 2021	Foran	BP	China / US	0.01	10.0	2023	2032
Jan 11, 2022	ENN	Novatek	China / Russia	0.08	11.0	2024	2035
Jan 11, 2022	Zhejiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039
Feb 4, 2022	CNPC	Gazprom	China / Russia	0.98	30.0	2023	2053
Mar 24, 2022	Guangdong Energy	NextDecade	China / US	0.20	20.0	2026	2046
Mar 29, 2022	ENN	Energy Transfer	China / US	0.36	20.0	2026	2046
Apr 1, 2022	Guangzhou Gas	Mexico Pacific Ltd	China / Mexico	0.26	20.0	n.a.	n.a.
Apr 6, 2022	ENN	NextDecade	China / US	0.20	20.0	2026	2026
Apr 22, 2022	Kogas	BP	Korea / US	0.20	18.0	2025	2043
May 2, 2022	Gunvor Singapore Pte	Energy Transfer LNG	Singapore / US	0.26	20.0	2026	2046
May 3, 2022	SK Gas Trading LLC	Energy Transfer LNG	Korea / US	0.05	18.0	2026	2042
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**6.06**			
Non-Asian LNG Deals							
Jul 28, 2021	PGNiG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Nov 12, 2021	Engie	Cheniere	France / US	0.11	20.0	2021	2041
March 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
March 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
March 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
May 2, 2022	Engie	NextDecade	France / US	0.23	15.0	2026	2041
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**1.12**			
Total New Long Term LNG Contracts since Jul/21				**7.18**			
*Excludes Asian short term/spot deals							
*on Dec 20, CNOOC also agreed to buy an additional 0.13 bcf/d from Venture Global for an undisclosed shorter period							

Source: Company reports, SAF Group

Natural Gas – Thailand's LNG imports hit record as domestic production declines

Thailand has record LNG imports in March

Thailand is much like other Asian countries (India, Pakistan) who used to have enough domestic natural gas supply to meet domestic natural gas demand. And these countries had declining domestic natural gas production as domestic natural gas demand kept increasing. As a result, those countries moved to LNG imports. Thailand has had a similar move. Its domestic natural gas production has consistently declined at its Erwan field and they have become a heavier importer of LNG as a result. Argus Media reported on Thursday [LINK] that Thailand LNG imports had risen to record levels in March as a result of the continued declining production. Thailand imported 1.31 bcf/d of LNG in March, an increase of 23.1% from 1.18 bcf/d in February, and more than double that of imports in March 2021. The increase was mainly led by increases in receipts from Qatar which was up 5.65% at 0.4 bcf/d in March and Malaysia which nearly doubled to 0.18 bcf/d in February. During March, Australia lost its spot as the top importer of LNG to Thailand with receipts declining by 43.2% MoM to 0.21 bcf/d in March. According to market participants, Spot purchases from Thailand have also stepped up this year because Thailand's state-owned PTT may have failed to secure sufficient term volumes from LNG suppliers for 2022, Thailand paid an average of

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

$23.714/mm Btu for its March supplies, higher than the $21.927/mm Btu it paid in February, and also higher than the $5.835/mm Btu it paid in March 2021, in line with a rise in Asian spot LNG prices.

Natural Gas – India's power crisis, increasing thermal coal imports, also some LNG

India increases coal for energy security

India is in a short term power crisis and, unfortunately with very high LNG prices, it is looking to increase thermal coal imports to shore up energy security in states across the country as each state will be responsible for sufficient supply to power plants. Even though the priority is to thermal coal due to the big price advantage to LNG, this energy crisis is also why there has recently been an increase in LNG imports. We tweeted [LINK] *"India "advises" states to increase #ThermalCoal imports to ensure power supply. And "States would be responsible for any shortages & consequent power-shortages in their States". Also fits why have been seeing some added India #LNG cargos despite high LNG prices. #OOTT #natgas".* Energy Minister Shri Singh issued a press release [LINK] that advises states within India to place orders for coal for blending purpose so that the additional coal reaches power plants. Coal would be supplied to all states in proportion to the coal received from coal companies. In addition, he advised companies to continue to increase output from domestic mines to meet their coal requirements which would help lessen the burden on linkage coal. The release noted *"He emphasized that States need to take actions to ensure coal supply to their power plants by ensuring off-take in the Rail-cum-Road (RCR) mode to meet the shortfall in coal requirement at their power plants and stated that in the event of States not lifting the RCR coal it would be de-allocated and offered to other States and the concerned States would be responsible for any shortages and consequent power-shortages in their States."* Our Supplemental Documents package includes the Press Release.

Natural Gas – Shell "simple unfeasible" EU can replace Russian gas with pipeline/LNG

Shell, Europe can't replace Russian gas

There were a number of reality checks on the huge challenges ahead from Europe moving to cut off Russia oil and natural gas in the Shell Q1 call on Thursday. Shell noted how they had been speaking with the highest levels of government in a number of countries. And the potential consequences of pulling certain levers in how they move to cut off Russia energy. Shell's CEO said "*but I do believe European leaders have acted in a very measured and controlled way. And that is partly also because they realize its very tough to go cold turkey on say Russian crude oil but even moreso on Russian gas*." Shell raised big concerns on getting rid of Russian natural gas said it was "*simply unfeasible*" to believe Europe could replace Russian natural gas with other pipeline gas and LNG imports. We tweeted [LINK] "*Bullish #NatGas #LNG."There is no way we [EU] can just bring more pipeline gas or bring more LNG & somehow replace all the Russian gas we currently consume. That is simply unfeasible" "have to go significantly into energy conservation matters & strategies" @VanBeurdenShell."* And it's not just that Europe can't replace the Russian natural gas, Shell is warning "*And I think we have to significantly into energy conservation matters and strategies"* ie. permanent cutbacks in items like limiting air conditioning use, time of day usage, etc. Our Supplemental Documents package includes the transcript we made of Shell's comments in this section. Please note that our transcript should be more accurate than the Bloomberg transcript.

Natural Gas – Shell, Europe needs to do term deals to attract long term LNG supply

Shell, Europe needs to do term LNG deals

Earlier in the memo, we noted how Asia LNG buyers have been dominating the long term LNG supply deals and that Europe is trying to play catchup on long term LNG supply deals.

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

They haven't had a problem attracting LNG cargos in H1/22 because the price has been the highest. The last few months have shown that the highest LNG price will attract any spot LNG cargos or any cargos that can be redirected. And Europe's high LNG prices have proven to be the highest price to attract LNG cargos. The biggest challenge for Europe to compete against Asia for long term LNG supply is that, to the most part, Europe buyers, excluding traders/LNG portfolios, aren't prepared to commit to long term contracts. In Shell's Q1 call on Thursday, mgmt noted this is a shortfall and that Europeans will have to move to long term deals if they want to attract long term supply. In the Q&A, mgmt was asked "*could we see a European corporate our European government really hand Shell of 15 to 20-year-long-term term LNG contracts. I just think that that's something that may not have been possible a few years ago but could actually be possible going forward?"* Mgmt replied "*it's difficult at the moment given the infrastructure of the importation into Europe to see anyone looking at term contracts here, but I do think it's going to be a critical part of the overall puzzle. If you are, they have truly the sort of energy security that you need in Europe. Who knows how it's going to go. So I'm not going to speculate as to whether from a government perspective or private entities step into that void. But I do think if you want to attract longer term volumes, you're going to have to see some of that."*

Germany recently agreed to at least look at long term LNG deals with Qatar

We haven't seen any long term German deals with Qatar in the last 6 weeks, but, in late March, there were reports following Germany's meetings in Qatar that week on how Germany had locked up Qatar LNG. Our March 27, 2022 Energy Tidbits wrote "*We don't think that is the case. It doesn't mean it won't happen, but, at least for now, its really a confirmation that the commercial parties within Germany and Qatar will re-engage on a potential contract. And note that Qatar Energy is clear that this would be on a long-term LNG supply deal, not a short term or spot deal. And Qatar Energy made a point of highlighting that they have been speaking to Germany for years but only recently has Germany prepared to engage on a long term deal. This is consistent with what they have said on Europe, they are always ready to engage on long-term contract discussions. Last Sunday, Qatar Energy released [LINK] "QatarEnergy has been discussing the supply of Qatari LNG to Germany for a number of years with German companies. However, until recently, such discussions did not materialize into definitive agreements due to the lack of clarity on the long-term role of gas in Germany's energy mix and the requisite LNG import infrastructure. In a meeting held today between His Excellency Mr. Saad Sherida Al-Kaabi, the Minister of State for Energy Affairs, the President and CEO of QatarEnergy, and His Excellency Mr. Robert Habeck, the Vice Chancellor and the Minister for Economic Affairs and Climate Action in the Federal Republic of Germany, the German side confirmed that the German Government has taken swift and concrete actions to fast-track the development of two LNG receiving terminals in Germany as a matter of priority to allow for the long term import of LNG to Germany and that such scheme has the full support of the German government. Based on the foregoing, the two sides agreed that their respective commercial entities would re-engage and progress discussions on long term LNG supplies from Qatar to Germany.".*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Qatar has always been focused on long term supply deals

The Qatar Energy comments on the Germany meetings in late March were in line with the prior public statements from Qatar that always remind Qatar does long term supply deals and not spot deals. Our Feb 27, 2022 Energy Tidbits wrote *"Qatar's energy minister Al Kaabi reminded this week that Qatar really can't help much if Russia natural gas supplied to Europe get interrupted. In fact, he noted that no one can replace Russia's dominant supply to Europe. There were three other key reminders in his comments at the GECF press conference. (i) He didn't hesitate to remind that Qatar is in the long term contract business. (ii) Only 10-15% of Qatar LNG that could be diverted to Europe. The Qatar Peninsula reported ""Russia provides I think 30-40 percent of the supply to Europe. There is no single country that can replace that kind of volume, there isn't the capacity to do that from LNG," he said. "Most of the LNG is tied to long-term contracts and destinations that are very clear. So, to replace that sum of volume that quickly is almost impossible," he said. Minister Al Kaabi said that for Qatar the amount of divertable contracts that can be shipped to Europe is only 10-15 percent. "It's not that something is not contracted, the question is, is it divertible or not? And the majority is tied up to long term contracts. The divertible volume is probably 10-15 percent," he said." (iii) He reminds the issue is the lack of investment, not Russia-Ukraine. The Qatar Peninsula wrote "The steep rise in the natural gas prices in the global markets are caused by the lack of investment and not due to Russian-Ukrainian crisis, said Minister of State for Energy Affairs H E Eng. Saad bin Sherida Al Kaabi. He said Qatar wants to meet European Union (EU) demands for additional LNG supplies, but most of its exports are already tied to long-term contracts. "Everything that is going on today on pricing is fundamentally because of lack investments and that will take time to catch up. Supply demand has a tendency to correct itself over time so hopefully this will be corrected, it will take time."*

Natural Gas – Germany rents floating LNG hubs to cut reliance on Russian gas

Germany adds LNG import capacity

The push on Germany to move to stop Russian pipeline gas imports ASAP has forced them to scramble for any potential natural gas or LNG imports. We have to be careful on the % numbers and remember that it was winter at the time of the Russian invasion of Ukraine ie. peak natural gas consumption. On Friday, Bloomberg reported [LINK] that Germany has cut the share of Russian gas in its imports from 50% to about 35% since the invasion of Ukraine, and is aiming to reduce it to 10% by the summer of 2024. Regardless, Germany is moving for alternate sources. On Thursday, Germany signed contracts to charter four floating terminals (FSRU – floating storage regasification unit) to import LNG in partnership with utilities RWE AG and Uniper SE as it races to reduce its energy dependence on Russia. Shipping companies Hoegh LNG and Dynagas will each provide two of the LNG terminals, and RWE and Uniper will operate them. Together, the terminals have the capacity to convert at least 706 bcf of the super-cooled gas per year, about a fifth of Germany's LNG needs. The first terminal is planned to be operational at Wilhelmshaven on Germany's northwest coast by the end of 2022, with another planned to go online near Brunsbuettel in early 2023. Economy Minister Robert Habeck stated, *"Supply security can only be guaranteed in the long term if we think about this alongside the development of infrastructure for LNG*". Over the longer term, Germany is also planning to build several fixed LNG terminals that are expected to come online by 2026. Uniper said Thursday it's investing around 65 million euros in a terminal in

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Wilhelmshaven, construction of which is already underway. Our Supplemental Documents package includes the Bloomberg report.

Germany green leader tells environmentalists don't hold up LNG imports

It's ironic to see the leader of the Germany's green party urge environmental activists to not file lawsuits that could hold up Germany's planned LNG import terminals. Who would ever think a green party leader would do this? On Wednesday, Bloomberg reported Germany Vice Chancellor and Economy Minister Habeck (who is also head of Germany's green party) "*has urged environmental activists to avoid filing lawsuits against plans for new LNG terminals, warning that their zealousness to save porpoises could inadvertently strengthen the hand of Vladimir Putin. Germany is racing to build liquefied natural gas terminals to receive supplies from farther afield in its bid to quickly turn its back on piped-in Russian energy following Moscow's invasion of Ukraine. But environmental group DUH has filed an opposition against the building of terminals at Wilhelmshaven. The group says the construction will "irreversibly destroy sensitive ecosystems as well as endanger the living space of threatened porpoises". "I am the biggest porpoise fan in the government," said Economy Minister Robert Habeck of the Green party in an interview with RTL broadcaster late Wednesday. But "your lawsuit would put us in greater dependence" on Russian energy, he warned.*"

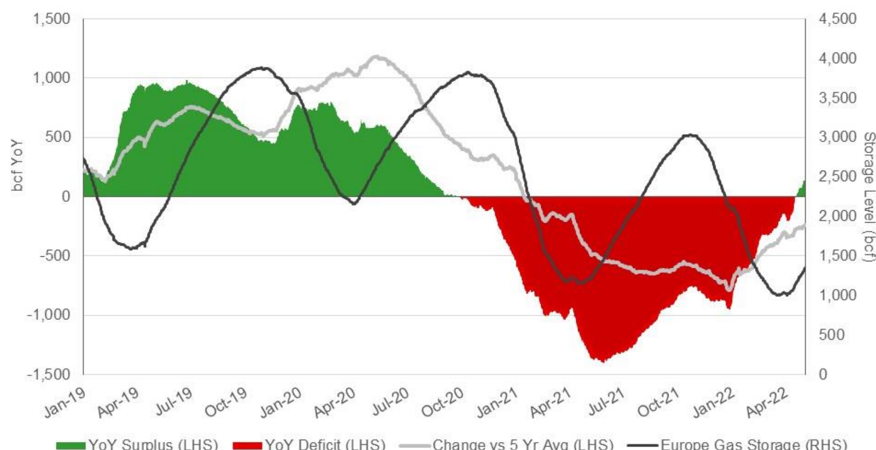
Natural Gas – Europe storage YoY surplus is now 4.31% ie. 34.95% full vs 30.64%

Europe storage now 34.95% full

The urgency to refill Europe storage has been working. As a result, the YoY Europe storage gap continues to narrow since the start of the winter natural gas season. Europe gas storage started down 18.52% YoY and is now a YoY surplus of 4.31%. Draws to European gas storage units ended three weeks ago with the now fourth observed build. Despite the shrinking YoY surplus in storage, Europe inventories are at their lowest level at this time of the year in more than a decade. Europe gas storage started last winter (Nov 1/20) at basically full levels at 94.66% and had dropped by 65.77% to be 28.89% at Apr 1/21. Europe storage levels bottomed in late Apr at 29%, which was the lowest level since Apr 2018. This winter began (Nov 1/21) with gas storage at 77.14% capacity, down 18.52% YoY. The YoY deficit has turned to surplus after months of the deficit tightening this week. Thanks to the warm weather and US LNG, storage as of May 4 is at 34.95%, which is +4.31% greater than last year levels of 30.64% and are -5.69% below the 5-year average of 40.64%. As spring injections continue, we expect to see a decline in demand for LNG as less is used to heat homes as we continue through the injection season. Below is our graph of Europe Gas Storage Level.

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Figure 10: Europe Gas Storage Level



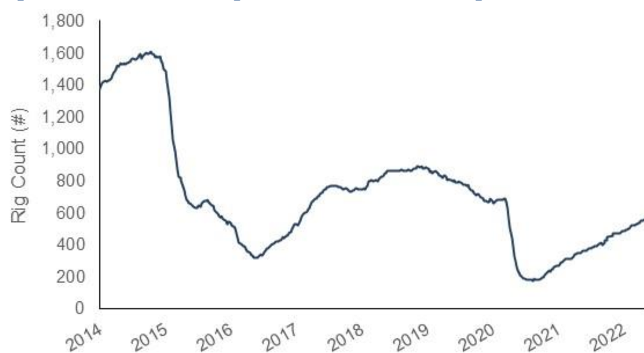
Source: Bloomberg

Oil – US oil rigs +5 WoW at 557 oil rigs at May 6

US oil rigs +5 WoW

Baker Hughes released its weekly North American drilling activity data on Friday. There are still extremely strong oil, NGLs and natural gas prices and industry has fresh (and many modestly increasing) 2022 capex budgets and the reality is that industry needs to crank up drilling to increase the depleted inventory of DUCs. This week US oil rigs were +5 WoW at 557 oil rigs, with a big increase in smaller basins. Oil rigs are +385 off the bottom of 172 in Aug14/2020 week. There were modest basin changes this week; Permian flat at 334 rigs this week while Bakken was also flat at 36 rigs after increasing last week. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 126 to 552 oil rigs (-12%). US gas rigs were +2 WoW though still higher than normal with increases in the Marcellus basin reflecting the heightened $4 HH. Below is our graph of US oil rigs since January 1, 2014.

Figure 11: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Oil – US frac spreads +5 to 278 for the week ended May 6

Mark Rossano (C6 Capital Holdings) held his weekly US frac spread recap for the week ended May 6 on the Primary Vision network. YouTube video is at [LINK]. For the week ended May 6, US frac spreads at the high point in the week were +5 to 278. It was a strong start to May. Rossano said the lion's share of the increase was in Anadarko, Appalachia and some of the smaller basins. As previously expected, also seeing the move into the Haynesville and Eagle Ford. Rossano expects the Permian to get back to its high of 157 over the next few weeks. He still expects to see the frac spreads move to 290 over the course of May and the question is how close will the spreads get to 300 in June.

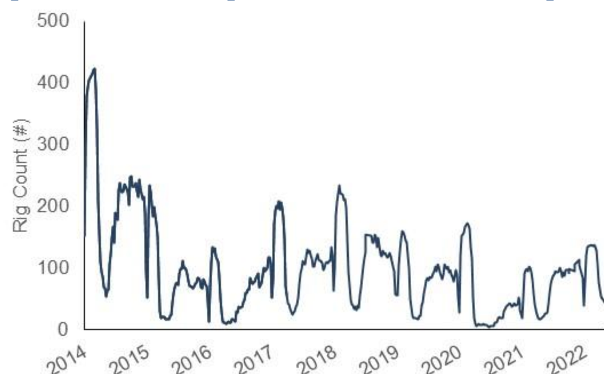
Frac spreads +5 to 278

Oil – Total Cdn rigs -4 to 91 total rigs, +36 rigs YoY

Total Cdn rigs were down -4 this week to 91 total rigs. Cdn oil rigs were -3 at 42 rigs. Cdn gas rigs were -1 at 49 gas rigs; attributed to the drilling season coming to an end; it was a small decline but still well above normal spring break up levels. Last week, Precision Drilling noted that Canadian drilling will surpass the normal peak in winter for only the second time in recent memory; this is attributed to consumer demand matching levels from 2018 and extending the winter drilling season. Total rigs are now +78 since the June 26, 2020 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 22 and Cdn gas rigs were 33 for a total Cdn rigs of 55, meaning total Cdn rigs are +36 YoY and total rigs are +29 vs 2019.

Cdn rigs -4 WoW

Figure 12: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production flat at 11.9 mmb/d

US oil production was flat this week at 11.9 mmb/d for the week ended Apr 29 after increasing for consecutive weeks. Lower 48 production drove total production and was up flat from last weeks level at 11.5 mmb/d this week, Alaska was also basically flat this week. US oil production is up YoY at +1.0 mmb/d from last year's production and is still down significantly at -1.2 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. Absent weather impacts and the continued sanctions against Russian crude, we would expect US oil production to remain relatively flat if not inch up a little higher in Q2/22.

US oil production flat WoW

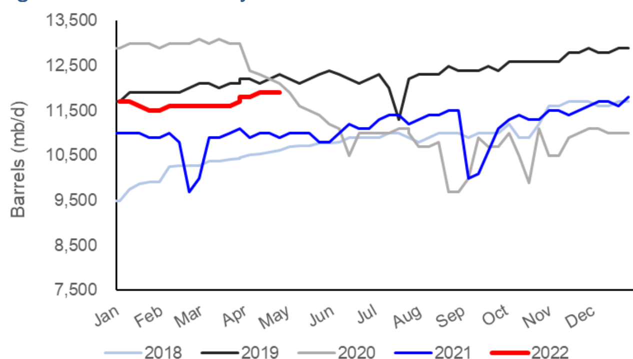
The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Figure 13: 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

Source: EIA

Figure 14: US Weekly Oil Production



Source: EIA, SAF

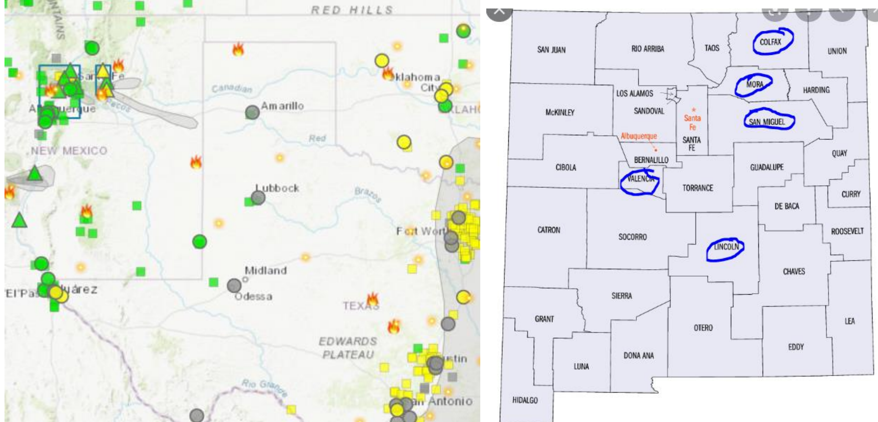
New Mexico wildfires

Oil – Major New Mexico wildfires are outside the Permian

On Wednesday, Biden declared a major disaster exists in New Mexico with the wildfires thereby unlocking federal funding in the Colfax, Lincoln, Mora, San Miguel and Valencia counties. [LINK] These counties and the wildfires are north and west of the Permian play in New Mexico. Below is the AirNow fire and smoke map as of May 7 at 8pm MT [LINK], New Mexico county map, and EIA"s major Permian basins map.

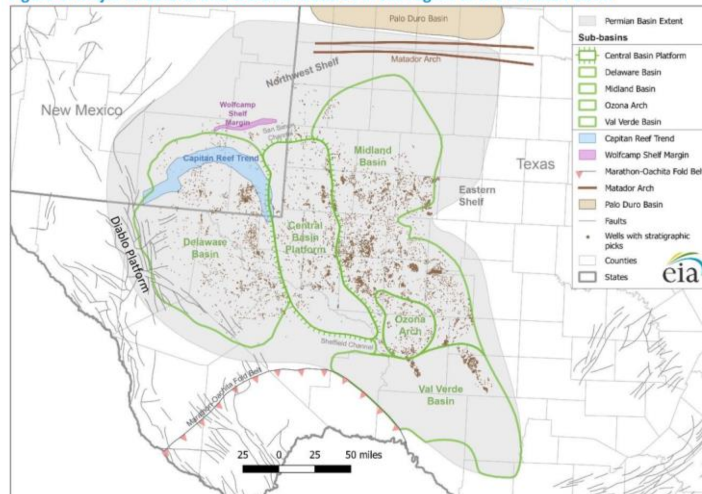
The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Figure 15: Fire and Smoke map as of 8pm MT May 7, Federal Funding counties



Source: AirNow

Figure 16: Major Permian Basins



Source: EIA

Oil – Diamondback, it takes several months for Permian well pads to be onstrream

Diamondback held its Q1 call on Tuesday. The headlines on the call were on how they weren't going to crank up drilling because it would degrade capital efficiency. However, there was also a good reminder that it takes several months for multi-well pads to be drilled and brought on stream. This is not like the old days of drilling a well, completing that well right away. Rather this is the era of multi-well pads being drilled and brought on stream. Diamondback reminded that process takes several months for a new Permian well pad to be drilled and brought on stream. In the call, mgmt said "*This bolt-on added approximately 6,000 net acres in Ward County and gave us an additional 60 long lateral locations with an 85% net revenue interest in a high rate of return area. In fact, we've already begun drilling the position. But do not expect our production until late this year*."

Several months for a well pad to be onstream

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Oil – DOE announces long-term plan to buyback oil for SPR

DOE to replenish SPR in the fall

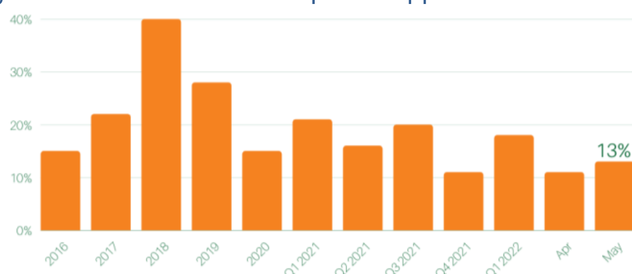
On Thursday, the US Dept of Energy announced its plan [LINK] to repurchase some of the SPR barrels that have been sold. The plan seeks to restore a third of the 180 mmb that has been released with an initial bid for 60 mmb of crude in the fall of 2022 and that purchases would likely be after fiscal year 2023. Reminder US govt fiscal year 2023 is Oct 1, 2022 to Sept 30, 2023. So the DOE is planning to call for bids in the fall, but says "*The future delivery window will be based on anticipated market conditions factoring in when future oil prices and demand are expected to be significantly lower, likely after FY 2023.*" The reason for the timing is that "*In addition to securing contracts for future delivery to refill the SPR, this replenishment structure also will help encourage the production we need now to lower prices this year by guaranteeing this demand in the future at a time when market participants anticipate crude oil prices to be significantly lower than they are today.*" Our Supplemental Documents package includes the DOE press release.

Oil – Trans Mountain apportioned by 13% for May

Trans Mountain apportionment

On Tuesday [LINK], Trans Mountain released an update on its capacity for the month of May. Total system nominations are apportioned by 13% for May (April was 11%), meaning 13% of demand for the pipeline exceeds its capacity. Trans Mountain reminds that it has been running at full capacity and has seen regular monthly apportionment for over a decade ie, the clear sign for a need for expansion. The Trans Mountain apportionment update also includes a bit of an apportionment 101. Trans Mountain wrote "*When a pipeline experiences significant and prolonged apportionment like in the case of the existing Trans Mountain Pipeline, it's one signal that more capacity is needed. Apportionment can bring with it a discounting of prices as producers compete to sell what they can through the pipeline before having to use another pipeline or other modes of transport to another, less profitable market. It can also mean the buyers at the end of the pipeline are forced to source their shortfall of supply from alternate, less desirable sources.*" Below is a chart which shows the average apportionment since 2016. Our Supplemental Documents package includes the Trans Mountain release.

Figure 17: Trans Mountain Pipeline Apportionment



Source: Trans Mountain Pipeline

Oil – Refinery inputs -0.033 mmb/d WoW at 15.684 mmb/d

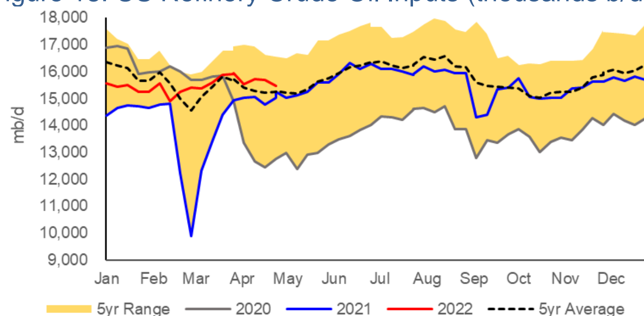
Refinery inputs down WoW

The EIA crude oil input to refinery data is for the week ended Apr 29. This week, the EIA reported crude oil inputs to refineries down 0.033 mmb/d this week to 15.684 mmb/d for the

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

week ended Apr 29 and are +0.665 mmb/d YoY from last year that was still recovering from the big February Freeze in the Permian. Refinery utilization was down slightly at 90.3%, which is +6% YoY though is still below 5-year average utilization levels as US refineries begin planned maintenance in sync with the Canadian oil sands. Total products supplied (i.e., demand) increased WoW, up 0.788 mmb/d to 19.821 mmb/d. Motor gasoline was down 0.129 mmb/d at 8.739 mmb/d from 8.868 mmb/d last week. Gasoline supplied, a proxy for demand, was up last week. Gasoline stockpiles are at their lowest levels with demand for gasoline at a 4-week high. The four-week average of production supplied decreased to 19.360 mmb/d, down from last year

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



Source: EIA

Oil – US "net" oil imports up +0.544 mmb/d WoW at 2.758 mmb/d

US "NET" imports were up +0.544 mmb/d to 2.758 mmb/d for the Apr 29 week. US imports were up +0.397 mmb/d to 6.332 mmb/d. The WoW increase in US oil imports was driven by US's Top 10 imports by country were up by 0.155 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was up this week by +0.045 mmb/d to 3.510 mmb/d. (ii) Saudi Arabia was up 116,000 b/d to 0.554 mmb/d this week. (iii) Colombia was down 0.051 mmb/d to 0.313 mmb/d. (iv) Ecuador was down -0.04 mmb/d at 0.066 mmb/d. (v) Iraq was down 61,000 b/d to 0.181 mmb/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico rebounded by 162,000 b/d to 0.553 mmb/d.

US "net" oil imports up WoW

Figure 19: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d)	Feb 11/22	Feb 18/22	Feb 25/22	Mar 4/22	Mar 11/22	Mar 18/22	Mar 25/22	Apr 1/22	Apr 8/22	Apr 15/22	Apr 22/22	WoW
Canada	3,342	3,869	3,630	3,731	3,398	3,806	3,612	3,923	3,153	3,465	3,510	45
Saudi Arabia	250	358	520	701	562	534	333	573	328	255	438	183
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	510	768	497	412	645	641	731	619	763	488	391	-97
Colombia	234	332	144	71	279	72	284	216	49	332	364	32
Iraq	225	285	295	188	161	489	82	71	155	266	242	-24
Ecuador	98	98	0	160	205	103	96	76	145	211	108	-103
Nigeria	182	25	43	96	0	2	148	148	89	191	0	-191
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	4,841	5,735	5,129	5,359	5,250	5,647	5,286	5,626	4,682	5,208	5,053	-155
Others	949	1,093	638	960	1,145	839	973	674	1,313	629	881	252
Total US	5,790	6,828	5,767	6,319	6,395	6,486	6,259	6,300	5,995	5,837	5,934	97

Source: EIA, SAF

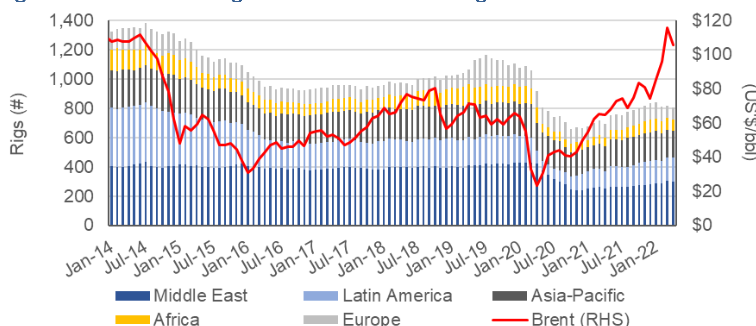
The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Oil – Baker Hughes International rigs -9 MoM to 806 rigs in April

International rigs -9 MoM

Baker Hughes posted its monthly update to international rigs on Friday. International rigs would be showing an expected increase if not for Russia invading Ukraine and the growing political tensions in Libya. There was a decrease in international rig counts after a marginal increase over March. There continues to be some seasonality within the data, but there is also a large decline in rigs in Ukraine post Russia's invasion. As noted in our April 10, 2022 Energy Tidbits memo, post the invasion, Ukraine rigs dropped from 31 in Feb to 8 in March. They are down another -3 in April at 5 rigs. International activity had been increasing with stronger oil and gas prices though the turnaround season typically begins at the end of Feb and the Russian invasion of Ukraine damped European drilling. April is up 16% YoY from 695, but still down 24% vs March 2020 at 1,058. Total international rigs decreased by -9 MoM to 806 in April. The YoY rig count is as followed: Asia-Pacific -3, Africa -9, Europe +3, Latin America +3, and the Middle East -3. The oil rig count in Africa was driven down by -8 oil rig decrease in Libya due to increasing east vs west tension in the country. Argentina was +4 MoM and up +22 YoY from April 2021. Brazil was -3 oil rigs MoM and +1 rigs YoY at 11 rigs and are focused in offshore operations. Saudi Arabia decreased by -4 rigs MoM but are up +10 YoY, driving growth while Iraq and Egypt were up +11 and +9 rigs YoY respectively. Indonesia was up +7 rigs YoY in April while the rest of Asia pacific relatively flat YoY with the exception of Australia at +4 rigs YoY. Below is our graph of international rigs by region and avg monthly Brent price.

Figure 20: Baker Hughes International Rig Count and Brent Price



Source: Baker Hughes, Bloomberg

Oil – Pemex oil production still stuck around 1.7 mmb/d, but partners now 61,000 b/d

Pemex March oil 1.696 mmb/d

On Sunday, Pemex released its March production for its interests, it was 1.696 mmb/d of oil, which is basically unchanged for Q1/22 and up slightly MoM after decreasing last month. Pemex noted that additional output from the Quesqui and Ixachi oil fields were responsible for a 54,0000 b/d increase in production in the first quarter, which offset declines from the Ku-Maloob-Zaap offshore mega field. Pemex has been unable to grow its own oil production. We haven't previously noted the non-Pemex oil production in Mexico, but it is now up to 59,000 b/d and has averaged 49,000 b/d for YTD Dec 30. As a result, total Mexico oil production (Pemex and non-Pemex) was 1,684 mmb/d for Feb and 1.696 mmb/d for YTD Mar 31. Below is our chart tracking Pemex oil production.

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Figure 21: Pemex Mexico Oil Production

Oil Production (thousand b/d	2015	2016	2017	2018	2019	2020	2021	2022	22/21
Jan	2,251	2,259	2,020	1,909	1,623	1,724	1,651	1,705	3.3%
Feb	2,332	2,214	2,016	1,876	1,701	1,729	1,669	1,684	0.9%
Mar	2,319	2,217	2,018	1,846	1,691	1,745	1,697	1,696	-0.1%
Apr	2,201	2,177	2,012	1,868	1,675	1,703	1,693		
May	2,227	2,174	2,020	1,850	1,663	1,633	1,688		
June	2,247	2,178	2,008	1,828	1,671	1,605	1,698		
July	2,272	2,157	1,986	1,823	1,671	1,595	1,701		
Aug	2,255	2,144	1,930	1,798	1,683	1,632	1,657		
Sept	2,271	2,113	1,730	1,808	1,705	1,643	1,709		
Oct	2,279	2,103	1,902	1,747	1,655	1,627	1,692		
Nov	2,277	2,072	1,867	1,697	1,696	1,633	1,691		
Dec	2,275	2,035	1,873	1,710	1,706	1,650	1,694		

Source: Pemex

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

Pemex March oil exports

Our April 3, 2022 Energy Tidbits highlighted the major (and a surprising one) change in Mexico oil export strategy for 2022. On March 31, AMLO announced is "plan emergente" that would see Mexico oil exports would be relatively flat YoY in 2022, and not down huge as has been one of his primary election promises to the Mexican people. In the below item, we give more on AMLO's "plan emergente", but the basic thesis was that AMLO said it was to take advantage of high export prices for Mexican crude oil. It looks like AMLO's "plan emergente" is being implemented and is being reflected in the new Pemex oil export data. On Sunday, Pemex reported March oil exports were 0.905 mmb/d, which was down MoM vs February of 0.925 mmb/d, but down 2.2% YoY vs March 2021 of 0.925 mmb/d. Pemex oil exports to US were 0.650 mmb/d in March, which was in line with the average of the prior few months. Below is our table of the Pemex oil export data.

Figure 22: Pemex Mexico Oil Export

Oil Exports (thousand b/d)	2016	2017	2018	2019	2020	2021	21/20	2022	22/21
Jan	1,119	1,085	1,107	1,071	1,260	979	-22.3%	832	-15.0%
Feb	1,241	1,217	1,451	1,475	1,093	1,006	-8.0%	925	-8.1%
Mar	1,062	1,001	1,176	1,150	1,144	925	-19.1%	905	-2.2%
Apr	1,081	1,017	1,266	1,023	1,179	923	-21.7%		
May	1,204	958	1,222	1,205	1,062	1,031	-2.9%		
June	1,098	1,157	1,110	995	1,114	1,106	-0.7%		
July	1,146	1,255	1,156	1,079	1,051	1,173	11.6%		
Aug	1,261	1,114	1,181	1,082	1,190	1,099	-7.6%		
Sept	1,425	1,159	1,206	995	1,023	983	-3.9%		
Oct	1,312	1,342	1,027	963	908	935	3.0%		
Nov	1,273	1,388	1,135	1,114	1,171	1,025	-12.5%		
Dec	1,115	1,401	1,198	1,115	1,243	1,037	-16.6%		

Source: Pemex

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

Here is what we wrote in our April 3, 2022 Energy Tidbits. "*There is a big change in Mexico's 2022 oil plans that will impact Cdn heavy/medium crude oil. One of the big 2022 oil themes for Cdn medium/heavy oil was supposed to be the ramp up in Pemex refinery capacity and Mexico's move to drastically cut oil exports in 2022 and then eliminate oil exports in 2023. This would have been a win for Cdn medium/heavy oil as it would create more demand in PADD 3 Gulf Coast refineries*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

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

In Jan, Pemex CEO said Mexico oil exports down big in 2022, to zero in 2023

Here is what we wrote in our Jan 2, 2022 Energy Tidbits. "*For the last year, one of the mostly ignored oil stories has been that Pemex (Mexico) expects to have its domestic refineries process all Mexican oil production such that that will no longer be oil exports and also imports of petroleum products ie. they will be self sufficient on petroleum products. On Tuesday, we tweeted [LINK] "Pemex/MEX will stop exporting crude in 2023 after reducing exports to 435k b/d in 2022 says @Pemex CEO. vs ~1 mmb/d in 2021. PADD 3 Gulf Coast gets >50% of MEX #Oil exports. Cdn heavy/med wins when MEX oil exports go down. Thx @amystillman #OOTT." Pemex CEO Oropeza spoke at the National Palace before Mexican President Obrador. Pemex posted [LINK] "He specified that it is proposed to maintain the value of proven reserves, the requirement of the National Refining System will be covered to serve the domestic market, so oil exports will stop starting in 2023." Bloomberg reported on the presentation adding more details "Pemex will stop exporting crude in 2023 after reducing exports to 435k b/d in 2022, Pemex Chief Executive Officer Octavio Romero Oropeza said during a press conference in Mexico City on Tuesday. * Crude processing to reach 1.509m b/d in 2022 and 2m b/d in 2023 with the addition of the*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

*Deer Park, Texas refinery and the Dos Bocas refinery in Tabasco. * NOTE: Mexico's six refineries have capacity to process 1.627m b/d: Pemex."*

Oil – Colombia March oil production was up slightly MoM at 0.751 mmb/d

Colombia Mar oil & gas production

Colombia oil production in March increased slightly MoM at 0.751 mmb/d vs 0.740 mmb/d in Feb. On Monday, Colombia Ministry of Mines and Energy released its March oil and gas production data [LINK]. The Columbian Ministry of Mines and Energy reported *"The hydrocarbons sector continues to consolidate its recovery, since in March 2022 oil production was 751,407 barrels per day on average (BOPD), which represented an increase of 0.16% compared to the 739,542 barrels per day of production reported in February of the same year."* The increase in crude oil production was attributed to the restoration in production of the Yarigui-Cantagallo, Rubiales, Quifa, Indico and Chichime SW fields, as well as the reactivations and entry of new wells. Colombia also noted that March production was up 0.8% MoM from Feb production of 0.745 mmb/d. Note that Colombia wants to attract more capital to its oil sector. Our Supplemental Documents package includes the Colombia release.

Figure 23: Colombia Oil Production

million b/d	2015	2016	2017	2018	2019	2020	2021	21/20	2022	22/21
Jan	1.036	0.986	0.860	0.860	0.899	0.884	0.745	-15.7%	0.740	-0.7%
Feb	1.030	0.955	0.864	0.823	0.893	0.878	0.746	-15.1%	0.740	-0.8%
Mar	1.023	0.917	0.804	0.856	0.885	0.857	0.745	-13.0%	0.751	x
Apr	1.029	0.915	0.857	0.865	0.891	0.796	0.745	-6.4%		
May	1.027	0.904	0.851	0.866	0.895	0.732	0.703	-3.9%		
June	1.010	0.888	0.857	0.864	0.892	0.730	0.694	-4.9%		
July	0.947	0.843	0.856	0.860	0.869	0.735	0.731	-0.5%		
Aug	0.968	0.827	0.858	0.866	0.883	0.742	0.748	0.8%		
Sept	1.009	0.859	0.851	0.869	0.879	0.749	0.744	-0.7%		
Oct	1.005	0.846	0.864	0.879	0.883	0.751	0.740	-1.5%		
Nov	0.990	0.855	0.851	0.883	0.880	0.761	0.747	-1.9%		
Dec	0.999	0.837	0.870	0.889	0.882	0.759	0.745	-1.8%		

Source: Bloomberg, Colombia Ministry of Mines and Energy

Oil – Japan cannot ban Russian oil and gas imports

Japan on Russian oil imports

No one should be surprised to see Japan saying they just can't ban imports of Russian oil, natural gas and LNG. Japan, an importer of Russian crude oil and natural gas, finds itself unable to align with European sanctions against Russian crude. Japan's Minister of Economy, Trade and Industry reaffirmed Japan's stance on banning oil imports from Russia to align with the European Union on Wednesday [LINK]. Russia accounts for 3.6% of Japanese crude imports and 8.8% of LNG imports in 2021. Minister Hagiuda told reporters *"Japan has limited resources and it is difficult for us to immediately align ourselves"* with current sanctions issued by other western nations. Minister Haguida emphasized that every country has a different energy security situation and that it must adjust its stance accordingly. Though Japan wants to *"share the same direction"* as the US in imposing economic sanctions, Hagiuda highlighted *"the importance of maintaining energy security"* amid the invasion. In order to reduce Russian energy dependence, Japan has asked the US to increase its LNG output. As discussed in our April 10 Energy Tidbits memo, Japanese gas importers have been seeking new LNG supply from Malaysia, Austria, and the US out of fear of supply disruption.

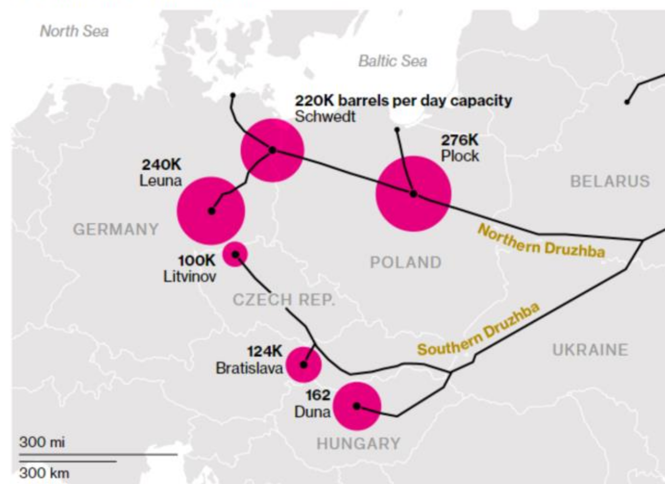
The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Oil – How does inland Europe logistically replace Russian oil from Druzhba pipeline?

Russia's Druzhba oil pipeline

One of the big headlines on Friday was how Hungarian Prime Minister Orban rejected the then latest EU proposal on banning imports of Russian oil saying it was as bad as dropping a "nuclear bomb" on the Hungary economy. But within the same radio interview, Bloomberg reported Orban "*also said weaning Hungary off of Russian crude requires billions of dollars in investments*". It was a good reminder of the huge logistical challenge to replace pipeline oil with some combination of anything possible to get oil to landlocked refineries. Germany has ports, but Czech Republic, Hungary and Slovakia are landlocked. Druzhba pipeline capacity to Hungary refineries is ~162,000 b/d. That is just for Hungarian refineries and excludes landlocked refineries in Slovakia (124,000 b/d) and Czech Republic (100,000 b/d). There has to be an increase in port unloading, tankage capacity to handle more oil coming from tankers. And then the entire problem of how to get the oil from a port inland to refineries. And let's not forget, it's Europe and so it would basically within the existing infrastructure of rail, roads and rivers. And then there will be the issue of rail tankcars, truck tankers or river barges to move the oil. Its why, on Friday, we tweeted [LINK] "*A huge logistical above ground transportation challenge 👇is coming to move #CrudeOil to refineries supplied by Druzhba pipeline in CZ, DE, HU & SK. Plus added unloading,tankage capacity at ports to receive more #Oil barrels to move inland. No wonder HU wants $ billions. #OOTT*".

Figure 24: Europe refineries dependent on Druzhba oil pipeline



Source: Bloomberg

Germany working on complex plans to line up oil by sea, truck and train

Our Friday tweet on this logistical challenge retweeted our March 25 tweet [LINK] on German Vice Chancellor Habeck's comments on this challenge, when he then said Germany was "*rushing to make complex plans to line up deliveries by sea, truck and train.*" In our March 27, 2022 Energy Tidbits memo, we wrote "*Our view is unchanged – Europe's move against Russia is a game changer for energy for the 2020s and this*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

is for the world, not just Europe. How they can go about replacing all the energy sourced from Russia is the game changer. They have clearly said to Russia, we are going to work to no longer need your products. And the challenge is how they do it quickly. The reality that it can't be done as quickly as Europe wants is what sets up the potential for massive spikes. On Friday, Bloomberg reported on comments from Germany Vice Chancellor (also head of the Green Party) Habeck "Habeck said Germany wants to halve imports of Russian oil by mid-year and be "almost independent" by the end of 2022. It could be completely free of coal imports by the fall, he said. "Companies are letting contracts with Russian suppliers expire, they're not extending them and are switching to other suppliers," he added. "And at an insane pace." The government acknowledged it would be difficult to remove Russian oil quickly from supply chains, and is rushing to make complex plans to line up deliveries by sea, truck and train." Our concern is less that they can't get oil tankers to German ports, but the logistics of getting that oil to inland refineries that are currently have Russian oil delivered right to the refinery via the Druzhba oil pipeline. See the above map. We tweeted [LINK] "Cutting RUS #Oil means #DE "is rushing to make complex plans to line up deliveries by sea, truck & trains" reports @ArneDelfs. Rail track capacity aside, can't believe there are enough of these lying around to bring oil from ports inland to the #Druzhba pipeline refineries? #OOTT. The "these" we referred to were crude oil by rail tankcars, truck oil tankers and oil barges. We said rail track capacity aside, but that is another big question mark, is there cargo rail line capacity to transport the oil. And then there are big logistics items like rail unloading logistics at the refineries and rail loading at ports. Trucks and barges are used in Germany right now, but these are normally for moving finished product from refinery to end users, and not oil input to refineries."

Oil – OPEC+ reconfirms July 18 production plan

OPEC+ sticks to July 18 plan

OPEC+ had it's 28th ministerial meeting which was another quick meeting with no surprises, rather it was just a quick approval of the existing plan. We tweeted [LINK] *"As expected, #OPEC+ keeps to its schedule for +432,000 b/d in June. Will be viewed as likely no increase given many #OPEC+ countries don't have ability to increase and expected increasing hit to Russia oil exports. #OOTT"* (i) Despite the Russian-Ukraine conflict, OPEC+ maintained their planned production increases and stayed with its revised planned +432,000 b/d monthly increase [LINK]. OPEC stated, "*Reconfirm the baseline adjustment, the production adjustment plan and the monthly production adjustment mechanism approved at the 19th OPEC and non-OPEC Ministerial Meeting and the decision to adjust upward the monthly overall production by 0.432 mb/d for the month of June 2022, as per the attached schedule."* (ii) In addition, OPEC+ reiterated "the *critical importance of adhering to full conformity and to the compensation mechanism, taking advantage of the extension of the compensation period until the end of June 2022."* Our Supplemental Documents package includes the OPEC+ Mar 31 release.

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Figure 25: OPEC+ Cut Schedule

OPEC (mmb/d)	Reference Level Production	July 2021	Aug 2021	Sept 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Jun/22 per July/21 Agreement -	Change in Ref. Level Post May/22	EIA STEO 2022E Production Avg
Algeria	1,057	912	922	932	942	952	962	972	982	992	1,002	1,013	1,023	1,057	-	n.a.
Angola	1,528	1,319	1,334	1,348	1,363	1,377	1,392	1,406	1,421	1,435	1,450	1,465	1,480	1,528	-	n.a.
Congo	325	281	284	287	290	293	296	300	303	306	309	312	315	325	-	n.a.
Equatorial G.	127	110	111	112	114	115	116	117	118	120	121	122	123	127	-	n.a.
Gabon	187	161	163	165	166	168	170	172	173	175	177	179	181	187	-	n.a.
Iran	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4,370	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Iraq	4,653	4,016	4,060	4,104	4,149	4,193	4,237	4,281	4,325	2,639	4,414	4,461	4,509	4,803	150	n.a.
Kuwait	2,809	2,425	2,452	2,478	2,505	2,532	2,558	2,585	2,612	1,718	2,665	2,694	2,724	2,959	150	n.a.
Libya	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Nigeria	1,829	1,579	1,596	1,614	1,631	1,649	1,666	1,683	1,701	1,718	1,735	1,713	1,772	1,829	-	n.a.
Saudi Arabia*	11,000	9,495	9,600	9,704	9,809	9,913	10,018	10,122	10,227	10,331	10,436	10,549	10,663	11,500	-	n.a.
UAE	3,168	2,735	2,765	2,795	2,825	2,855	2,885	2,916	2,946	2,976	3,006	3,040	3,075	3,500	332	n.a.
Venezuela	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total OPEC	26,683	23,033	23,287	23,539	23,794	24,047	24,300	24,554	24,808	26,780	25,315	25,548	25,865	27,815	1,132	24,390
OPEC vs. ref.	**0**	**-3,650**	**-3,396**	**-3,144**	**-2,889**	**-2,636**	**-2,383**	**-2,129**	**-1,875**	**97**	**-1,368**	**-1,135**	**-818**	**0**	**0**	**-2,293**
*Saudi Arabia quota for Feb-Apr 2021 includes voluntary 1mmb/d cut; May-July includes wind down of voluntary cut																
Non-OPEC	Reference Level Production	July 2021	August 2021	Sept 2021	Oct 2021	Nov 2021	Dec 2021	January 2022	February 2022	March 2022				May/22 per July/21 Agreement -	Change in Ref. Level Post May/22	EIA STEO 2022E Production Avg
Russia	11,000	9,495	9,495	9,495	9,495	9,913	10,018	10,122	10,227	10,331	10,436	10,549	10,663	11,500	500	n.a.
Kazakhstan	1,709	1,475	1,475	1,475	1,475	1,540	1,556	1,572	1,589	1,605	1,621	1,638	1,655	1,709	-	n.a.
Oman	883	762	762	762	762	796	804	812	821	829	838	846	855	883	-	n.a.
Azerbaijan	718	620	620	620	620	647	654	661	668	675	681	688	696	718	-	n.a.
Malaysia	595	514	514	514	514	537	542	548	554	559	565	571	577	595	-	n.a.
Bahrain	205	177	177	177	177	185	187	189	191	193	195	197	199	205	-	n.a.
Sudan	75	65	65	65	65	68	69	69	70	71	71	72	73	75	-	n.a.
South Sudan	130	112	112	112	112	117	118	119	121	122	123	124	126	130	-	n.a.
Brunei	102	88	88	88	88	92	93	94	95	96	97	98	99	102	-	n.a.
Total Non-OPEC	15,417	13,308	13,308	13,308	13,308	13,895	14,041	14,186	14,336	14,481	14,627	14,783	14,943	15,917	500	n.a.
Non-OPEC vs. ref.	**0**	**-2,109**	**-2,109**	**-2,109**	**-2,109**	**-1,522**	**-1,376**	**-1,231**	**-1,081**	**-936**	**-790**	**-634**	**-474**	**0**	**0**	**n.a.**
Total OPEC+	42,100	36,341	36,595	36,847	37,102	37,942	38,341	38,740	39,144	41,261	39,942	40,331	40,808	43,732	1,632	n.a.
OPEC+ vs ref.	**0**	**-5,759**	**-5,505**	**-5,253**	**-4,998**	**-4,158**	**-3,759**	**-3,360**	**-2,956**	**-839**	**-2,158**	**-1,769**	**-1,292**	**0**	**0**	**n.a.**

Source: OPEC

Figure 26: OPEC+ June 2022 Required Production

	June 2022 Required Production
Algeria	1023
Angola	1480
Congo	315
Eq.Guinea	123
Gabon	181
Iraq	4509
Kuwait	2724
Nigeria	1772
Saudi Arabia	10663
UAE	3075
Azerbaijan	696
Bahrain	199
Brunei	99
Kazakhstan	1655
Malaysia	577
Mexico	1753
Oman	855
Russia	10663
Sudan	73
South Sudan	126
OPEC 10	25864
Non-OPEC	16694
OPEC+	42558

Source: OPEC

Oil – Next OPEC and non-OPEC ministerial meeting (ONOMM) is Thurs June 2

OPEC+ meeting June 2

The short press release on the 28th OPEC and non-OPEC Ministerial Meeting (ONOMM) noted that the next ONOMM meeting will be held on Thursday June 2, 2022. We assume it will be via videoconference again.

Oil – Saudi King admitted to hospital today to "undergo some medical checkups"

Saudi King admitted to hospital

Earlier this morning, the Saudi Press Agency (the official news agency for Saudi Arabia) reported [LINK] "*The Royal Court said in a statement issued today that the Custodian of the Two Holy Mosques King Salman bin Abdulaziz Al Saud was admitted on Saturday evening, May 07, 2022 to King Faisal Specialist hospital in Jeddah to undergo some medical*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

checkups. May Allah preserve the Custodian of the Two Holy Mosques and bless him with health and wellness." There wasn't much more on this but the news says "some medical checkups" and not routine or normal checkups. And the King's health is never considered great. It's interesting as we think this will be more likely a case where governments, especially the US (see the below item), will be more closely watching the King's health than oil markets.

Oil – Saudi says its US relationship has been in the "downs" since Biden election

Saudis feel let down by US

As noted above, we think this interview may be even more significant given the King's going to the hospital today for medical checkups. On Monday, we tweeted [LINK] "*Must read. No political speak here. Saudi says US relationship is in the downs since #Biden election. Also US #Oil problems are is "because of its energy policy" Biden made it a policy "to cut all links to what is called the oil and gas industry .." #OOTT*". Arab News posted a great interview "*Frankly Speaking: Saudis feel let down by America, says Prince Turki Al-Faisal*" [LINK] because there were direct comments from Al-Faisal on the current negative relationship with the US. We believe these comments would not have been made in Saudi Arabia media unless MBS was onside and wanted this clear messaging to the Biden administration. We call this a must read as it is a good reminder that the US shouldn't expect any favors from Saudi Arabia. One of Al-Faisal's key comments was "*We've had our ups and downs over the years and perhaps, at this time, it's one of the downs, particularly since the president of the US, in his election campaign, said that he will make Saudi Arabia a pariah. And, of course, he went on to practice what he preached: First of all, by stopping the joint operations that America had with the Kingdom in meeting the challenge of the Houthi-led rebellion in Yemen against the Yemeni people. And, second, among other similar actions, by not meeting with (Saudi Arabia's crown prince) and publicly declaring that he would not meet with the crown prince, and, at one stage, withdrawing anti-aircraft missile batteries from the Kingdom when we were facing an increase in attacks by the Houthis using Iranian equipment like missiles and drones."* Our Supplemental Documents package includes the Arab News report.

Oil – How long can the US and Iran keep dancing around JCPOA deal or no deal

Still no JCPOA deal or no deal

The dancing has been going on now for 2-3 months on whether there will be a JCPOA deal or no deal. To date, the US and Iran both seem to have stuck to positions of a stalemate and both seemed hesitant to call it a day and say no deal. This week, there was more of the same. (i) On Wednesday, the US State Dept [LINK] reminded "*The fact is, as everyone in this room knows, that we had achieved significant progress in the P5+1 context in Vienna in recent months, but of course we have not been able to close an agreement and it remains uncertain and unclear if we will be able to."* The US remains committed to a return to the JCPOA and says there is still time to get to a deal. They pushed back on the idea that, a few months ago, they gave the impression they were running out of time to get to a deal. But the headline from the briefing was "*we are now preparing equally for either scenario – a scenario in which we have a mutual return to compliance, in which that breakout time is elongated and a point at which this – what has the potential to devolve further into a nuclear crisis is put back into a box. We are also preparing with our allies and partners for a scenario in which there is not a JCPOA and we will have to turn to other tactics and other approaches to fulfill what is for us a requirement, a commitment that President Biden has made that Iran, whether there is a JCPAO or whether there is not a JCPAO, must never, never, never be allowed to acquire a nuclear weapon."* (ii) No surprise, on Thursday, it seemed like Iran responded the

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

US Wednesday comments. So on Wednesday, the US says preparing for deal or no deal. On Thursday, Reuters reported [LINK] that Iran was fine with no deal. Reuters reported *"Our nuclear programme is advancing as planned and time is on our side," said a senior Iranian official, who declined to be named because he was not authorised to discuss sensitive policy issues with the media. "If the talks fail it will not be the end of the world," said the official, adding that the fact Iran's economy was not now so reliant on a revival of the deal would provide strong leverage for its negotiators if or when the talks resumed."* (iii) So Iran tossed the ball back to the US and the dancing continues, but neither party is prepared to walk away, at least as of yet.

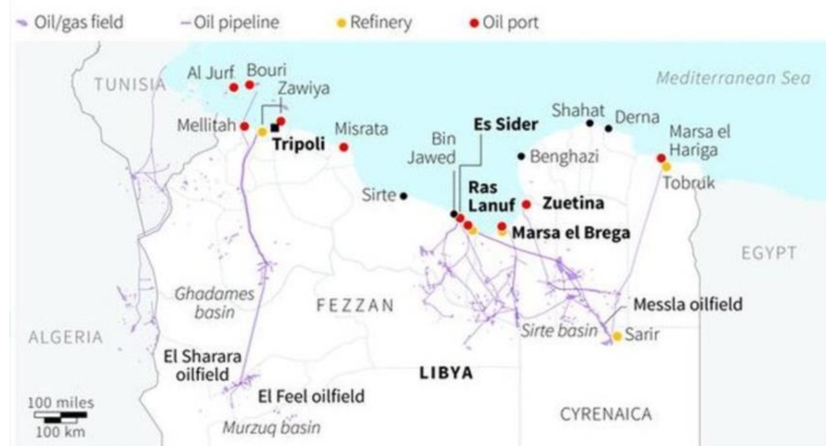
Libya's 70,000 b/d Zueitina oil port

Oil – Libya Zueitina oil port was temporarily reopened for 5 days, now closed again

Zueitina oil port has a loading capacity of ~70,000 b/d so it is important but less than 10% of Libya's export capacity. But it is an example that reminds there is increasing east vs west tension that could easily escalate to have a major impact on Libya oil exports. Last week's (May 1, 2022) Energy Tidbits memo noted the April 30 plea by the Libya National Oil Corporation to let the Zueitina oil port be reopened to avoid an environmental disaster and that was agreed on May 1. Yesterday, Bloomberg reported that Zueitina oil port is closed up once again. Bloomberg wrote "*Exports from Libya's Zueitina port were halted again after 1.6 million barrels of oil were shipped to avoid an environmental disaster, according to the the country's oil minister. Mohamed Oun made the comments to Bloomberg News by text message. Two tankers left Zueitina on Friday: Seastar carrying 600,000 barrels and Miaoulis with one million barrels, said a person familiar with the matter who declined to be identified as they're not authorized to speak to media. Libya's National Oil Corp. formally suspended loadings from the port last month and said at the time it was the "start of a painful wave of closures.*"

Figure 27: Libya Ports, Major oilfields and Terminals map

SAF Group Compiled Libya Ports & Terminals Status



Source: Bloomberg, HFI Research, SAF

https://safgroup.ca/news-insights/

Source: SAF Group

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Oil – Vitol, need "massive demand destruction" or OPEC supply cushion is "alarming"

Vitol warns on risks of oil shortages or rationing

Earlier this morning, we tweeted [LINK] "*Buckle up! if you think #Oil market is tight today, see what #Vitol's Head Asia @michaelwmuller says about the fall. "unless we see massive demand destruction from a recession ... the supply cushion from OPEC will be at a point which is alarming" same time as lower SPR 1/2 #OOTT*" and [LINK] "*2/2 "so naturally markets do what they do, they price in the fact that has to be replenished or there is the risk of an event as yet unforseen causing major shortages or rationing". Plus other great #Oil insights. see 👇 SAF transcript. Thx @michaelwmuller @sean_evers #OOTT.*" We never miss the first Sunday of the month podcast from Gulf Intelligence, it was delayed one week due to Eid al-Fitr holiday. There were multiple great insights from Vitol Head Asia, Mike Muller. But his warning about the fall was clear. Here was how he concluded his comment "*Unless we see massive demand destruction from a recession. Sorry Christof, I will be quick. Or high prices destroying demand and [???] the purchasing power, the supply/demand, the supply cushion from OPEC will be at a point which is alarming. It goes hand and hand then with a lower amount of strategic petroleum reserve, the SPR in [???] countries. So naturally markets do what they do. they price in the fact that has to be replenished or there is the risk of an event as yet unforeseen causing major shortages or rationing.*" Our Supplemental Documents package includes the transcript we made of his comments beyond the above quote.

Oil – Shell's not seeing demand destruction, rather demand is increasing

Shell doesn't see any demand destruction

Shell is not seeing any reduction in oil/products decline, rather they see continued increase in product demand around the world. We were listening to the Shell Q1 call on Thursday and wanted to tweet ASAP once we heard Shell CEO van Beurden's comments on oil demand. We tweeted [LINK] "*Buckle Up. Shell just asked if seeing demand destruction. No, "we see a continued increase in product demand around the world" "we definitely do not see a reduction in demand" "we also see by the way is a continued decrease in investment in supply" says @VanBeurdenShell . #OOTT*" We created a transcript of this part of the Q&A. At 7:50am MT, Shell is asked if they are seeing demand destruction in their products. CEO van Beurden's reply "*it's a bit early in the day. demand is not that easily destroyed. That's one. Are we seeing it at the moment? No, we're not seeing it. As a matter of fact, if you just look at the performance including in this year, we see a continued increase in product demand around the world. But we also see, by the way, is a continued decrease in investment in supply, hence the difficulties we are all experiencing pricewise. But we definitely do not see a reduction in demand*"

Oil – BP sees stronger oil prices for quite some time

BP sees strong oil prices

BP CEO Bernard Looney made the rounds of business news following the Q1 release on Tuesday and it's clear that one of the messages he wanted to communicate was oil prices are going to be stronger for longer. On Tuesday, we were watching CNBC Squawk Box when Looney came on and we tweeted [LINK] "*BP sees #Oil prices staying strong for the "years ahead". @andrewrsorkin just asked @bp_plc CEO Looney what specific WTI oil price does BP use. Looney wouldn't give specific price but says all signs point to the price [of WTI] being strong in the months and years ahead. #OOTT.*" Separately, Looney said on Bloomberg [LINK] "*and at the same time, I think we can expect prices to remain strong for quite some time*". And earlier, Looney said on CNBC in London [LINK] "*but I think it would be*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

far to say that our view is that prices will be, there will be no let up so to speak in prices for some time". Lastly, on the BP Q1 call, Looney said "*we probably expect prices to remain strong in the near to medium term."* Clearly Looney wanted to message BP sees oil prices being stronger for longer.

Oil – Vortexa crude oil floating storage 95.39 as of May 6, -6.08 mmb WoW

Vortexa crude oil floating storage

We are referencing the Vortexa global crude oil floating storage data posted on the Bloomberg terminal as of Noon MT yesterday. And we note that these estimates get revised over the course of the week and the revisions can go back months. We do not check daily for the revisions, so our comments today are compared to the prior weeks Vortexa estimates posted on Bloomberg on April 30 at 2pm MT. (i) As of noon MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate as of May 6 was 95.39 mmb, which is -6.08 mmb Wow vs big revised up April 29 of 101.47 mmb. Note April 29 was revised up +12.49 mmb from the 88.98 mmb posted on Bloomberg as of 2pm on April 30. (ii) Please note it's another week of revisions. Two weeks ago, there were big upward revisions to several weeks of estimates. Last week saw revisions down (but not as big as the upward revisions) to the last several weeks of data. This week, there are revisions up to the last 4 weeks of data including the one big revision to the April 29 data. What this means is that instead of crude oil floating storage being in the 90 to 100 mmb range, its back to the 100+ range for the last four weeks ie. a little bit higher. Again, we would think it isn't that surprising to see revisions given this coincides with the post Russian/Ukraine war period. (iii) The revisions to the last four weeks were all revised up and, other than the big revision to April 29, the revisions were not much different in size than the last week's revisions down. Revisions in yesterday's estimates at noon MT vs the Vortexa estimates on Bloomberg as of 2pm on April 30. April 29 data, revised +12.49 mmb to 101.47 mm. April 22 data, revised +1.71 mmb to 101.30 mmb. April 15 data, revised +1.92 mmb to 105.59 mmb. April 8 data, revised +2.62 mmb to 102.89 mmb. (iv) May 6 estimate of 95.39 mmb is -126.12 mmb vs June 21, 2020 peak of 221.51 mmb. (v) Note that the below graph goes back 3 years and not just 2 years as floating oil storage was in the big ramp up period in late March/April/May 2020 as Covid started to have a huge impact. May 6 estimate of 95.39 mmb +44.24 mmb vs pre-Covid of 51.15 mmb as of May 6, 2019. Note May 8, 2022 was 197.01 mmb, which was up ~130 mmb vs March 27, 2020.

Figure 28: Vortexa Floating Storage as of May 6 Posted on Bloomberg Noon MT Sat

Source: Bloomberg, Vortexa

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Figure 29: Vortexa Estimates May 7 noon MT, Apr 30 2pm MT, and Apr 23 noon MT

Est as of May 7, noon MT

FZWWFST VTXA Inde 94) Su
05/05/2019 - 05/06/2022
1D 3D 1M 6M YTD 1Y

	Date	FZWWFST VT... Mid Px
Fr	05/06/2022	95392
Fr	04/29/2022	101.474k
Fr	04/22/2022	101.304k
Fr	04/15/2022	105.59k
Fr	04/08/2022	102.886k
Fr	04/01/2022	89972
Fr	03/25/2022	93433
Fr	03/18/2022	95012
Fr	03/11/2022	97174
Fr	03/04/2022	93921
Fr	02/25/2022	90235

Est as of Apr 30, 2pm MT

FZWWFST VTXA Inde 94) Sug
04/28/2019 - 04/29/2022
1D 3D 1M 6M YTD 1Y 5Y

	Date	FZWWFST VT... Mid Px
Fr	04/29/2022	88983
Fr	04/22/2022	99590
Fr	04/15/2022	103.672k
Fr	04/08/2022	100.027k
Fr	04/01/2022	88907
Fr	03/25/2022	92321
Fr	03/18/2022	93582
Fr	03/11/2022	97056
Fr	03/04/2022	94408
Fr	02/25/2022	91897
Fr	02/18/2022	85737

Est as of Apr 23, noon MT

FZWWFST VTXA Inde 94) Sug
04/21/2019 - 04/22/2022
1D 3D 1M 6M YTD 1Y 5

	Date	FZWWFST VT... Mid Px
Fr	04/22/2022	101.958k
Fr	04/15/2022	107.1k
Fr	04/08/2022	103.317k
Fr	04/01/2022	92621
Fr	03/25/2022	97776
Fr	03/18/2022	98006
Fr	03/11/2022	102.976k
Fr	03/04/2022	99424
Fr	02/25/2022	97694
Fr	02/18/2022	91072
Fr	02/11/2022	102.693k

Source: Bloomberg, Vortexa

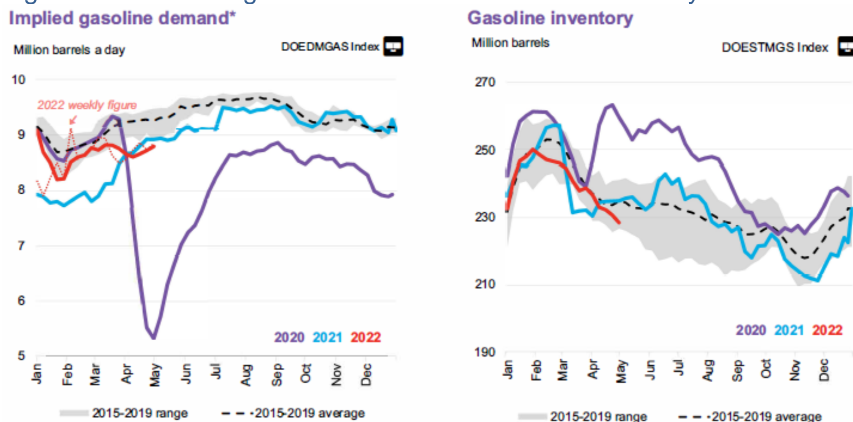
Oil – US oil demand indicators still continue strong n the face of high prices

US oil demand indicators

The US still looks to be the strength of the recovery in oil and products demand. Jet fuel demand continues to increase despite elevated prices, while gasoline continues to creep closer to the five-year seasonal demand after the initial shock of pump prices. Bloomberg released their “US Oil Indicators” weekly report on Friday, and it continues to provide a positive outlook for oil demand through 2022. All US oil indicators are bullish or neutral for the remainder of 2022, except for the recent fall of utilization rates in refinery operations. This was an unexpected fall to 88.5%, with refiners dealing with heavier than usual maintenance season. The volatility in West Texas Intermediate crude prices has simmered down since the invasion of Ukraine, failing to deviate out of the $100-110 per barrel range. U.S. production held flat for a third straight week at 11.9 mmb/d. The four-week moving average of product supplied was up to 8.8 mmb/d, which is just 460,000 barrels below the typical seasonal level. Meanwhile, jet fuel demand has been hovering around 95% of the seasonal average, matching the highest relative level since the beginning of the pandemic. Our Supplemental Documents package includes excerpts from the BloombergNEF report.

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Figure 30: BloombergNEF Gasoline Demand and Inventory



Source: BloombergNEF

Oil & Natural Gas –Worth reading NOV CEO state of the union for oil and natural gas

NOV CEO's state of the union for oil & gas

We were surprised that NOV (the old National Oilwell Varcoe) CEO Clay Williams long state of the union for oil and gas at the start of the NOV Q1 call on Friday April 29 didn't get much attention. We don't think anyone expects, on a quarterly earnings call, to hear the CEO go on a lengthy state of the union. We tweeted [LINK] "*Common sense explanation why its a very bumpy road ahead for #EnergyTransition and why #Oil & #NatGas are looking great for 2020s. Thx @NOVGlobal CEO Williams for perspective from someone who helps ensure there is reliable energy for the world. Definitely worth the read. #OOTT* ." Williams looks at oil and gas from the common sense side or the side of the person who has to make sure things work so people can turn on the light switch at any time and light comes on. This is a well thought out overview of the full cycle of oil and natural gas from supply thru demand – what's working, what's isn't working, the challenges, the misreads, the people challenges, the problem of seven years of E&P underinvestment, the hurdles to oil and gas growth, etc. It is a comprehensive 5-page state of the union. Williams doesn't necessarily say anything different ie. he says "*To renewable sources of energy in my view. I'm not questioning the need to make the pivot but rather the plan to get there, the facto policy of choking off inputs of a critical industry not just years but decades before we have a good alternative is a very bad policy, many will suffer as a result*." And "*The world is finally waking up to the fact that oil and gas is still absolutely essential to our modern way of life, and the oil and gas industry, is quickly becoming aware that it can't continue to meet the world's demand for its products without significant further investment.*" It fits our long standing view on the energy transition – it's going to happen, but will take longer, be a bumpy road and cost more. And it means oil and natural gas are needed for much longer than the energy transition aspirations and will be stronger thru the 2020s. Our Supplemental Documents package includes the NOV CEO state of the union.

Oil & Natural Gas – sector/play/market insights from Q1 calls

Sector insights from Q1 calls

This is our favorite time each quarter when we have quarterly conference calls as we find we get the best insights into the full range of oil and gas and energy themes and developments. As a reminder, our Energy Tidbits memo does not get into the quarterly results, forecasts, or

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

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.

AP Moller-Maersk – Continued impact of Covid on supply chain

AP Moller-Maersk held its Q1 call on Wednesday. (i) Mgmt highlighted the continuing effect of Covid-19 on supply-side congestion in the logistics industry. Mgmt stated "*The number of vessels waiting outside ports has come off the previous peak in the US, above all on the West Coast, but continue to increase in China."* Landside congestion in China, particularly in warehouse and trucking capacity, have also challenged supply chain management. (ii) It was noted that the gap between regular bunker fuel and green fuel is not as wide due to the current cost of oil. Mgmt said *"We originally said when the oil price resulted in a fuel cost of between $400 and $500 per tonne of bunker oil that we expected green fuel to be 2 to 3 times as expensive. Of course, now, fossil fuel has doubled in price and is now somewhere between 800 and 900. And therefore, of course, the extra cost for green fuel is a lot more manageable."* (iii) AP Moller-Maersk expects a slower global economy in the second half of 2022. Mgmt said *"Now, in terms of uncertainty, I mean obviously there's a lot going on. There's a war in Europe. There is inflation. There's a COVID policy in China, just to mention a few things. Clearly, we are seeing the same numbers as you are in terms of a drop in consumer confidence in -- drop in business confidence around the world. And those are really the reason for why we think that this year will be in demand growth on the Ocean side will be -- it just around plus, minus 0."* Our Supplemental Documents package includes excerpts from the AP Moller-Maersk Q1 call transcript.

BP – Oil prices will be stronger for longer

BP held its Q1 call on Tuesday. (i) Earlier, we noted CEO Looney making sure he highlighted BP's view of stronger for longer oil prices in his CNBC and Bloomberg interviews. (ii) They also predict that as sanctions on Russian crude come into effect, the impact on production could double from -1 mmb/d to -2mmb/d. In the Q&A, mgmt said *"I think there's probably about a million barrels a day. We would estimate off the market today of Russian crude that number, we think will probably increase this month when the existing sanctions come into effect for real. And that number could double. And obviously if there's further sanctions, we shall see as we step back*". (iii) They highlighted lack of spare capacity and other volatile factors to account for with regard to energy prices. In the Q&A, mgmt said *"And of course, a lot of uncertainty out there at the moment. A lot of uncertainty, whether it be what's going to happen with Iran the zero COVID policy in China, what's happening with inflation and the knock-on impacts on global economic growth. What's going to happen in Libya? What's going to happen with US Shale."* (iv) CEO Looney is trying to create the new catch phrase for the energy transition – Energy Trilemma. In the Q&A, he explained *"Yes, the world needs cleaner energy, but it also needs energy that's reliable or secure and it needs energy that is affordable. That is the energy Trilemma. And the role of an integrated energy company is to solve that Trilemma. Now, how do we do that? We do that by investing in hydrocarbons today and you see us doing that with*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

the majority of our investment today going into hydrocarbons." (v) Another highlight was the increased investment in BP's US shale business, BPX. This will increase Lower 48 capex from $1 b to over $1.6 to $1.7b this year, with plans to further increase capex in the future. This investment will focus on building out two gathering systems in the Permian, as well as providing capital to both the Haynesville Eagle Ford basin. (vi) Looney commented "*At the moment, diesel stocks are actually globally in reasonable shape."* We have to wonder whether he was avoiding the topic of diesel stock shortages in the UK and Europe in general. (vii) BP was sure to confirm that Europe refineries aren't using any Russian molecules. I suspect he is using "molecules" to say they aren't using any Russian branded crude or any crude that might have some Russian crude blended into the supply. Our Supplemental Documents package includes excerpts from the BP call.

Chevron – Interest in LNG and natural gas to fill strategic gaps
Chevron held its Q1 call on Friday, April 29th. (i) Earlier, we noted Chevron making a point of highlighting they would like to add more natural gas supply and more in US LNG exports. *well.*" (ii) Chevron was sure to highlight that the tight oil market is not likely to resolve itself in the near term. Mgmt attributed this to delayed pandemic rebound, producer's feeling of obligation to return cash to shareholders, and the re-prioritization of new energy versus traditional energy. Mgmt stated "*it's a market that is not stable it's not an equilibrium right now as you say, inventories are quite low demand is still strong and economies to this point seemed to be handling it at some point particularly if prices were to move higher, I do think it starts to be a bigger drag on the economy".* (iii) Chevron did not get into any specifics on cost inflation hitting them in the Permian, but they did highlight cost inflation as a minimal factor outside the US. Mgmt said *"We are seeing more cost pressure in the Permian. It's manageable, but if we go outside the US seeing hardly any or much more modest increases and none of that is changing our $15.3 billion CapEx budget that we've talked about."* (iv) Permian production benefited from a jump up from normal levels of completions. They highlighted that they have been completing more DUCs than the normal run rate but are now caught up. The DUCs built up during the slowdown when Covid hit, so they have been completing more to bring the level of DUCs vs rigs back into balance. (v) Chevron issued a reminder in their call, stating that in order to produce oil in the Permian, they need to have outlets for Permian natural gas and gas liquids. Mgmt said *"we've got to be sure we've got gas take away or we're not going to produce oil and so it's a high priority for our midstream team, but we don't see pinch points anytime soon and we continue to be a very attractive shipper for the people that we do business with because we're predictable."* (vi) Mgmt highlighted that the loading buoys are back up in Kazakhstan, so production has been returning to normal. There is a 3rd buoy going for maintenance, but, once that is done, it will give redundant capacity. Our Supplemental Documents package includes excerpts from the Chevron Q1 call transcript.

Diamondback – Production increases would degrade capital efficiency
Diamondback held its Q1 call on Tuesday. (i) Earlier in the memo, we noted Diamondback's reminder that it takes several months to get new Permian drilled wells onstream. (ii) The big headline on the call was that they are not going to

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

increase production because an *"increase in activity now would result in capital efficiency degradation*". Rather, it would stick to its plan for modest growth and returning cash to shareholders. (iii) Mgmt highlighted that the "hyperinflationary" environment in Permian right now will take quarters to normalize. We haven't seen comments like this on the inflation impact in the Permian. Mgmt said *"We've seen in the past in this hyper inflationary environment that that supply chains ultimately normalize. But it takes time for that normalization to occur, which is measured in quarters if not years for it to normalize and when it does, then you start to have a greater opportunity to grow without degrading your capital efficiency."* (iv) Mgmt highlighted the process of electrifying their fields to save money and improve efficiency. They have partnered with Haliburton to secure their first electric frac fleet. In addition to helping reduce their Scope 1 emissions, Mgmt noted that this partnership "*will also lower our cost per foot, primarily due to fuel savings, decrease our footprint on location, and increase our operational efficiency as a result of lower maintenance and non-productive time. We expect this fleet to be operational in the fourth quarter."* (v) Regarding the lack of Permian gas takeaway, mgmt thinks the tight spot for this is 2023 for the industry. Mgmt said "*We still think there needs to be a large price built -- new build side which hopefully happens here in the next month or two from the announcement perspective. And generally going back to what we said last quarter, we have, we don't have taken kind rights for all of our, all of our gas, but we do have flow assurance for all of our gas so we are exposed to Waha we've hedged much of our exposure in 2023. I think that's the tight spot and the gas is going to move, it's just a matter of price."* Our Supplemental Documents package includes the Diamond Q1 call transcript.

ExxonMobil – Still a tight natural gas market right now

ExxonMobil held its Q1 call on Friday. (i) A key topic of discussion was the Mozambique Rozuma LNG project, though no insight on timing was given. Exxon highlighted their Coral LNG, the offshore FLNG (floating LNG) that wasn't impacted by the onshore security issues. It is Eni operated, but with respect to the Exxon operated 2.0 bcf/d Rozuma LNG in Mozambique. Exxon only said "*And so I think we're going to continue to look for opportunities in LNG, it's an important part of the portfolio, we've got opportunities in PNG that we're progressing obviously, additional investments in Mozambique are in the future as well"*. (ii) Exxon wants to continue to look for opportunities in LNG, outlining their positive view on LNG. As the pandemic has subsided and demand has recovered, compounded with situation in Ukraine which has added a significant amount of certainty to supply, Exxon wants to maximize LNG supplies so they can supply demand from all around the world. This is anchored by their Golden Pass LNG facility, which adds liquefaction and export capabilities to its existing facility in Sabine Pass, Texas. Regarding Golden Pass, Exxon stated *"I think it's going to give us a lot of flexibility to supplement our longer-term contracts for our bigger projects, but to also participate in the spot market."* (iii) The global natural gas market is tight right now, so Exxon does not expect to see the normal seasonal drop in demand for global natural gas due to the need to refill storage. (iv) Inflation is hitting Exxon in the Permian, and they are combatting it with a disciplined spending approach. In the Q&A, management stated *"we again had anticipated the market recovery in some of the tightness and so had developed some*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

contracting strategies and partnering with suppliers to try to mitigate that impact that's paying-off. We're seeing that advantage here in the Permian, eventually that obviously will roll off some of the consumables and some of the labor tightness that we're seeing in the Permian, obviously that's starting to impact us as well." (v) Exxon announced they will be increasing employee compensation, likely in recognition of the challenge of retaining young employees in the oil and gas sector. Our Supplemental Documents package includes excerpts from the Exxon Q1 call.

Oil & Natural Gas – Energy sector is 8.8% of Canada's GDP

Energy Sector grows YoY in Feb

On April 29, Statistics Canada reported Canada's GDP by Industry for February 2022 [LINK]. Real gross domestic product (GDP) rose 1.1% in February, the largest monthly growth rate since March 2021, as broad-based increases across most sectors contributed to the ninth consecutive monthly expansion in economic output. Both services-producing +0.9% and goods-producing +1.5% industries were up, as 16 of 20 industrial sectors expanded in February. The accommodation and food services sector jumped 15.1% in February, offsetting most of the previous two monthly declines, as both subsectors were up. As we have been highlighting in previous Energy Tidbits memos, Transportation and warehousing has rebounded in Canada as restrictions began to ease in February. Rail transportation rose 9.1% in February, the largest monthly growth rate since May 2014, picking up steam following a period of lower activity in late 2021 and January 2022 brought on by below seasonal cold weather and flooding in British Columbia. Urban transit systems jumped 23.9% in February as ridership increased, largely offsetting declines in the previous two months. Air transportation +7.7% rose for the 10th time in 11 months in February as airlines carried more goods and passengers. The Energy sector has grown slightly at 5.3% YoY from 2021, contributing $1.8bn or 8.8% to Canada's overall GDP. We expect to see this increase in the March report as price appreciation and increased production has seen elevated oil and gas activity.

Oil & Natural Gas – API's 4 things Washington should do for energy

API on US energy policy

On Wednesday, API CEO Mike Sommers addressed The Economic Club of Colorado on the American energy security and also "*offered recommendations to both federal and state policymakers to maintain and strengthen American energy leadership.*" [LINK]. Industry associations generally don't come out hard on criticism on the government, but Sommers did not some inconsistent actions vs Biden's words. Sommers said "*President Biden remains absolutely committed to not moving forward with additional drilling on public lands. The challenge that we faced was that we had a court that ordered a new lease to be done. The Department of Energy had no choice but to put it out. But they also found ways to reduce the size of that and its impact. And we'll keep doing what we need to do to appeal."* The key message from his speech was the US achieved energy security which has put them in a position of strength in the global economy and led to greater independence, and that it would be foolish to give it up. The API gave four recommendations as to what policy actions the US can take that would have a decisive impact on the future of oil and gas in the US: (i) Oil and natural gas production on federal lands should be agreed to; President Obama had issued 50 lease agreements by this point in his term and the Biden administration has not completed one. They did agree to hold a sale but then undercut their purposes by scaling back the acreage and raising the royalty fees. (ii) The US needs a new federal offshore leasing program quickly as the current one is set to expire in a month. Without the leasing program,

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

there is no way American producers can plan offshore development to contribute to the economy moving froward. (iii) the Department of Energy should continue to approve all LNG export applications and ask Congress to allow swift approval of exports to non-free-trade-agreement nations. (iv) Washington must alter its stance on infrastructure to allow for energy to be transported to refineries where it can then be turned into a useful product to be shipped end users. Our Supplemental Documents package includes the API speech.

Oil & Natural Gas– As good as Cdn E&P Q1 is, Q2 cash flows will be even stronger

Q2 cash flows will be even stronger

We want to remind that as good as Cdn E&P Q1 cash flows are being reported, Q2 should be even stronger especially so for natural gas players. Q1reporting is well underway and, as expected, Cdn E&P are reporting great cash flows, lower debt and higher dividends. On April 1, we tweeted [LINK] that Cdn E&P should report record Q1/22 cash flows. Cash flows will be up huge YoY and also big QoQ. Edmonton par oil prices in Q1/22 were If we use Ed Par oil prices, WCS oil prices and AECO natural gas prices, Q1/22 Ed Par prices of US$93.66/b were +72.9% YoY and +26.8% QoQ. Q1/22 WCS prices of US$82.51/b were +80.0% YoY and +35.3% QoQ. Q1/22 AECO prices of $4.51 were +43.9% YoY and +0.6% QoQ. And based on April prices and April 29 closing prices, it looks like Q2 will be even higher cash flows, especially for natural gas players. On Friday, WTI closed at $104.69, Ed Par at $110.19, WCS at $91.64 and AECO at $6.39. Below is our updated table of quarterly oil and natural gas prices.

Figure 31: Oil and Natural Gas Prices

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

Source: Bloomberg

Energy Transition – California warns on grid shortfall risk for coming years

California warns on potential grid shortfall

We want to highlight one key item that will be overlooked in the report that California is warning on the risk to power this summer. The overlooked part is that California is warning this is a risk beyond this summer ie. for the coming years. It looks like it will be another summer for California to be on edge on having reliable, available electricity. There was an excellent reminder on Friday that renewable energy can do a great job when the sun is shining and the wind is blowing, but that just isn't enough to ensure reliable, available electricity all day and night. Yesterday morning, we checked the news sites and Twitter for California Governor Newsom, Californian Independent System Operator , California Energy Commission and Public Utilities Commission and could not find any posted items from their

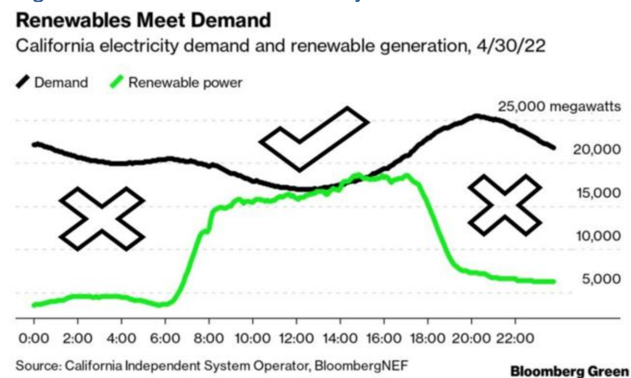
The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Friday media briefing on the their warning on California's power systems. As a result, we relied on the Reuters report "*California says it needs more power to keep the lights on*" [LINK] that wrote "*California energy officials on Friday issued a sober forecast for the state's electrical grid, saying it lacks sufficient capacity to keep the lights on this summer and beyond if heatwaves, wildfires or other extreme events take their toll. The update from leaders from three state agencies and the office of Governor Gavin Newsom comes in response to a string of challenges with the ambitious transition away from fossil fuels, including rolling blackouts during a summer heat wave in 2020. California has among the most aggressive climate change policies in the world, including a goal of producing all of its electricity from carbon-free sources by 2045. In an online briefing with reporters, the officials forecast a potential shortfall of 1,700 megawatts this year, a number that could go as high as 5,000 MW if the grid is taxed by multiple challenges that reduce available power while sending demand soaring, state officials said during an online briefing with reporters. Supply gaps along those lines could leave between 1 million and 4 million people without power. Outages will only happen under extreme conditions, officials cautioned, and will depend in part on the success of conservation measures.*" Our Supplemental Documents package includes the Reuters report.

California's warning reminds of renewables shortfalls – it's not available 24/7

It's ironic that California is having this warning after there was the trumpeted California renewable success on April 30, when renewables reached 99.87% of total California load. But the warning for this summer and beyond reminds that reliable, affordable electricity is needed all day and not just when the sun is shining and the wind is blowing. We tweeted [LINK] "*CA warning on grid shortfall capacity for "this summer and beyond" reports @nicholagroom. It's a reality check. Just saw 04/30 #renewableenergy can meet 100% of CA demand for 4-6 hrs, but also leaves huge gap for rest of 24 hrs. Thx @climate for graph. #NatGas #OOTT.*" Bloomberg Green had posted the below graph of California's renewable power vs demand on April 30 and it shows how renewable did provide ~100% of California's power demand for a 4 hours or so, but it also showed the huge gap between California power demand and renewable energy outside of those peak sun and wind time of day.

Figure 32: California electricity demand & renewable generation April 30



Note: X and √ were added by SAF Group
Source: Bloomberg Green, SAF Group

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

Energy Transition – Chevron sustainable aviation fuel is too expensive

Chevron on sustainable aviation fuel

No one should be surprised by Chevron's comments on sustainable aviation fuel (SAF) as they are much like we saw last year by TotalEnergies – SAF isn't cost competitive to regular jet fuel and will need more government incentives to try to make it competitive. Chevron held its Q1 call on Fri April 29. We tweeted [LINK] ""*The last thing I'll say is one of this stuff is inexpensive, and sustainable aviation fuel today is not competitive with traditional aviation fuel from a cost standpoint" @Chevron CEO Wirth. #SAF needs more govt incentives. #EnergyTransition will cost big $$$. #OOTT."* We created the below transcript of Chevron CEO Wirth's comments as there were too many typos in the Bloomberg transcript.
At 46:40 min mark, Mgmt was asked "*Another area you were generally bullish on was sustainable aviation fuel. You indicated that long-term you believe this is a big growth market. So can you help us understand since then and going forward, how does Chevron plan to build on its sustainable aviation fuel business?"* CEO Wirth replied "*obviously aviation demand is going to grow as we go forward and finding a solution is one of the hardest to decarbonize segments of the economy because you need to have high energy density for aviation fuel or planes can't carry much in terms of their cargo. So, it's an area of focus. In a traditional refinery, the distillate portion of the barrel you can move molecules from diesel to kerosene to jet fuel. And in the renewable diesel investments that we're making there's a certain flexibility that you have there as well. And so, we will have the ability to produce. In fact, we've already produced sustainably aviation fuel at El Segundo and we'll see more of that coming through some of our renewable diesel facilities. We have also began negotiations underway with some other companies that have different technologies, that wouldn't necessarily, be the same as what we would do in a refinery and so we're looking at alternate pathways, feedstock partnerships and pathways. You know this is all going to take time to come together, quality control is really important in aviation fuels, reliability of supply is really important. And as we introduce new feedstocks, new technology pathways you have to be really diligent in ensuring that the fuel that you ultimately produce and sell is going to perform in the engines that it's going to be consumed into. The last thing I'll say is none of this stuff is inexpensive, and sustainable aviation fuel today is not competitive with traditional aviation fuel from a cost standpoint. There has been some talk in Washington about various policy incentives that could be put into place to encourage more sustainable aviation fuel. There's a letter that was published by a whole host of people, airlines and others just in the last week or so calling for action. And I think, to see this scale we got to keep working on technology and feedstocks, but it's likely that some sort of policy incentives will be part of the equation in order to see more capital drawn into sustainable aviation fuel."*

Energy Transition – Exxon, high value opportunities are oil and gas not low carbon

Oil and gas vs low carbon returns

ExxonMobil held its Q1 call on Tuesday. We recognize that the US supermajors, Exxon and Chevron, are viewed as less energy transition focused as the European supermajors. On the Q1 call, Exxon CEO Darren Woods didn't slam energy transition items, but did make a point of highlighted the high value opportunities are in oil and gas and chemicals and not in low carbon solutions. We tweeted [LINK] "*Reminder of higher returns from #Oil #NatGas #LNG vs lower returns from low carbon. @exxonmobil CEO Woods "In addition to investing in high-value opportunities in our existing businesses, we are also advancing opportunities in our Low Carbon Solutions business." #OOTT".* Then later in the call, he highlighted the high

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

value opportunities in oil, natural gas and LNG by saying "*We are making outstanding progress on our high-value growth developments in Guyana, the Permian, and LNG*".

Energy Transition – BP keeps to its 8-10% return criteria for renewables

BP's 8-10% return for renewables

The renewable space, at least certainly the quality large projects, is getting increasingly competitive. Analysts asked on this increasing competitive space to BP mgmt in the Q1 call on Tuesday, mgmt made a point of highlighting they continue to be disciplined in its renewable push to make sure all projects meet their return criteria of 8-10%. In the Q&A, mgmt said "*'ll ask Murray to take the question around RMM and I think rules of thumb and guidance. On low carbon, certainly the on offshore wind and particular I think a challenging market place on a number of dimensions, including for suppliers in that sector. A couple of things I would say, number one, we will only do projects that meet our guidance of 8% to 10% returns. We recently bid in a around the license round in the United States and we are unsuccessful. And I hope you take that as a sign of discipline. We've got over 5 gigawatts net of offshore wind in BP today, that's up from zero about 18 months ago. We're comfortable with the portfolio that we have. We obviously want to grow that. But we don't want to grow it at any cost or at all costs. So we are very disciplined and we will look at future rounds in Holland, in Norway, in Japan, you will receive the announcement with Marubeni."*

Reminder BP's 8-10% returns are levered returns and incl trading profits

It is important to remember how BP gets to its 8-10% returns on renewables. On Sept 14, 2020, we tweeted [LINK] "*Many good #Oil #NatGas #EnergyTransition insights $BP Day 1 ie. can get 8-10% #Renewable returns by adding value thru applying our processes, integrate with rest of BP like trading. 8-10% is good, but thought these would be upside items and not part of how to get to base return*". In that Sept 2020 presentation, CEO Looney noted they start with 5-6% on an equity basis for a competitive wind auction and then work up to 8-10% with adding value thru their processes, trading, etc. Our Supplemental Documents package includes the CEO Looney step thru getting to 8-10% starting with the 5-6% equity return.

Energy Transition – ATRI, only marginal CO2 saving from EV trucks vs diesel

Full cycle CO2 savings diesel vs electric trucks

We are starting to see more analysis trying to figure out the full cycle emissions savings of EVs vs ICE taking into account items like the emissions associated with lithium-ion battery production. On Tuesday, the American Transportation Research Institute (ATRI) posted its "*Understanding the CO2 Impacts of Zero-Emission Trucks: A Comparative Life-Cycle Analysis of Battery Electric, Hydrogen Fuel Cell and Traditional Diesel Trucks."* The ATRI analysis only sees "*marginal environmental benefits*" with only 30% CO2 emission savings in electric trucks vs diesel trucks. The ATRI wrote "*The study found that while electric trucks have no direct tailpipe emissions, CO2 production associated with vehicle, battery and electricity production would only result in a 30 percent decrease in CO2 emissions when compared to a standard diesel truck. The marginal environmental benefits of electric trucks are due, in large part, to lithium-ion battery production – which generates more than six times the carbon of diesel truck production. The research, which utilized outputs from the Argonne National Lab's GREET Model, also incorporates CO2 emissions that generate from the U.S. electrical grid – which still relies primarily on fossil fuels. ATRI 's research concludes that hydrogen fuel cell trucks are ultimately the most environmentally friendly truck type, although*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

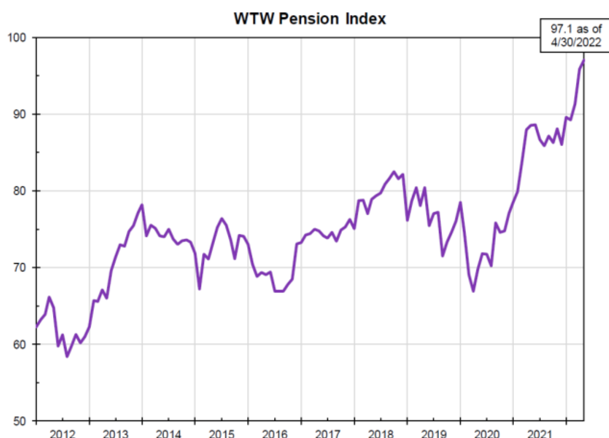
the technology is not presently feasible for long-haul operations." Our Supplemental Documents package includes excerpts from the ATRI report. [LINK]

Capital Markets – WTW, pensions are stronger with higher discount rate on liabilities

WTW Pension Finance Watch

There was a good reminder this week of the math involved in assessing the strength/security of a pension is what input variables are used. On Thursday, Willis Towers Watson's posted its Pension Finance Watch April 2022 [LINK], which is a good one to illustrate the input variables. Some might think with markets and returns down in 2022, the strength of a pension is probably less than it was at year end 2021. But that is not the case. The reason is that higher long term interest rates increase the discount rate to value the pension liabilities over time. And this higher discount rate more than offsets the negative returns in 2022. The math makes sense, it just feels like kicking the can down the road. But it reminds that it is important to look at what discount rates are used. WTW describes it "*Pension Finance Watch is designed to support our clients in the ongoing financial management of their U.S. retirement plans. The report tracks the value of the WTW Pension Index in a series that was initiated in 1990. The index reflects the asset/liability performance of a hypothetical benchmark pension plan, and it provides an indicator of capital market effects on pension plan financing. Individual plan results will vary based on such factors as portfolio composition, investment management strategy, liability characteristics and contribution policy*." WTI writes "*The WTW Pension Index continued to increase in April to the highest level it has seen since April 2002, despite continued volatility during the month. Negative investment returns continue to be more than offset by the reduction in liabilities due to increases in discount rates. As a result, the end-of-April index level of 97.1 reflects an increase of 1.2% for the month."* Our Supplemental Documents package includes the WTW Pension Finance Watch for April.

Figure 33: WTW Pension Index



Source: Willis Towers Watson

Capital Markets – UN FAO Food Price Index retreated slightly from all time March high

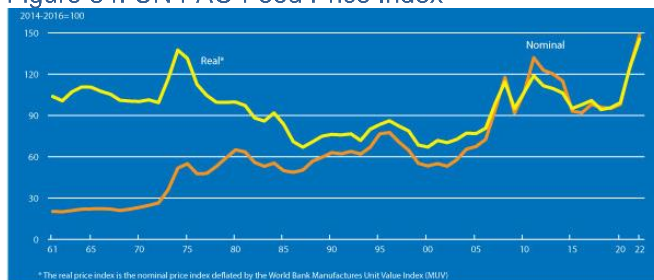
UN food price index +29.8% YoY

UN global food price index has retreated slightly MOm in April 2022 from the all-time record highs of +33.6% YoY seen in March, though still +29.8% YoY from last April. As we highlighted previously in our April 10, 2022 Energy Tidbits memo, global food prices had

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

been going up at multiples higher than is being indicated in the US food price index. The small MoM decrease is being viewed more as a pause and there are continuing global concerns that are going to keep getting higher in 2022 in part of how high natural gas prices are leading to a massive escalation in fertilizer prices that have to flow thru to food prices or lesser harvests. On Friday, the UN posted its monthly update of its FAO Food Price Index [LINK] titled "*FAO Food Price Index retreated slightly in April from the all-time high registered in March.*" Note this is on a Real price basis. The FFPI averaged 158.5 points for April 2022, which was -0.8% MoM and +29.8% YoY. The drop in the FFPI in April was led by a significant decrease in the vegetable oil price index, along with a slight decline in the cereal price index. Meanwhile, sugar, meat and dairy price indices registered slight increases. The Vegetable oil index was down -5.7% MoM, marking a retreat from last month's all time high. The Sugar Price Index was up +3.3% MoM and +20% YoY and the Dairy Price Index was up +0.9% MoM and +23.5% YoY. The Meat Price Index was up 2.2% MoM, driven by poultry meat prices amidst tight global supplies, reflecting export disruptions from Ukraine and rising avian influenza outbreaks in the Northern hemisphere. Below is the all time FFPI graph. Our Supplemental Documents package includes the UN FAO Food Price Index update.

Figure 34: UN FAO Food Price Index



Source: UN

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

@Energy_Tidbits on Twitter

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

LinkedIn – Look for quick energy items from me on LinkedIn

Look for energy items 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].

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

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.

Chili peppers are good in the fight against cancer

Interesting cancer news for those who also like chili peppers. It helps fight cancer, but they have to figure out how to make it deliverable. On Wednesday, Marshall University announced [LINK] "*New study reviews anti-cancer activity of sustained release capsaicin formulations. A study by a team of researchers at the Marshall University Joan C. Edwards School of Medicine provides the first published in-depth description of the anti-cancer activity of capsaicin sustained release formulations. Capsaicin is naturally found in chili peppers and is the agent that provides the hot and spicy taste when eating chili peppers. Sustained release formulation of capsaicin are being explored for extended anti-cancer activity*." "*The nutritional agent capsaicin displayed robust growth-inhibitory activity in a diverse array of human cancers. However, the clinical applications of capsaicin as a viable anti-cancer agent were hindered by three factors—poor solubility, low bioavailability and spicy flavor.*"

Colts QB Matt Ryan reminds of some of the top performers in industry

I have had the opportunity to work with some of the top people in the Cdn financial services industry over the past 25 years. When I saw Indianapolis Colts coach Frank Reich talking about his new QB, Matt Ryan and Ryan is similar to Colts great Peyton Manning, it reminded me of one trait that many of them had when they were at the top of their game – focus on doing their job with excellence. The Indy Star wrote [LINK] "*Reich has felt it in the film room, where he's been hard at work with Ryan and the rest of the coaching staff, tailoring the Indianapolis offense to fit its new starting quarterback. The Colts head coach began his coaching career in the film room with Manning, and Ryan's approach to offensive football mirrors his mentor's. "Both have these brilliant minds, but I can tell already, both have just a phenomenal ability to keep it simple," Reich said. "That's like the first thing that jumped out to me about Matt. He's got 14 years of experience, he's done it all, and all he's talking about is 'Let's keep it simple. Let's keep it simple. We don't have to try to do too much. Let's keep it simple." That rings of Peyton.*" It's like the Bill Belichick focus to do your job. Don't make things more complicated and don't try to do other people's jobs was a big part of these great people I had the pleasure to observe and work with in my career.

NFL team building lessons are good reminders for corporations

Another good NFL reminder this week on building teams that also applies to corporations. We recognize the big challenges corporations face is how to attract and retain talent. And many companies are being as selective as they would prefer, but one lesson that I have seen observed over my career is that the most successful companies are built on teams of people who want to play on that team and don't have one foot out the door looking for the next team. NBC's Profootball Talk reported on comments from Indianapolis GM Chris Ballard. [LINK] NBC wrote ""*Mike Tomlin says it best," Ballard explained. "I always say, 'You want volunteers.' You*

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**

want people that want to be here. So when you get a player who doesn't want to be in your organization anymore, you can play hardball — which sometimes we all do — but you want volunteers. You want people who want to be here. "Like the one good thing about the NFL and just football in general, like team still wins. Team still wins. Every player's important. But them coming together and playing for each other, that still wins. And it's the great thing about our game. And I think it's what gives it such great parity in our league. The teams that figure it out, come together, they usually are the teams that end up winning." That's the key. Having unhappy players in the building disrupt the very delicate yet critical balance that is required to play consistent winning football." And anyone who has played on a winning team or top company knows that winning is fun.

The Disclaimer: Energy Tidbits is intended to provide general information only and is written for an institutional or sophisticated investor audience. It is not a recommendation of, or solicitation for the purchase of securities, an offer of securities, or intended as investment research or advice. The information presented, while obtained from sources we believe reliable as of the publishing date, is not guaranteed against errors or omissions and no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness. This publication is proprietary and intended for the sole use of direct recipients from Dan Tsubouchi and SAF Group. Energy Tidbits are not to be copied, transmitted, or forwarded without the prior written permission Dan Tsubouchi and SAF Group. **Please advise if you have received Energy Tidbits from a source other than Dan Tsubouchi and SAF Group.**