Energy Tidbits

Questions Are Just Starting What Happens To Putin, Russia, Ukraine, Oil, Markets, etc. Now 24-hr Prigozhin Challenge Ended

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Summary

Overview of Activity for April 2023

- **Top five countries of destination, representing 61.8% of total U.S. LNG exports in April 2023**
  - United Kingdom (75.8 Bcf), Netherlands (60.2 Bcf), France (53.2 Bcf), South Korea (24.7 Bcf), and Italy (17.4 Bcf)
- **374.4 Bcf of exports in April 2023**
  - 2.2% increase from March 2023
  - 13.4% more than April 2022
- **111 cargos shipped in April 2023**
  - Sabine Pass (39), Cameron (29), Freeport (18), Corpus Christi (16), Cove Point (7), and Elba (2)
  - 121 cargos in March 2023
  - 107 cargos in April 2022

1a. Table of Exports of Domestically-Produced LNG Delivered by Region (Cumulative from February 2016 through April 2023)

Region	Number of Countries Receiving Per Region	Volume Exported (Bcf)	Percentage Receipts of Total Volume Exported (%)	Number of Cargos*
East Asia and Pacific	8	4,696.3	31.3%	1391
Europe and Central Asia	15	6,859.2	45.7%	2145
Latin America and the Caribbean**	13	2,195.7	14.6%	784
Middle East and North Africa	5	380.3	2.5%	111
South Asia	3	872.7	5.8%	259
Sub-Saharan Africa	0	0.0	0.0%	0
Total LNG Exports	**44**	**15,004.3**	**100.0%**	**4,690**

*Split cargos counted as both individual cargos and countries

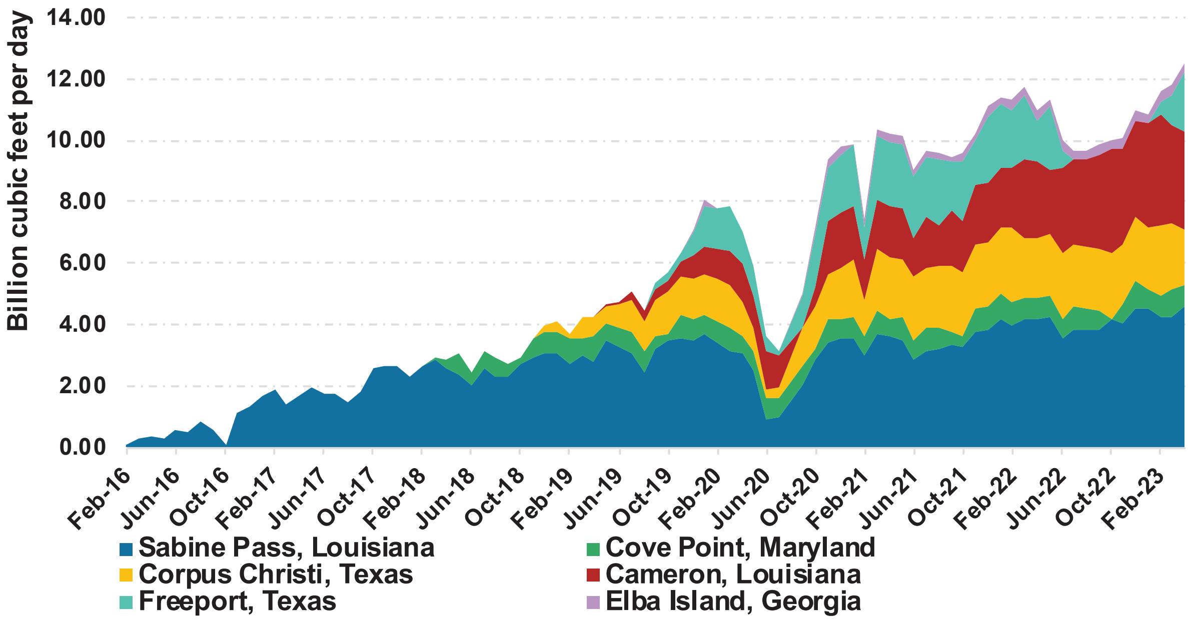
**Number of cargos does not include the shipments by ISO container

1b. Shipments of Domestically-Produced LNG Delivered – by Country
(Cumulative from February 2016 through April 2023)

	Country of Destination	Region	Number of Cargos	Volume (Bcf of Natural Gas)	Percentage of Total U.S LNG Exports (%)
1.	South Korea*	East Asia and Pacific	520	1,804.5	12.0%
2.	Japan*	East Asia and Pacific	384	1,308.1	8.7%
3.	United Kingdom*	Europe and Central Asia	383	1,270.4	8.5%
4.	Spain*	Europe and Central Asia	367	1,148.8	7.7%
5.	France*	Europe and Central Asia	345	1,127.1	7.5%
6.	China*	East Asia and Pacific	297	1,011.3	6.7%
7.	Netherlands*	Europe and Central Asia	277	931.8	6.2%
8.	India*	South Asia	199	675.9	4.5%
9.	Turkiye*	Europe and Central Asia	210	670.8	4.5%
10.	Brazil*	Latin America and the Caribbean	219	613.3	4.1%
11.	Mexico*	Latin America and the Caribbean	166	553.1	3.7%
12.	Chile*	Latin America and the Caribbean	135	429.9	2.9%
13.	Italy*	Europe and Central Asia	115	370.1	2.5%
14.	Taiwan*	East Asia and Pacific	112	353.7	2.4%
15.	Poland*	Europe and Central Asia	92	305.1	2.0%
16.	Portugal*	Europe and Central Asia	90	284.8	1.9%
17.	Argentina*	Latin America and the Caribbean	116	281.3	1.9%
18.	Greece*	Europe and Central Asia	82	192.6	1.3%
19.	Dominican Republic*	Latin America and the Caribbean	71	172.7	1.2%
20.	Belgium*	Europe and Central Asia	52	165.1	1.1%
21.	Lithuania	Europe and Central Asia	53	163.4	1.1%
22.	Kuwait	Middle East and North Africa	46	160.1	1.1%
23.	Croatia	Europe and Central Asia	44	132.5	0.9%
24.	Pakistan*	South Asia	40	128.9	0.9%
25.	Jordan*	Middle East and North Africa	36	124.2	0.8%
26.	Singapore*	East Asia and Pacific	33	107.4	0.7%
27.	Thailand*	East Asia and Pacific	28	96.9	0.6%
28.	Germany	Europe and Central Asia	21	69.4	0.5%
29.	Bangladesh*	South Asia	20	67.8	0.5%
30.	Panama*	Latin America and the Caribbean	32	57.9	0.4%
31.	Jamaica*	Latin America and the Caribbean	27	57.9	0.4%
32.	United Arab Emirates	Middle East and North Africa	15	51.1	0.3%
33.	Israel*	Middle East and North Africa	9	28.0	0.2%
34.	Colombia*	Latin America and the Caribbean	18	24.2	0.2%
35.	Malta*	Europe and Central Asia	11	20.1	0.1%
36.	Egypt*	Middle East and North Africa	5	16.9	0.1%
37.	Indonesia*	East Asia and Pacific	16	10.7	0.1%
38.	Finland	Europe and Central Asia	3	7.2	0.0%
39.	Malaysia	East Asia and Pacific	1	3.7	0.0%
	Total Exports by Vessel		**4,690**	**14,998.8**	
	Germany	Europe and Central Asia	1	0.0	0.0%
40.	Antigua and Barbuda	Latin America and the Caribbean	45	0.0	0.0%
41.	Nicaragua	Latin America and the Caribbean	1	0.0	0.0%
42.	Haiti	Latin America and the Caribbean	139	0.5	0.0%
43.	Barbados	Latin America and the Caribbean	305	1.3	0.0%
	Jamaica	Latin America and the Caribbean	172	1.7	0.0%
44.	Bahamas	Latin America and the Caribbean	720	2.0	0.0%
	Total Exports by ISO		**1383**	**5.5**	
	Total Exports by Vessel and ISO		**6,073**	**15,004.3**	

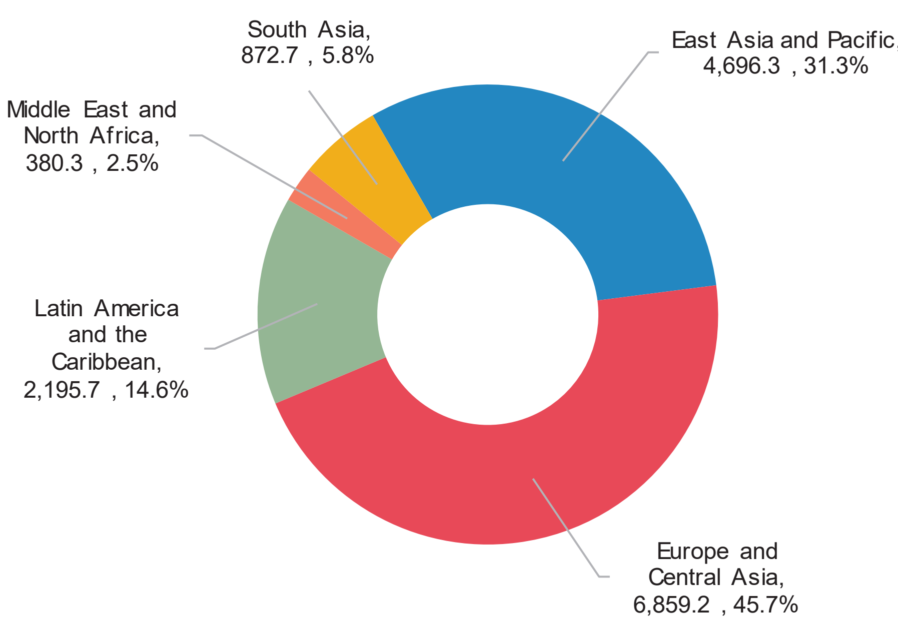
Note:
Volume and Number of Cargos are the cumulative totals of each individual Country of Destination by Region starting from February 2016.
Jamaica has received U.S. LNG exports by both vessel and ISO container. The volumes are totaled separately
* Split cargos counted as both individual cargos and countries.
Vessel = LNG Exports by Vessel and ISO container = LNG Exports by Vessel in ISO Containers.
Does not include re-exports of previously-imported LNG. See table 2c for re-exports data.
Totals may not equal sum of components because of independent rounding.

1c. Domestically-Produced LNG Exported by Point of Exit
(February 2016 through April 2023)



The Cameron, LA point of exit includes exports from Cameron LNG and Venture Global Calcasieu Pass.

1d. Domestically-Produced LNG Exported by Region
(Cumulative from February 2016 through April 2023)
(Bcf, %)



https://www.qatarenergy.qa/en/MediaCenter/Pages/newsdetails.aspx?ItemId=3761

QATARENERGY SELECTS CNPC AS NFE PARTNER, AND SELLS 4 MILLION TONS PER ANNUM OF LNG TO CHINA FOR 27 YEARS -

DOHA, Qatar • 20 June 2023 – QatarEnergy today signed definitive agreements with China National Petroleum Corporation (CNPC), covering the long-term supply of LNG to China and partnership in the North Field East LNG expansion project (NFE).

The two parties signed an LNG Sales and Purchase Agreement (SPA) for the delivery of 4 million tons of LNG per annum from the NFE project to CNPC's receiving terminals in China over a span of 27 years, marking the industry's longest term SPA commitment.

The two parties also signed a share sale and purchase agreement pursuant to which QatarEnergy will transfer to CNPC a 5% interest in the equivalent of one NFE train with a capacity of 8 million tons per annum. This transfer will see CNPC become a partner in the NFE project and will not affect the participating interests of any of the other shareholders in the project.

The agreements were signed by His Excellency Mr. Saad Sherida Al-Kaabi, the Minister of State for Energy Affairs, the President and CEO of QatarEnergy, and Mr. Dai Houliang, the Chairman of CNPC, during a special ceremony held at QatarEnergy's headquarters and attended by senior executives from both companies.

In remarks at the signing ceremony, His Excellency Minister Al-Kaabi welcomed CNPC as a valuable partner in the NFE project. His Excellency articulated, "We are pleased to embark on this partnership with CNPC and to build on the excellent relations between the People's Republic of China and the State of Qatar. These agreements demonstrate our unwavering commitment to our customers and partners and to our shared ambition for a sustainable future facilitated by a cleaner, and more eco-friendly energy source that would catalyze substantial socio-economic development."

H.E. Minister Al-Kaabi expressed his thanks and appreciation to the teams from CNPC and QatarEnergy for their dedication and for working tirelessly to finalize the agreements.
H.E. Minister Al-Kaabi concluded his remarks by stating: "We are forever grateful for the wise guidance of His Highness the Amir Sheikh Tamim bin Hamad Al Thani, and for his continued support of the energy sector."

On his part, Mr. Dai Houliang, the Chairman of CNPC, said: "Our collaboration over the NFE project represents a major achievement and excellent practice of both CNPC and QatarEnergy in delivering on the strategic consensus of the leaders of our countries. It is another milestone in forming a strategic synergy between China's "Belt and Road" Initiative and Qatar's National Vision 2030. It lays a solid foundation for the energy cooperation between the two sides in the next three decades. From this brand-new starting point, CNPC will continue to actively discuss with QatarEnergy all-round cooperation across the hydrocarbon industry chain and other areas like green and low carbon energies, so as to build a stable, long-term, and multi-dimensional strategic partnership."

https://www.reuters.com/article/bangladesh-oman-lng-idUSL1N38B068

OIL & GAS REFINING & MARKETING

JUNE 18, 202310:25 PMUPDATED 6 DAYS AGO

UPDATE 2-Petrobangla to sign 10-year LNG deal with Oman Trading International

By Ruma Paul, Emily Chow

3 MIN READ

(Updates to add background)

DHAKA/SINGAPORE, June 19 (Reuters) - Bangladesh's state-owned company Petrobangla is set to sign a long-term supply deal for additional stocks of liquefied natural gas (LNG) from Oman Trading International, an official at Petrobangla said on Monday.

Under the new contract, the South Asian nation will begin receiving an additional 0.5 million to 1.5 million metric tons per year of LNG from January 2026, the official said.

"They could also supply 0.25 million tons late in 2025. This is good for us as getting LNG at this rate is tough. The rate is very good in the current context of global markets," the official said, without disclosing the rate as it is a confidential deal.

The official, who declined to be identified as he is not authorised to speak to media, said the deal would be signed later on Monday in Dhaka.

This will be Petrobangla's second contract with Oman Trading International. It already has a 10-year contract for 1 million metric tons a year from 2019 to 2029.

Under the existing deal, the LNG is priced at 11.9% of the three-month average price of Brent crude oil plus a constant price of 40 cents per million British thermal units (mmBtu).

It will be Bangladesh's second long-term contract signed this year following a Petrobangla deal with QatarEnergy this month for the supply of 1.8 million metric tons of LNG a year, starting in 2026, for 15 years.

Bangladesh relies on imported LNG for nearly three-quarters of its power generation, amid dwindling domestic gas reserves and a lack of sufficient coal-fired capacity.

But high gas prices last year following Russia's invasion of Ukraine forced Bangladesh to curb spot LNG imports and ration gas supplies, driving down power output despite a rise in demand and leading to frequent power cuts.

In 2022, Bangladesh's LNG imports fell 13% from the previous year to 4.43 million metric tons, according to data firm Kpler.

This year, however, as Asian spot LNG prices eased from record highs, Bangladesh has returned to the spot market to beef up supplies. Petrobangla's chairman said in April the company was "making all efforts to ensure energy supplies to keep the economy running" as prices softened.

Bangladesh has imported 2.58 million metric tons of LNG this year.

Reporting by Ruma Paul in Dhaka and Emily Chow in Singapore; editing by Eileen Soreng, Robert Birsel

Cheniere and Equinor Sign Long-Term LNG Sale and Purchase Agreement

Download as PDF JUNE 21, 2023 9:05AM EDT

15-plus Year SPA Expected to Support Sabine Pass Expansion Project

HOUSTON--(BUSINESS WIRE)--

Cheniere Energy, Inc. (“Cheniere” or the “Company”) (NYSE American: LNG) announced today that Cheniere’s subsidiary, Cheniere Marketing, LLC (“Cheniere Marketing”), has entered into a long-term liquefied natural gas (“LNG”) sale and purchase agreement (“SPA”) with Equinor ASA (“Equinor”).

Under the SPA, Equinor has agreed to purchase approximately 1.75 million tonnes per annum (“mtpa”) of LNG from Cheniere Marketing on a free-on-board (“FOB”) basis for a purchase price indexed to the Henry Hub price, plus a fixed liquefaction fee. Delivery of half of the volume associated with the SPA will commence in 2027, and delivery of the remaining half, which is subject to, among other things, a positive Final Investment Decision with respect to the first train of the Sabine Pass Liquefaction Expansion Project (“SPL Expansion Project”), will commence at the end of this decade. The term of the SPA is 15 years from the commencement of delivery of the full 1.75 mtpa of LNG volumes.

“We are pleased to expand our relationship with Equinor, one of Europe’s leading energy companies, building upon the SPA we executed last year,” said Jack Fusco, Cheniere’s President and Chief Executive Officer. “This SPA underscores Cheniere’s and Equinor’s shared vision of an energy future built upon reliable, flexible, and cleaner energy solutions. This SPA is expected to provide further commercial support to the SPL Expansion Project, which we continue to rigorously develop in order to meet the world’s growing demand for secure, long-term energy supplies and the economic and environmental benefits of Cheniere’s LNG.”

The SPL Expansion Project is being developed to include up to three natural gas liquefaction trains with an expected total production capacity of approximately 20 mtpa of LNG. In May 2023, certain subsidiaries of Cheniere Energy Partners, L.P. (NYSE American: CQP) entered the pre-filing review process with respect to the SPL Expansion Project with the Federal Energy Regulatory Commission under the National Environmental Policy Act.

About Cheniere

Cheniere Energy, Inc. is the leading producer and exporter of LNG in the United States, reliably providing a clean, secure, and affordable solution to the growing global need for natural gas. Cheniere is a full-service LNG provider, with capabilities that include gas procurement and transportation, liquefaction, vessel chartering, and LNG delivery. Cheniere has one of the largest liquefaction platforms in the world, consisting of the Sabine Pass and

Corpus Christi liquefaction facilities on the U.S. Gulf Coast, with total production capacity of approximately 45 mtpa of LNG in operation and an additional 10+ mtpa of expected production capacity under construction. Cheniere is also pursuing liquefaction expansion opportunities and other projects along the LNG value chain. Cheniere is headquartered in Houston, Texas, and has additional offices in London, Singapore, Beijing, Tokyo, and Washington, D.C.

For additional information, please refer to the Cheniere website at www.cheniere.com and Quarterly Report on Form 10-Q for the quarter ended March 31, 2023, filed with the Securities and Exchange Commission.

About Equinor

Equinor is an international energy company committed to long-term value creation in a low-carbon future. Equinor’s purpose is to turn natural resources into energy for people and progress for society. Equinor’s portfolio of projects encompass oil and gas, renewables and low-carbon solutions, with an ambition of becoming a net-zero energy company by 2050. Equinor is the largest exporter of pipeline gas to Europe and operator of Europe’s only large-scale LNG plant at Hammerfest, Norway. Headquartered in Stavanger (Norway), Equinor is the leading operator on the Norwegian continental shelf, present in around 30 countries worldwide.

https://venturegloballng.com/press/venture-global-and-sefe-announce-20-year-lng-sales-and-purchase-agreement/

Venture Global and SEFE Announce 20-year LNG Sales and Purchase Agreement

- *Venture Global set to become Germany's largest LNG supplier, with a combined 4.25MTPA of 20-year offtake agreements signed*
- *Approximately half of CP2 20MTPA nameplate capacity has been sold, with 1/3 of the contracted capacity committed to German customers*
- *Construction expected to begin in 2023*

Arlington, Virginia-Today, Venture Global LNG and SEFE Securing Energy for Europe GmbH (SEFE) announced the execution of a long-term Sales and Purchase Agreement (SPA). Under the agreement, SEFE's subsidiary, WINGAS GmbH, will purchase 2.25 million tonnes per annum (MTPA) of liquefied natural gas (LNG) from CP2 LNG, Venture Global's third project, for 20 years.

"Venture Global is thrilled to begin a strategic partnership with SEFE, making our company the largest long-term LNG supplier to Germany," said Mike Sabel, CEO of Venture Global LNG. "SEFE is playing a leading role in ensuring security of energy supply for not only Germany but the rest of the European gas market. Germany has acted decisively to diversify its energy portfolio and LNG will be a vital part of that mix as it seeks to strengthen its energy security while at the same time advancing environmental progress. We are honored to support a key U.S. ally in each of these efforts."

"By joining forces with Venture Global LNG, SEFE makes another important step on our mission to secure energy for German and European customers and meet the energy demand of the region. In delivering a substantial amount of the contracted capacity of CP2 LNG to European customers, we contribute to the further diversification and sustainability of the European energy supply," said Egbert Laege, CEO of SEFE.

SEFE, a German state-owned company, joins other CP2 LNG customers, including ExxonMobil, Chevron, JERA, New Fortress Energy, INPEX, China Gas and EnBW. To date, 9.25MTPA of the 20MTPA nameplate capacity for CP2 has been sold with active discussions ongoing for the remaining capacity. Approximately 1/3 of the current offtake agreements are with German buyers, further underscoring the importance of CP2 LNG to Germany's long-term energy security.

About Venture Global LNG

Venture Global is a long-term, low-cost provider of U.S. LNG sourced from resource rich North American natural gas basins. Venture Global's first facility, Calcasieu Pass, commenced producing first LNG in January 2022. The company is also constructing or developing an additional 60 MTPA of production capacity in Louisiana to provide clean, affordable energy to the world. The company is developing Carbon Capture and Sequestration (CCS) projects at each of its LNG facilities.

About SEFE

SEFE Securing Energy for Europe GmbH (SEFE) is an integrated energy company owned by the Federal Republic of Germany that is active in various stages along the value chain. Headquartered in Berlin, Germany, the company with more than 1,500 employees has its strongest presence in Germany, supplying industrial customers and municipal utilities. SEFE is a midstream company focusing on trading & portfolio management, sales, storage and pipeline infrastructure. SEFE plays a pivotal role in providing energy supply stability for Germany and Europe.

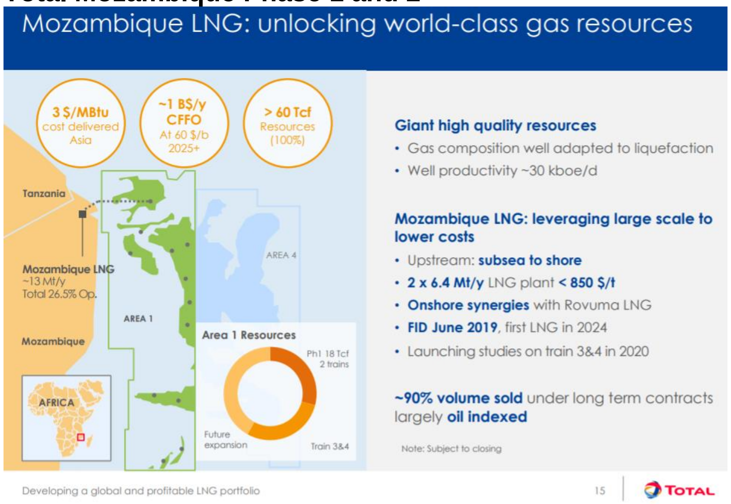
Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?

Posted Wednesday April 28, 2021. 9:00 MT

The next six months will determine the size and length of the new LNG supply gap that is hitting harder and faster than anyone expected six months ago. Optimists will say the Mozambique government will bring sustainable security and safety to the northern Cabo Delgado province and provide the confidence to Total to quickly get back to LNG development such that its LNG in-service delay is a matter of months and not years. We hope so for Mozambique's domestic situation, but will it be that easy for Total's board to quickly look thru what just happened? Total suspended LNG development for 3 months, restarted development on March 25, but then 3 days of violence led it to suspend development again on March 28, and announce force majeure on Monday April 26. Even if the optimists are right, Mozambique LNG is counted on for LNG supply and the major LNG supply project that are in LNG supply forecasts are now all delayed – Total Phase 1 of 1.7 bcf/d and its follow on Phase 2 of 1.3 bcf/d, and Exxon's Rozuma Phase 1 of 2.0 bcf/d. It is important to remember this 5.0 bcf/d of major LNG supply is being counted in LNG supply forecasts and starting in 2024. At a minimum, we think the more likely scenario is a delay of at least 2 years in this 5.0 bcf/d from the pre-Covid timelines. And this creates a much bigger and sooner LNG supply gap starting ~2025 and stronger outlook for LNG prices. Thermal coal in Asia will play a role in keeping a lid on LNG prices. But there will be the opportunity for LNG suppliers to at least review the potential for brownfield LNG projects to fill the growing supply gap. The thought of increasing capex was a non-starter six months ago, but there is a much stronger outlook for global oil and gas prices. Oil and gas companies are pivoting from cutting capex to small increases in 2021 capex and expecting for higher capex in 2022. We believe this sets the stage for looking at potential FID of brownfield LNG projects before the end of 2021 to be included in 2022 capex budgets. Mozambique is causing an LNG supply gap that someone will try to fill. And if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? Cdn natural gas producers hope so as this would mean more Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub.

<u>Total declares force majeure on Mozambique LNG,</u> Yesterday, Total announced [LINK] "*Considering the evolution of the security situation in the north of the Cabo Delgado province in Mozambique, Total confirms the withdrawal of all Mozambique LNG project personnel from the Afungi site. This situation leads Total, as operator of Mozambique LNG project, to declare force majeure. Total expresses its solidarity with the government and people of Mozambique and wishes that the actions carried out by the government of Mozambique and its regional and international partners will enable the restoration of security and stability in Cabo Delgado province in a sustained manner".* Total is working Phase 1 is ~1.7 bcf/d (Train 1 + 2, 6.45 mtpa/train) and was originally expected to being LNG deliveries in 2024. There was no specific timeline for Phase 2 of 1.3 bcf/d (Train 3 + 4, 5.0 mtpa/train), but was expected to follow Phase 1 in short order to keep capital costs under control with a continuous construction process with a potential onstream shortly after 2026.

Total Mozambique Phase 1 and 2



Source: Total Investor Day September 24, 2019

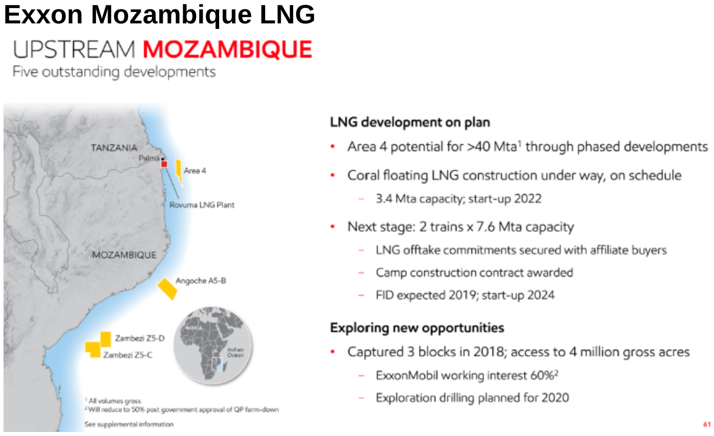
<u>Total's Mozambique force majeure is no surprise, especially the need to the restoration of security and stability "in a sustained manner"</u>. Yesterday, Total announced [LINK] "*Considering the evolution of the security".* No one should be surprised by the force majeure or the sustained manner caveat. SAF Group posts a weekly Energy Tidbits research memo [LINK], wherein we have, in multiple weekly memos, that Total had shut down development in December for 3 months due to the violent and security risks. It restarted development on Wed March 24, violence/attacks immediately resumed for 3 consecutive days, and then Total suspended development on Sat March 27. Local violence/attacks shut development down in Dec, the situation gets settled enough for Total to restart in March, only to be shut down 3 days thereafter. No one should be surprised especially with Total's need to see security and stability "in a sustained manner".

<u>Does anyone really think Total will risk another quick 2-3 month restart or even in 2021?</u> The Mozambique government will be working hard to convince Total to restart soon. We just find it hard to believe Total board will risk a replay of March 24-27 in 2021. Unfortunately, Mozambique has had internal conflict for years. It reached a milestone to the positive in August 2019. Our SAF Group August 11, 2019 Energy Tidbits memo [LINK] highlighted the signing of a peace pact between Mozambique President Nyusi and leader of the Renamo opposition Momade. This was the official end to a 2013 thru 2016 conflict following a failure to hold up the prior peace pact. At that time, FT reported [LINK] "Mr Nyusi has said that "*the government and Renamo will come together and hunt" rebels who fail to disarm. The government has struggled to stem the separate insurgency in the north, which has killed or displaced hundreds near the gas-rich areas during the past two years. While the roots of the conflict remain murky, it is linked to a local Islamist group and appears to be drawing on disaffection over sharing gas investment benefits, say analysts*." This is just a reminder this is not a new issue. LNG is a game changer to Mozambique's economic future. It is, but also has been, a government priority to have the security and safety for Total and Exxon to move on their LNG developments. Its hard to believe the Mozambique government will be able to quickly convince Total and Exxon boards that they can be comfortable there is a sustained security/safety situation and they can send their people back in to develop the LNG. Total's board would allow any resumption of development before year end 2021. The last thing Total wants is a replay of March 24-27. The first question is how long will it take before the Total board is convinced its safe to restart. Could you imagine them doing a replay of what just happened? Wait three months, restart development and have to stop again right away? We have to believe that could lead the Total board to believe it is unfixable for years. We just don't think they are to prepared to risk that decision in 3 months. Its why we have to think there isn't a restart approval until at least in 2022 at the earliest ie. why we think the likely scenario is a delay of 2-3 years, and not a matter of months.

<u>Mozambique's security issues pushes back 5.0 bcf/d of new LNG supply at least a couple years.</u> The global LNG issue is that 5 bcf/d of new Mozambique LNG supply (apart from the Eni Coral FLNG of 0.45 bcf/d) won't start up in 2024 and

continuing thru the 2020s. And we believe all LNG forecasts included this 5.0 bcf/d to be in service in the 2020s as Mozambique had been considered the best positioned LNG supply to access Asia after Australia and Papua New Guinea. (i) Eni Coral Sul (Rovuma Basin) FLNG of 0.45 bcf/d planned in service in 2022. [LINK] This is an offshore floating LNG vessel that is still expected to be in service in 2022. (ii) Total Phase 1 to add 1.7 bcf/d with an in service originally planned for 2024. We expect the in service data to be pushed back to at least 2026 assuming Total gives a development restart approval in Dec 2021. In theory, this would only be a 1 year loss of time. However, Total has let services go, the project will be idle for 9 months, it isn't clear if the need to get people out quickly let them do a complete put the project on hold, and how many people will be on site maintaining the status of the development during the force majeure. Also what new procedures and safety will be put in place for a restart. These all mean there will be added time needed to get the project back to where it was when force majeure was declared ie. why we think a 12 month time delay will be more like an 18 month project delay. (iii) Exxon's Rozuma Phase 1 LNG will add 2.0 bcf/d and, pre-Covid, was expected to be in service in 2025. We believe the delays related to security and safety at Total are also going to impact Exxon. We find it highly unlikely the Exxon board would take a different security and safety decision than Total. Pre-pandemic, Exxon's March 6, 2019 Investor Day noted their operated Mozambique Rovuma LNG Phase 1 was to be 2 trains each with 1.0 bcf/d capacity for total initial capacity of 2.0 bf/d with FID expected in 2019 and first LNG deliveries in 2024. The 2019 FID expectation was later pushed to be expected just before the March 2020 investor day. But the pandemic hit, and on March 21, 2020, we tweeted [LINK] on the Reuters story "*Exclusive: Coronavirus, gas slump put brakes on Exxon's giant Mozambique LNG plan"* [LINK] that noted Exxon was expected to delay the Rovuma FID. There was no timeline, but the expectation was that FID would now be in 2022 (3 years later than original timeline0 and that would push first LNG likely to 2027. (iv) Total Phase 2 was to add 1.3 bcf/d. There was no firm in service date but it was expected to follow closely behind Phase 1 to maintain services. That would have put it originally in the 2026/2027 period. But if Phase 1 is pushed back 2 years, so will Phase 2 so more likely 2028/2029.. (v) Total Phase 1 + 2 and Exxon Rozuma Phase 1 total 5.0 bcf/d and would have been (and still are) in all LNG supply forecasts for the 2020s. (vi) We aren't certain if the LNG supply forecasts include Exxon Rozuma Phase 2 ,which would be an additional 2.0 bcf/d on top of the 5.0 bcf/d noted above. Exxon Rozuma has always been expected to be at least 2 Phases. This has been the plan since the Anadarko days given the 85 tcf size of the resource on Exxon's Area 4. There was no firm in service data for Phase 2, but it was expected they would also closely follow Phase 1 to maintain services. We expect that original timeline would have been 2026/2027 and that would not be pushed back to 2029/2030. (vii) It doesn't matter if its only 5 bcf/ of Mozambique that is delayed 2 to 3 years, it will cause a bigger LNG supply gap and sooner. The issue for LNG markets is this is taking projects that are in development effectively out of the queue for some period.

Exxon Mozambique LNG



Source: Exxon Investor Day March 6, 2019

<u>Won't LNG and natural gas get hit by Biden's push for carbon free electricity?</u> Yes, in the US. For the last 9 months, we have warned on Biden's climate change plan that were his election platform and now form his administration's energy transition map. We posted our July 28, 2020 blog "*Biden To Put US On "Irreversible Path to Achieve Net-Zero Emissions, Economy-Wide" Is a Major Negative To US Natural Gas in 2020s* "[LINK] on Biden's platform "*The Biden Plan to Build a Modern, Sustainable Infrastructure and an Equitable Clean Energy Future*" [LINK]. Biden's new American Jobs Plan

[LINK] lines up with his campaign platform including to put the US "*on the path to achieving 100 percent carbon-free electricity by 2035*.". Our July 28, 2020 blog noted that it would require replacing ~60% of US electricity generation with more renewable and it could eliminate ~40% (33.5 bcf/d) of 2019 US natural gas consumption. If Biden is 25% successful by 2030, it would replace ~6.3 bcf/d of natural gas demand. It would be a negative to US natural gas and force more US natural gas to export markets. The wildcard when does US natural gas start to decline if producers are faced with the reality of natural gas being phased out for electricity. The other hope is that when Biden says "carbon-free", its not what ends up in the details of any formal policy statement ie. carbon electricity will be allowed with Biden's push for CCS.

Will Cdn natural gas be similarly hit by if Trudeau move to "emissions free" and not "net zero emissions" electricity? Yes and No. Our SAF Group April 25, 2021 Energy Tidbits memo [LINK] was titled ""*Bad News For Natural Gas, Trudeau's Electricity Goal is Now 100% "Emissions Free" And Not "Net Zero Emissions*". On Thursday, PM Trudeau spoke at Biden's global climate summit [LINK] and looks like he slipped in a new view on electricity than was in last Monday's budget and his Dec climate plan. Trudeau said "*In Canada, we've worked hard to get to over 80% emissions-free electricity, and we're not going to stop until we get to 100%."* Speeches, especially ones made on a global stage are checked carefully so this had to be deliberate. Trudeau said "*emissions free*" and not net zero emissions electricity. It seems like this language is carefully written to exclude any fossil fuels as they are not emissions free even if they are linked to CCS. Recall in Liberals big Dec 2020 climate announcement [LINK], Liberals said ""*Work with provinces, utilities and other partners to ensure that Canada's electricity generation achieves net-zero emissions before 2050*." There is no way Trudeau changed the language unless he meant to do so. And this is a major change as it would seem to indicate his plan to eliminate all fossil fuels used for electricity. If so this would be a negative to Cdn natural gas that would be stuck within Western Canada and/or continuing to push into the US when Biden is trying to switch to carbon free electricity. We recognize that there is still some ambiguity in what will be the details of policy and the Liberals aren't changing to no carbon sourced electricity at all. Let's hope so. But let's also be careful that politicians don't change language without a reason or at least with a view to setting up for some future hit. Plus Trudeau had a big warning in that same speech saying "*we will make it law to respect our new 2030 target and achieve net-zero emissions by 2050*". They plan to make it the law that Canada has to be on track for the Liberals 2030 emissions targets. This means that the future messaging will be that the Liberals have no choice but to take harder future emissions actions as it is the law. They will be just obeying the law as they will be obligated to obey the law. Everyone knows the messaging will be we have to do more get to Net Zero, that in itself will inevitably mean it will be the law if he actually does move to eliminate any carbon based electricity. So yes it's a negative, that is unless more Cdn natural gas can be exported via LNG to Asia. We believe this would be a plus to be priced against global LNG instead of Henry Hub.

Biden's global climate summit reminded there is too much risk to skip over natural gas as the transition fuel. Apart from the US and Canada, we haven't seen a sea shift to eliminating natural gas for power generation, especially from energy import dependent countries. There is a strong belief that hydrogen and battery storage will one day be able to scale up at a competitive cost to lead to the acceleration away from fossil fuels. But that time isn't yet here, at least not for energy import dependent countries. One of the key themes from last week's leader's speeches at the Biden global climate summit – to get to Net Zero, the world is assuming there wilt be technological advances/discoveries that aren't here today and that have the potential to immediately ramp up in scale. IEA Executive Director Faith Birol was blunt in his message [LINK] saying "*Right now, the data does not match the rhetoric – and the gap is getting wider*." And "*IEA analysis shows that about half the reductions to get to net zero emissions in 2050 will need to come from technologies that are not yet ready for market. This calls for massive leaps in innovation. Innovation across batteries, hydrogen, synthetic fuels, carbon capture and many other technologies.* US Special Envoy for Climate John Kerry said a similar point that half of the emissions reductions will have to come from technologies that we don't yet have at scale. UK PM Johnson [LINK] didn't say it specifically, but points to this same issue saying "*To do these things we've got to be constantly original and optimistic about new technology and new solutions whether that's crops that are super-resistant to drought or more accurate weather forecasts like those we hope to see from the UK's new Met Office 1.2bn supercomputer that we're investing in*." It may well be that the US and other self sufficient energy countries are comfortable going on the basis of assuming technology developments will occur on a timely basis. But, its clear that countries like China, India, South Korea and others are not prepared to do so. And not prepared to have the confidence to rid themselves of coal power generation. This is why there hasn't been any material change in the LNG demand outlook

We expect the IEA's blunt message that the gap is getting wider will be reinforced on May 18. We have had a consistent view on the energy transition for the past few years. We believe it is going to happen, but it will take longer, be a bumpy road and cost more than expected. This is why we believe the demise of oil and natural gas won't be as easy and fast as hoped for by the climate change side. The IEA's blunt warning on the gap widening should not be a surprise as they warned on this in June 2020. Birol's climate speech also highlighted that the IEA will release on May 18 its roadmap for how the global energy sector can reach net zero by 2050. Our SAF Group June 11, 2020 blog "*Will The Demise Of Oil Take Longer, Just Like Coal? IEA and Shell Highlight Delays/Gaps To A Smooth Clean Energy Transition*" [LINK] feature the IEA's June 2020 warning that the critical energy technologies needed to reduce emissions are nowhere near where they need to be. In that blog, we said "there was an excellent illustration of the many significant areas, or major pieces of the puzzle, involved in an energy transition by the IEA last week. The IEA also noted the progress of each of the major pieces and the overall conclusion is that the vast majority of the pieces are behind or well behind where they should be to meet a smooth timely energy transition. It is important to note that these are just what the IEA calls the "*critical energy technologies*" and does not get into the wide range of other considerations needed to support the energy transition. The IEA divides these "critical energy technologies "into major groupings and then ranked the progress of each of these pieces in its report "*Tracking Clean Energy Progress*" [LINK] by on track, more efforts needed, or not on track". Our blog included the below IEA June 2020 chart.

IEA's Progress Ranking For "Critical Energy Technologies" For Clean Energy Transition

🔴 Power	🟡 Renewable Power	🔴 Geothermal
	🟢 Solar PV	🔴 Ocean Power
	🟡 Onshore Wind	🔴 Nuclear Power
	🟡 Offshore Wind	🟡 Natural Gas-Fired Power
	🟡 Hydropower	🔴 Coal-Fired Power
	🟢 Bioenergy Power Generation	🔴 CCUS in Power
	🔴 Concentrating Solar Power	
🔴 Fuel Supply	🔴 Methane Emissions from O&G	🔴 Flaring Emissions
🟡 Industry	🟡 Chemicals	🟡 Pulp and Paper
	🟡 Iron and Steel	🟡 Aluminum
	🟡 Cement	🔴 CCUS in Industry and Transformation
🟡 Transport	🟢 Electric Vehicles	🔴 Transport Biofuels
	🟢 Rail	🟡 Aviation
	🔴 Fuel Consumption of Cars and Vans	🟡 International Shipping
	🟡 Trucks and Busses	
🔴 Buildings	🔴 Building Envelopes	🟢 Lighting
	🔴 Heating	🟡 Appliances and Equipment
	🟡 Heat Pumps	🟢 Data Centres and Data Transmission Networks
	🟡 Cooling	
🟡 Energy Integration	🟡 Energy Storage	🟡 Demand Response
	🟡 Hydrogen	🟡 Direct Air Capture
	🟡 Smart Grids	

Source: IEA

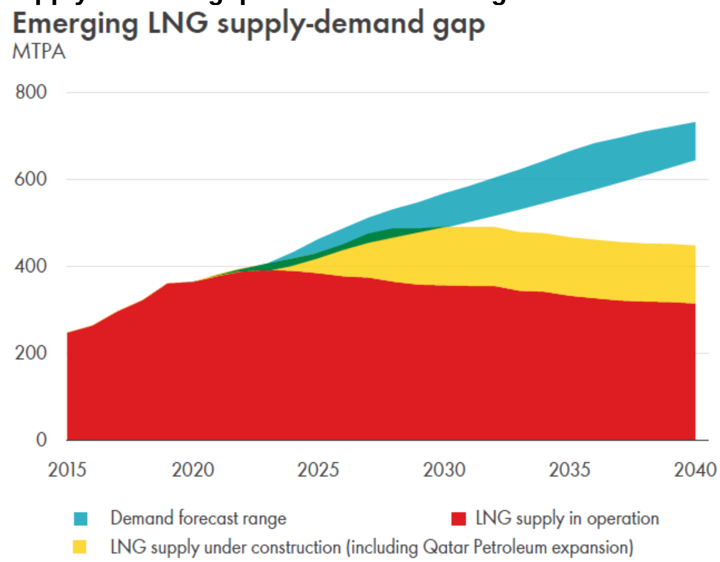
🟢 On Track 🟡 More Efforts Needed 🔴 Not on Track

Source: IEA Tracking Clean Energy Progress, June 2020

We are referencing Shell's long term outlook for LNG We recognize there are many different forecasts for LNG, but are referencing Shell' LNG Outlook 2021 from Feb 25, 2021 for a few reasons. (i) Shell's view on LNG is the key view for when and what decision will be made for LNG Canada Phase 2. (ii) Shell is one of the global leaders in LNG supply and trading. (iii) Shell provides on the record LNG outlooks every year so there is the ability to compare and make sure the outlook fits the story. It does. (iv) Shell, like other supermajors, has had to make big capex cuts post pandemic and that certainly wouldn't put any bias to the need for more capex.

Shell's March 2021 long term outlook for LNG demand was basically unchanged vs 2020 and leads to a LNG supply gap in mid 2020s Shell does not provide the detailed numbers in their Feb 25, 2021 LNG forecast. We would assume they would have reflected some delay, perhaps 1 year, at Mozambique but would be surprised if they put a 2-3 year delay in for the 5 bcf/d from Total Phase 1 +2 and Exxon Rozuma Phase 1. Compared to their LNG Outlook 2020, it looks like there was no change for their estimate of global natural gas demand growth to 2040, which looked relatively unchanged at approx. 5,000 bcm/yr or 484 bcf/d. Similarly, long term LNG demand looked unchanged to 2040 of ~700 mm tonnes (92 bcf/d) vs 360 mm tonnes (47 bcf/d) in 2020. In the 2021 outlook, Shell highlighted that the pandemic delayed project construction timelines and that the "*lasting impact expected on LNG supply not demand"*. And that Shell sees a LNG "*supply-demand gap estimated to emerge in the middle of the current decade as demand rebounds*". Comparing to 2020, it looks like the supply-demand gap is sooner.

Supply-demand gap estimated to emerge in the middle of the current decade



Source: Shell LNG Outlook 2021, Feb 25, 2021

<u>Mozambique delays are redefining the LNG markets for the 2020s: Delaying 5 bcf/d of Mozambique new LNG supply 2-3 years means a much bigger supply gap starting in 2025..</u> Even if the optimists are right, there are now delays to all major Mozambique LNG supply from LNG supply forecasts. We don't have the detail, but we believe all LNG forecasts, including Shell's LNG Outlook 2021, would have included Total's Phase 1 and Phase 2 and Exxon Rozuma Phase 1. As noted earlier, we believe that the likely impact of the Mozambique security concerns is that these forecasts would likely have to push back 1.7 bcf/d from Total Phase 1 to at least 2026, 2.0 bcf/d Exxon Rozuma Phase 1 to at least 2027, and 1.3 bcf/d Total Phase 2 to at least 2028/2029 with the real risk these get pushed back even further. 5.0 bcf/d is equal to 38 mtpa. These delays would mean there is an increasing LNG supply gap in 2025 and increasingly significantly thereafter. And even if a new greenfield LNG project is FID's right away, it wouldn't be able to step in to replace Total Phase 1 prior startup timing for 2024 or likely the market at all until at least 2027. Its why the decision on filling the gap will fall on brownfield LNG projects.

<u>And does this bigger, nearer supply gap force LNG players to look at what brownfield LNG projects they could advance?</u> A greenfield LNG project would likely take at least until 2027 to be in operations. Its why we believe the Mozambique delays will effectively force major LNG players to look to see if there are brownfield LNG projects they should look to advance. Prior to the just passed winter, no one would think Shell or other major LNG players would be considering any new LNG FIDs in 2021. All the big companies are in capital reduction mode and debt reduction mode. But Brent oil is now solidly over $60 and LNG prices hit record levels in Jan and the world's economic and oil and gas demand outlook are increasing with vaccinations. And we are starting to see companies move to increasing capex with the higher cash flows. We would not expect any major LNG players to move to FID right away. But we see them watching to see if 2021 plays out to still support this increasing LNG supply gap. And unless new mutations prevent vaccinations from returning the world to normal, we suspect that major LNG players, like other oil and gas companies, will be looking to increase

capex as they approve 2022 budgets. The outlook for the future has changed dramatically in the last 5 months. The question facing Shell and others, should they look to FID new LNG brownfield projects in the face of an increasing LNG supply gap that is going to hit faster and harder than expected a few months ago. We expect these decisions to be looked at before the end of 2021. LNG prices will be stronger, but we expect the limiting cap in Asia will be that thermal coal will be used to mitigate some LNG price pressure.

Back to Shell, does increasing LNG supply gap provide the opportunity to at least consider a LNG Canada Phase 2 FID over the next 9 months? Shell is no different than any other major LNG supplier in always knowing the market and that the oil and gas outlook is much stronger than 6 months ago. No one has been or is talking about this Mozambique impact and how it will at least force major LNG players to look at if they should FID new brownfield LNG projects to take advantage of this increasing supply gap. We don't have any inside contacts at Shell or LNG Canada, but that is no different than when we looked at the LNG markets in September 2017 and saw the potential for Shell to FID LNG Canada in 2018. We posted a September 20, 2017 blog *"China's Plan To Increase Natural Gas To 10% Of Its Energy Mix Is A Global Game Changer Including For BC LNG"* [LINK]. Last time, it was a demand driven supply gap, this time, it's a supply driven supply gap. We have to believe any major LNG player, including Shell, will be at least looking at their brownfield LNG project list and seeing if they should look to advance FID later in 2021. Shell has LNG Canada Phase 2, which would add 2 additional trains or approx. 1.8 bcf/d. And an advantage to an FID would be that Shell would be able to commit to its existing contractors and fabricators for a continuous construction cycle following on LNG Canada Phase 1 ie. to help keep a lid on capital costs. No one is talking about the need for these new brownfield LNG projects, but, unless Total gets back developing Mozambique and keeps the delay to a matter of months, its inevitable that these brownfield LNG FID internal discussions will be happening in H2/21. Especially since the oil and gas price outlook is much stronger than it was in the fall and companies will be looking to increase capex in 2022 budgets

A LNG Canada Phase 2 would be a big plus to Cdn natural gas. A LNG Canada Phase 2 FID would be a big plus for Cdn natural gas. It would allow another ~1.8 bcf/d of Cdn natural gas to be priced against Asian LNG prices and not against Henry Hub. And it would provide demand offset versus Trudeau if he moves to make electricity "emissions free" and not his prior "net zero emissions". Mozambique may be in Africa, but, unless sustained peace and security is attained, it is a game changer to LNG outlook creating a bigger and sooner LNG supply gap. And with a stronger tone to oil and natural gas prices in 2021, the LNG supply gap will at least provide the opportunity for Shell to consider FID for its brownfield LNG Canada Phase 2 and provide big support to Cdn natural gas for back half of the 2020s. And perhaps if LNG Canada is exporting 3.6 bcf/d from two phases, it could help flip Cdn natural gas to a premium to US natural gas especially if Biden is successful in reducing US domestic natural gas consumption for electricity. The next six months will be very interesting to watch for LNG markets.

Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs

Posted 11am on July 14, 2021

The last 7 days has shown there is a sea change as Asian LNG buyers have made an abrupt change in their LNG contracting and are moving to lock in long term LNG supply. This is the complete opposite of what they were doing pre-Covid when they were trying to renegotiate Qatar LNG long term deals lower and moving away from long term deals to spot/short term sales. Why? We think they did the same math we did in our April 28 blog "*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*" and saw a much bigger and sooner LNG supply gap driven by the delay of 5 bcf/d of Mozambique LNG that was built into most, if not all LNG supply forecasts. Asian LNG buyers are committing real dollars to long term LNG deals, which we believe is the best validation for the LNG supply gap. Another validation, Shell, Total and others are aggressively competing to invest long term capital to partner in Qatar Petroleum's massive 4.3 bcf/d LNG expansion despite plans to reduce fossil fuels production in the 2020s. And even more importantly to LNG suppliers, the return to long term LNG contracts provides the financing capacity to commit to brownfield LNG FIDs. The abrupt change by Asian LNG buyers to long term contracts is a game changer for LNG markets and sets the stage for brownfield LNG FIDs likely as soon as before year end 2021. It has to be brownfield LNG FIDs if the gap is coming bigger and sooner. And we return to our April 28 blog point, if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? LNG Canada Phase 1 at 1.8 bcf/d capacity is already a material positive for Cdn natural gas producers. A FID on LNG Canada Phase 2 would be huge, meaning 3.6 bcf/d of Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub. And with a much shorter distance to Asian LNG markets. This is why we focus on global LNG markets for our views on the future value of Canadian natural gas.

<u>Sea change in Asian LNG buyers is also the best validation of the LNG supply gap and big to LNG supply FIDs.</u> Has the data changed or have the market participants changed in how they react to the data? We can't recall exactly who said that on CNBC on July 12, it's a question we always ask ourselves. In the LNG case, the data has changed with Mozambique LNG delays and that has directly resulted in market participants changing and entering into long term contracts. We can't stress enough how important it is to see Asian LNG buyers move to long term LNG deals. (i) Validates the sooner and bigger LNG supply gap. We believe LNG markets should look at the last two weeks of new long term deals for Asian LNG buyers as being the validation of the LNG supply gap that clearly emerged post Total declaring force majeure on its 1.7 bcf/d Mozambique LNG Phase 1 that was under construction and on track for first LNG delivery in 2024. Since then, markets have started to realize the Mozambique delays are much more than 1.7 bcf/d. They have seen major LNG suppliers change their outlook to a more bullish LNG outlook and, most importantly, are now seeing Asian LNG buyers changing from trying to renegotiate long term LNG deals lower to entering into long term LNG deals to have security of supply. Asian LNG buyers are cozying up to Qatar in a prelude to the next wave of Asian buyer long term deals. What better validation is there than companies/countries putting their money where their mouth is. (ii) Provides financial commitment to help push LNG suppliers to FID. We believe these Asian LNG buyers are doing much more than validating a LNG supply gap to markets. The big LNG suppliers can move to FID based on adding more LNG supply to their portfolio, but having more long term deals provides the financial anchor/visibility to long term capital commitment from the buyers. Long term contracts will only help LNG suppliers get to FID.

<u>It was always clear that the Mozambique LNG supply delay was 5.0 bcf/d, not just 1.7 bcf/d from Total Phase 1.</u> LNG markets didn't really react to Total's April 26 declaration of force majeure on its 1.7 bcf/d Mozambique LNG Phase 1. This was an under construction project that was on time to deliver first LNG in 2024. It was in all LNG supply forecasts. There was no timeline given but, on the Apr 29 Q1 call, Total said that it expected any restart decision would be least a year away. If so, we believe that puts any actual construction at least 18 months away. There will be work to do just to get back to where they were when they were forced to stop development work on Phase 1. Surprisingly, markets didn't look the broader implications, which is why we posted our 7-pg Apr 28 blog "*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*" [LINK] We highlighted that Mozambique LNG delays were actually 5 bcf/d, not 1.7 bcf/d. And this 5 bcf/d of Mozambique LNG supply was built into most, if not all, LNG supply forecasts. The delay in Total Phase 1 would lead to a commensurate delay in its Mozambique LNG Phase 2 of 1.3 bcf/d. Total Phase 2 was to add 1.3 bcf/d. There was no firm in service date, but it was expected to

follow closely behind Phase 1 to maintain services. That would have put it originally in the 2026/2027 period. But if Phase 1 is pushed back at least 2 years, so will the follow on Phase 2, so more likely, it will be at least 2028/2029. The assumption for most, if not all, LNG forecasts was that Phase 2 would follow Phase 1. Exxon Rozuma Phase 1 of 2.0 bcf/d continues to be pushed back in timeline especially following Total Phase 1. Exxon's Mozambique Rozuma Phase 1 LNG will add 2.0 bcf/d and, pre-Covid, was originally expected to be in service in 2025. The project was being delayed and Total's force majeure has added to the delays. Rozuma onshore LNG facilities are right by Total. On June 20, we tweeted [LINK] on the Reuters report "*Exclusive: Galp says it won't invest in Rovuma until Mozambique ensures security*" [LINK]. Galp is one of Exxon's partners in Rozuma. Reuters reported that Galp said they won't invest in Exxon's Rozuma LNG project until the government ensures security, that this may take a while, they won't be considering the project until after Total has reliably resumed work on its Phase 1, which likely puts any Rozuma decision until at least end of 2022 at the earliest. Galp has taken any Rozuma Phase 1 capex out of their new capex plans thru 2025 and will have to take out projects in their capex plan if Rozuma does come back to work. This puts Rozuma more likely 2028 at the earliest as opposed to before the original expectations of before 2025. Pre-pandemic, Exxon's March 6, 2019 Investor Day noted their operated Mozambique Rovuma LNG Phase 1 was to be 2 trains each with 1.0 bcf/d capacity for total initial capacity of 2.0 bf/d with FID expected in 2019 and first LNG deliveries sometime before 2025. LNG forecasts had been assuming Exxon Rozuma would be onstream around 2025. The 2019 FID expectation was later pushed to be expected just before the March 2020 investor day. But the pandemic hit, and on March 21, 2020, we tweeted [LINK] on the Reuters story "*Exclusive: Coronavirus, gas slump put brakes on Exxon's giant Mozambique LNG plan*" [LINK] that noted Exxon was expected to delay the Rovuma FID. There was no timeline, but now, any FID is not expected until late 2022 at the earliest, that would push first LNG likely to at least 2028. What this means is that the Mozambique LNG delays are not 1.7 bcf/d but 5.0 bcf/d of projects that were in all, if not most, LNG supply forecasts. There is much more in our 7-pg blog. But Mozambique is what is driving a much bigger and sooner LNG supply gap starting ~2025 and stronger outlook for LNG prices

<u>One of the reasons why it went under the radar is that major LNG suppliers played stupid on the Mozambique impact.</u> It makes it harder for markets to see a big deal when the major LNG suppliers weren't making a big deal of Mozambique or playing stupid in the case of Cheniere in their May 4 Q1 call. In our May 9, 2021 Energy Tidbits memo, we said we had to chuckle when we saw Cheniere's response in the Q&A to its Q1 call on May 4 that they only know what we know from reading the Total releases on Mozambique and its impact on LNG markets. It's why we tweeted [LINK] "*Hmm! $LNG says only know what we read on #LNG market impact from $TOT $XOM MZ LNG delays*. *Surely #TohokuElectric & other offtake buyers are reaching out to #Cheniere. MZ LNG delays is a game changer to LNG in 2020s, see SAF Group blog. Thx @olympe_mattei @TheTerminal #NatGas".* How could they not be talking to LNG buyers for Total and /or Exxon Mozambique LNG projects. In the Q1 Q&A, mgmt was asked about Mozambique and didn't know any more than what you or I have read. Surely, they were speaking to Asian LNG buyers who had planned to get LNG supply from Total Mozambique or Exxon Rozuma Mozambique or both. Mgmt is asked "*wanted to just kind of touch on the color use talking about for these supply curve. And are you able to kind of provide any thoughts on the Mozambique and a deferral with the project of that size on 13 and TPA being deferred by we see you have you noticed any impact to the market has is there any impact for stage 3 with that capacity? Thanks*." Mgmt replies "*No. Look, I only know about the Mozambique delay with what I read as well as what you read that from total and an Exxon. And it's a sad situation and I hope everybody is safe and healthy that were there to experience that unrest but no I don't think it's, again it's a different business paradigm than what we offer. So, we offer a full value product, the customer doesn't have to invest in equity, customer doesn't have to worry about the E&P side of the business because, we've been able to both the by at our peak almost 7 Dee's a day of US NAT gas from almost a 100 different producers on 26 different pipelines and deliver it to our to facilities. So we take care of a lot of what the customer needs".*

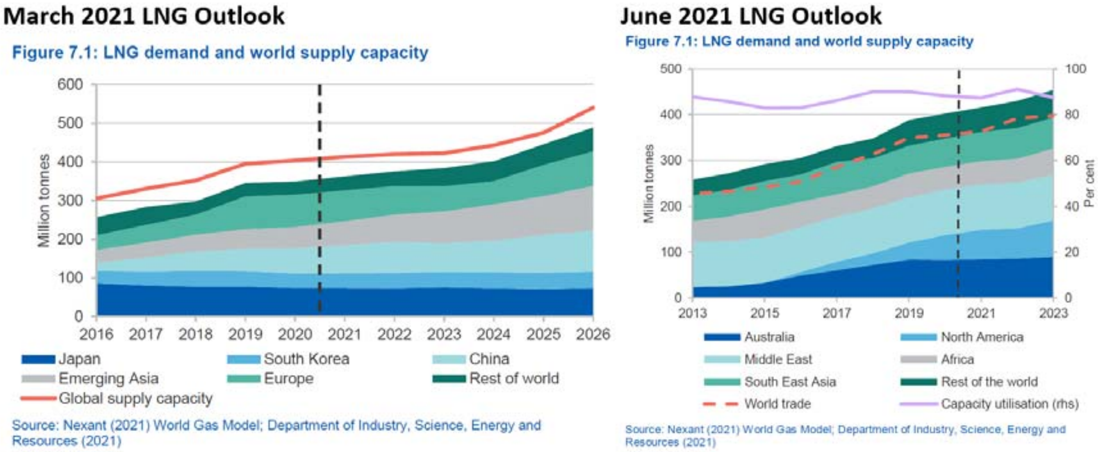
<u>There are other LNG supply delays/interruptions beyond Mozambique.</u> There have been a number of other smaller LNG delay or existing supply interruptions that add to Asian LNG buyers feeling less secure about the reliability of mid to long term LNG supply. Here are just a few examples. (i) Total Papua LNG 0.74 bcf/d. On June 8, we tweeted [LINK] *"Timing update Papua #LNG project. $OSH June 8 update "2022 FEED, 2023 FID targeting 2027 first gas". $TOT May 5 update didn't forecast 1st gas date. Papua is 2 trains w/ total capacity 0.74 bcf/d."* We followed the tweet saying [LINK] *"Bigger #LNG supply gap being created >2025. Papua #LNG originally expected FID in 2020 so 1st LNG is 2 years delayed.*

Common theme - new LNG supply is being delayed ie. [Total] Mozambique. Don't forget need capacity>demand due to normal maintenance, etc. Positive for LNG." (ii) Chevron's Gorgon. A big LNG story in H2/20 was the emergence of weld quality issues in the propane heat exchangers at Train 2, which required additional downtime for repair. Train 2 was shut on May 23 with an original restart of July 11, but the repairs to the weld quality issues meant it didn't restart until late Nov. The same issue was found in Train 1 but repairs were completed. However extended downtime for the trains led to lower LNG volumes. Gorgon produced ~2.3 bcf/d in 2019 but was down to 2.0 bcf/d in 2020. (iii) Equinor's Melkoeya 0.63 bcf/d shut down for 18 months due to a fire. A massive fire led to the Sept 28, 2020 shutdown of the 0.63 bcf/d Melkoeya LNG facility in Norway. On April 26, Equinor released "*Revised start-up date for Hammerfest LNG*" [LINK] with regard to the 0.63 bcf/d Melkoeya LNG facility. The original restart date was Oct 1, 2021 (ie. a 12 month shut down), but Equinor said "*Due to the comprehensive scope of work and Covid-19 restrictions, the revised estimated start-up date is set to 31 March 2022*". When we read the release, it seemed like Equinor was almost setting the stage for another potential delay in the restart date. Equinor had two qualifiers to this March 31, 2022 restart date. Equinor said "*there is still some uncertainty related to the scope of the work*" and "*Operational measures to handle the Covid-19 situation have affected the follow-up progress after the fire. The project for planning and carrying out repairs of the Hammerfest LNG plant must always comply with applicable guidelines for handling the infection situation in society. The project has already introduced several measures that allow us to have fewer workers on site at the same time than previously expected. There is still uncertainty related to how the Covid-19 development will impact the project progress."*

Cheniere stopped the game playing the game on June 30. Our July 4, 2021 Energy Tidbits memo noted that it looks like Cheniere has stopped playing stupid with respect to the strengthening LNG market in 2021. We can't believe they thought they were fooling anyone, especially their competitors. Bu that week, they came out talking about how commercial discussions have picked up in 2021 and it's boosted their hope for a Texas (Corpus Christi) LNG expansion. On Wednesday, Platts reported "*Pickup in commercial talks boosts Cheniere's hopes on mid-scale LNG project*" [LINK] Platts wrote "*Cheniere Energy expects to make a "substantial dent" by the end of 2022 in building sufficient buyer support for a proposed mid-scale expansion at the site of its Texas liquefaction facility, Chief Commercial Officer Anatol Feygin said June 30 in an interview." " As a result, he said, " The commercial engagement, I think it is very fair to say, has really picked up steam, and we are quite optimistic over the coming 12-18 months to make a substantial dent in that Stage 3 commercialization."* Platts also reported that Cheniere noted this has been a tightening market all year (ie would have been known by the May 4 Q1 call). Platts wrote "*We obviously find ourselves at the beginning of this year and throughout in a very tight market where prices today into Asia and into Europe are at levels that we frankly haven't seen in a decade-plus," Feygin said. "We've surpassed the economics that the industry saw post the Fukushima tragedy in March 2011, and that's happened in the shoulder period."* It's a public stance as to a more bullish LNG outlook

But we still see major LNG suppliers like Australia hinting but not outright saying that LNG supply gap is coming sooner. We have to believe Australia will be unveiling a sooner LNG supply gap in their September forecast. On June 28, we tweeted [LINK] on Australia's Resources and Energy Quarterly released on Monday [LINK] because there was a major change to their LNG outlook versus their March forecast. We tweeted "*#LNGSupplyGap. AU June fcast now sees #LNG mkt tighten post 2023 vs Mar fcast excess supply thru 2026. Why? $TOT Mozambique delays. See below SAF Apr 28 blog. Means brownfield LNG FID needed ie. like #LNGCanada Phase 2. #OOTT #NatGas".* Australia no longer sees supply exceeding demand thru 2026. In their March forecast, Australia said "*Nonetheless, given the large scale expansion of global LNG capacity in recent years, demand is expected to remain short of total supply throughout the projection period."* Note this is thru 2026 ie. a LNG supply surplus thru 2026. But on June 28, Australia changed that LNG outlook and now says the LNG market may tighten beyond 2023. Interestingly, the June forecast only goes to 2023 and not to 2026 as in March. Hmmm! On Monday, they said "*Given the large scale expansion of global LNG capacity in recent years, import demand is expected to remain short of export capacity throughout the outlook period. Beyond 2023, the global LNG market may tighten, due to the April 2021 decision to indefinitely suspend the Mozambique LNG project, in response to rising security issues. This project has an annual nameplate capacity of 13 million tonnes, and was previously expected to start exporting LNG in 2024*." 13 million tonnes is 1.7 bcf/d so they are only referring to Total Mozambique LNG Phase 1. So no surprise the change is Mozambique LNG driven but we have to believe the reason why they cut their forecast off this time at 2023 is that they are looking at trying to figure out what to forecast beyond 2023 in addition to Total Phase 1. And, importantly, we believe they will be changing their LNG forecast for more than Mozambique ie. India demand that we highlight later in the blog. They didn't say anything else specific on Mozambique but, surely they have to also be delaying the follow on Total Phase 2 of 1.3 bcf/d and Exxon Rozuma Phase 1 of 2.0 bcf/d.

Australia's LNG Outlook: March 2021 vs June 2021 Forecasts

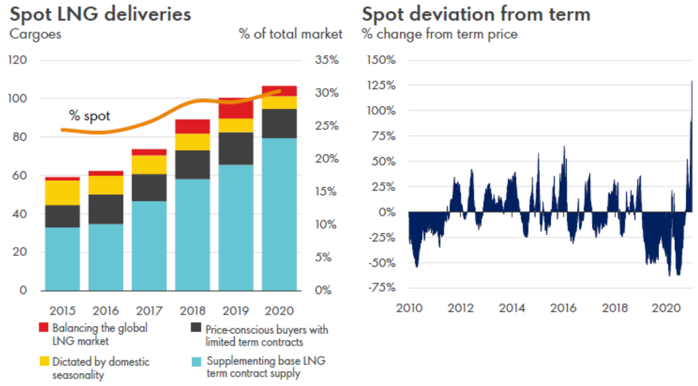


Source: Australia Resources and Energy Quarterly

Clearly Asian LNG buyers did the math, saw the new LNG supply gap and were working the phones in March/April/May trying to lock up long term supply. We wrote extensively on the Total Mozambique LNG situation before the April 26 force majeure as it was obvious that delays were coming to a project counted on for first LNG in 2024. Total had shut down Phase 1 development in December for 3 months due to the violence and security risks. It restarted development on Wed March 24, violence/attacks immediately resumed for 3 consecutive days, and then Total suspended development on Sat March 27. That's why no one should have been surprised by the April 26 force majeure. Asian LNG buyers were also seeing this and could easily do the same math we were doing and saw a bigger and sooner LNG supply gap. They were clearly working the phones with a new priority to lock up long term LNG supply. Major long term deals don't happen overnight, so it makes sense that we started to see these new Asian long term LNG deals start at the end of June.

A big pivot from trying to renegotiate down long term LNG deals or being happy to let long term contracts expire and replace with spot/short term LNG deals. This is a major pivot or abrupt turn on the Asian LNG buyers contracting strategy for the 2020s. There is the natural reduction of long term contracts as contracts reach their term. But with the weakness in LNG prices in 2019 and 2020, Asian LNG buyers weren't trying to extend long term contracts, rather, the push was to try to renegotiate down its long term LNG deals. The reason was clear, as spot prices for LNG were way less than long term contract prices. And this led to their LNG contracting strategy – move to increase the proportion of spot LNG deliveries out of total LNG deliveries. Shell's LNG Outlook 2021 was on Feb 25, 2021 and included the below graphs. The spot LNG price derivation from long term prices in 2019 and 2020 made sense for Asian LNG buyers to try to change their contract mix. Yesterday, Maeil Business News Korea reported on the new Qatar/Kogas long term LNG deal with its report "*Korea may face LNG supply cliff or pay hefty price after long-term supplies run out*" [LINK], which highlighted this very concept – Korea wasn't worried about trying to extend expiring long term LNG contracts. Maeil wrote "*Seoul in 2019 secured a long-term LNG supply contract with the U.S. for annual 15.8 million tons over a 15-year period. But even with the latest two LNG supply contracts, the Korean government needs extra 6 million tons or more of LNG supplies to keep up the current power pipeline. By 2024, Korea's long-term supply contracts for 9 million tons of LNG will expire - 4.92 million tons on contract with Qatar and 4.06 million tons from Oman, according to a government official who asked to be unnamed."*

Spot LNG deliveries and Spot deviation from term price



Source: Shell LNG Outlook 2021 on Feb 25, 2021

Asian LNG buyers moving to long term LNG deals provide financing capacity for brownfield LNG FIDs. We believe this abrupt change and return to long term LNG deals is even more important to LNG suppliers who want to FID new projects. The big LNG players like Shell can FID new LNG supply without new long term contracts as they can build into their supply options to fill their portfolio of LNG contracts. But that doesn't mean the big players don't want long term LNG supply deals, as having long term LNG contracts provide better financing capacity for any LNG supplier. It takes big capex for LNG supply and long term deals make the financing easier.

Four Asian buyer long term LNG deals in the last week. It was pretty hard to miss a busy week for reports of new Asian LNG buyer long term LNG deals. There were two deals from Qatar Petroleum, one from Petronas and one from BP. The timing fits, it's about 3 months after Total Mozambique LNG problems became crystal clear. And as noted later, there are indicators that more Asian buyer LNG deals are coming.

Petronas/CNOOC is 10 yr supply deal for 0.3 bcf/d. On July 7, we tweeted [LINK] on the confirmation of a big positive to Cdn natural gas with the Petronas announcement [LINK] of a new 10 year LNG supply deal for 0.3 bcf/d with China's CNOOC. The deal also has special significance to Canada. (i) Petronas said "*This long-term supply agreement also includes supply from LNG Canada when the facility commences its operations by middle of the decade*". This is a reminder of the big positive to Cdn natural gas in the next 3 to 4 years – the start up of LNG Canada Phase 1 is ~1.8 bcf/d capacity. This is natural gas that will no longer be moving south to the US or east to eastern Canada, instead it will be going to Asia. This will provide a benefit for all Western Canada natural gas. (ii) First ever AECO linked LNG deal. It's a pretty significant event for a long term Asia LNG deal to now have an AECO link. Petronas wrote "*The deal is for 2.2 million tonnes per annum (MTPA) for a 10-year period, indexed to a combination of the Brent and Alberta Energy Company (AECO) indices. The term deal between PETRONAS and CNOOC is valued at approximately USD 7 billion over ten years.*" 2.2 MTPA is 0.3 bcf/d. (iii) Reminds of LNG Canada's competitive advantage for low greenhouse gas emissions. Petronas said "*Once ready for operations, the LNG Canada project paves the way for PETRONAS to supply low greenhouse gas (GHG) emission LNG to the key demand markets in Asia.*"

Qatar Petroleum/CPC (Taiwan) is 15 yr supply deal for 0.16 bcf/d. Pre Covid, Qatar was getting pressured to renegotiate lower its long term LNG contract prices. Now, it's signing a 15 year deal. On July 9, they entered in a new small long term LNG sales deal [LINK], a 15-yr LNG Sale and Purchase Agreement with CPC Corporation in Taiwan to supply it ~0.60 bcf/d of LNG. LNG deliveries are set to begin in January 2022. H.E. Minister for Energy Affairs & CEO of Qatar Petroleum Al-Kaabi said *"We are pleased to enter into this long term LNG SPA, which is another milestone in our relationship with CPC, which dates back to almost three decades. We look forward to commencing deliveries under this SPA and to continuing our supplies as a trusted and reliable global LNG provider."* The pricing was reported to be vs a basket of crudes.

BP/Guangzhou Gas, a 12-yr supply deal for 0.13 bcf/d. On July 9, there was a small long term LNG supply deal with BP and Guangzhou Gas (China). Argus reported [LINK] BP had signed a 12 year LNG supply deal with Guangzhou Gas (GG), a Chinese city's gas distributor, which starts in 2022. The contract prices are to be linked to an index of international crude prices. Although GG typically gets its LNG from the spot market, it used a tender in late April for ~0.13 bcf/d starting in 2022. BP's announcement looks to be for most of the tender, so it's a small deal. But it fit into the trend this week of seeing long term LNG supply deals to Asia. This was intended to secure deliveries to the firm's Xiaohudao import terminal which will become operational in August 2022.

Qatar/Korea Gas is a 20-yr deal to supply 0.25 bcf/d. On Monday, Reuters reported [LINK] "*South Korea's energy ministry said on Monday it had signed a 20-year liquefied natural gas (LNG) supply agreement with Qatar for the next 20 years starting in 2025. South Korea's state-run Korea Gas Corp (036460.KS) will buy 2 million tonnes of LNG annually from Qatar Petroleum".* There was no disclosure of pricing.

More Asian buyer long term LNG deals (ie. India) will be coming. There are going to be more Asian buyer long term LNG deals coming soon. Our July 11, 2021 Energy Tidbits highlighted how India's new petroleum minister Hardeep Singh Puri (appointed July 8) hit the ground running with what looks to be a priority to set the stage for more India long term LNG deals with Qatar. On July 10, we retweeted [LINK] "*New India Petroleum Minister hits ground running. What else w/ Qatar but #LNG. Must be #Puri setting stage for long term LNG supply deal(s). Fits sea change of buyers seeing #LNGSupplyGap (see SAF Apr 28 blog http://safgroup.ca) & wanting to tie up LNG supply. #OOTT".* It's hard to see any other conclusion after seeing what we call a sea change in LNG buyer mentality with a number of long term LNG deals this week. Puri tweeted [LINK] "*Discussed ways of further strengthening mutual cooperation between our two countries in the hydrocarbon sector during a warm courtesy call with Qatar's Minister of State for Energy Affairs who is also the President & CEO of @qatarpetroleum HE Saad Sherida Al-Kaabi".* As noted above, we believe there is a sea change in LNG markets that was driven by the delay in 5 bcf/d of LNG supply from Mozambique (Total Phase 1 & Phase 2, and Exxon Rozuma Phase 1) that was counted on all LNG supply projections for the 2020s. Puri's tweet seems to be him setting the stage for India long term LNG supply deals with Qatar.

Supermajors are aggressively competing to commit 30+ year capital to Qatar's LNG expansion despite stated goal to reduce fossil fuels production. It's not just Asian LNG buyers who are now once again committing long term capital to securing LNG supply, it's also supermajors all bidding to be able to commit big capex to part of Qatar Petroleum's 4.3 bcf/d LNG expansion. Qatar Petroleum received a lot of headlines following the their June 23 announcement on its LNG expansion [LINK] on how they received bids for double the equity being offered. And there were multiple reports that these are on much tougher terms for Qatar's partners. Qatar Petroleum CEO Saad Sherida Al-Kaabi specifically noted that, among the bidders, were Shell, Total and Exxon. Shell and Total have two of the most ambitious plans to reduce fossil fuels production in the 2020's, yet are competing to allocate long term capital to increase fossil fuels production. And Shell and Total are also two of the global LNG supply leaders. It has to be because they are seeing a bigger and sooner LNG supply gap.

Remember Qatar's has a massive expansion but India alone needs 3x the Qatar expansion LNG capacity. In addition to the competition to be Qatar Petroleum's partners, we remind that, while this is a massive 4.3 bcf/d LNG expansion, India alone sees its LNG import growing by ~13 bcf/d to 2030. The Qatar announcement reminded they see a LNG supply gap and continued high LNG prices. We had a 3 part tweet. (i) First, we highlighted [LINK] "*1/3. #LNGSupplyGap coming. big support for @qatarpetroleum expansion to add 4.3 bcf/d LNG. but also say "there is a lack of investments that could cause a significant shortage in gas between 2025-2030" #NatGas #LNG".* This is after QPC accounts for their big LNG expansion. The QPC release said "*However, His Excellency Al-Kaabi voiced concern that during the global discussion on energy transition, there is a lack of investment in oil and gas projects, which could drive energy prices higher by stating that "while gas and LNG are important for the energy transition, there is a lack of investments that could cause a significant shortage in gas between 2025-2030, which in turn could cause a spike in the gas market."* (ii) Second, this is a big 4.3 bcf/d expansion, but India alone has 3x the increase in LNG import demand. We tweeted [LINK] "*2/3. Adding 4.3 bcf/d is big, but dwarfed by items like India. #Petronet gave 1st specific forecast for what it means if #NatGas is to be 15%*

of energy mix by 2030 - India will need to increase #LNG imports by ~13 bcf/d. See SAF Group June 20 Energy Tidbits memo." (iii) Third, Qatar's supply gap warning is driven by the lack of investments in LNG supply. We agree, but note that the lack of investment is in great part due to the delays in both projects under construction and in FIDs that were supposed to be done in 2019. We tweeted [LINK] "3/*3. #LNGSupplyGap is delay driven. $TOT Mozambique Phase 1 delay has chain effect, backs up 5 bcf/d. See SAF Group Apr 28 blog Multiple Brownfield LNG FIDs Now Needed To Fill New #LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2? #NatGas*."

Seems like many missed India's first specific LNG forecast to 2030. Our June 20, 2021 Energy Tidbits memo highlighted the first India forecast that we have seen to estimate the required growth in natural gas consumption and LNG imports if India is to meet its target for natural gas to be 15% of its energy mix by 2030. India will need to increase LNG imports by ~13 bcf/d or 3 times the size of the Qatar LNG expansion. Our June 6, 2021 Energy Tidbits noted the June 4 tweet from India's Energy Minister Dharmendra Pradhan [LINK] reinforcing the 15% goal "*We are rapidly deploying natural gas in our energy mix with the aim to increase the share of natural gas from the current 6% to 15% by 2030."* But last week, Petronet CEO AK Singh gave a specific forecast. Reuters report "*LNG's share of Indian gas demand to rise to 70% by 2030: Petronet CEO"* [LINK] included Petronet's forecast if India is to hit its target for natural gas to be 15% of energy mix by 2030. Singh forecasts India's natural gas consumption would increase from current 5.5 bcf/d to 22.6 bcf/d in 2030. And LNG shares would increase from 50% to 70% of natural gas consumption ie. an increase in LNG imports of ~13 bcf/d from just under 3 bcf/d to 15.8 bcf/d in 2030. Singh did not specifically note his assumption for India's natural gas production, but we can back into the assumption that India natural gas production grows from just under 3 bcf/d to 6.8 bcf/d. It was good to finally see India come out with a specific forecast for 2030 natural gas consumption and LNG imports if India is to get natural gas to 15% of its energy mix in 2030. Petronet's Singh forecasts India natural gas consumption to increase from 5.5 bcf/d to 22.6 bcf/d in 2030. This forecast is pretty close to our forecast in our Oct 23, 2019 blog "*Finally, Some Visibility That India Is Moving Towards Its Target For Natural Gas To Be 15% Of Its Energy Mix By 2030*". Here part of what we wrote in Oct 2019. "*It's taken a year longer than we expected, but we are finally getting visibility that India is taking significant steps towards India's goal to have natural gas be 15% of its energy mix by 2030. On Wednesday, we posted a SAF blog [LINK] "Finally, Some Visibility That India Is Moving Towards Its Target For Natural Gas To Be 15% Of Its Energy Mix By 2030".* Our 2019 blog estimate was for India natural gas demand to be 24.0 bcf/d in 2030 (vs Singh's 22.6 bcf/d) and for LNG import growth of +18.4 bcf/d to 2030 (vs Singh's +13 bcf/d). The difference in LNG would be due to our Oct 2019 forecast higher natural gas consumption by 1.4 bcf/d plus Singh forecasting India natural gas production +4 bcf/d to 2030. Note India production peaked at 4.6 bcf/d in 2010.

Bigger, nearer LNG supply gap + Asian buyers moving to long term LNG deals = LNG players forced to at least look at what brownfield LNG projects they could advance and move to FID. All we have seen since our April 28 blog is more validation of the bigger, nearer LNG supply gap. And now market participants (Asian LNG buyers) are reacting to the new data by locking up long term supply. Cheniere noted how the pickup in commercial engagement means they "*are quite optimistic over the coming 12-18 months to make a substantial dent in that Stage 3 commercialization."* Cheniere can't be the only LNG supplier having new commercial discussions. It's why we believe the Mozambique delays + Asian LNG buyers moving to long term deals will effectively force major LNG players to look to see if there are brownfield LNG projects they should look to advance. Prior to March/April, no one would think Shell or other major LNG players would be considering any new LNG FIDs in 2021. Covid forced all the big companies into capital reduction mode and debt reduction mode. But Brent oil is now solidly over $70, and LNG prices are over $13 this summer and the world's economic and oil and gas demand outlook are increasing with vaccinations. And we are starting to see companies move to increasing capex with the higher cash flows. The theme in Q3 reporting is going to be record or near record oil and gas cash flows, reduced debt levels and increasing returns to shareholders. And unless new mutations prevent vaccinations from returning the world to normal, we suspect that major LNG players, like other oil and gas companies, will be looking to increase capex as they approve 2022 budgets. The outlook for the future has changed dramatically in the last 8 months. The question facing major LNG players like Shell is should they look to FID new LNG brownfield projects in the face of an increasing LNG supply gap that is going to hit faster and harder and Asian LNG buyers prepared to do long term deals. We expect these decisions to be looked at before the end of 2021 for 2022 capex budget/releases. One wildcard that could force these decisions sooner is the already stressed out global supply chain. We have to believe that discussion there will be pressure for more Asian LNG buyer long term deals sooner than later.

For Canada, does the increasing LNG supply gap provide the opportunity to at least consider a LNG Canada Phase 2 FID over the next 6 months? Our view on Shell and other LNG players is unchanged since our April 28 blog. Shell is no different than any other major LNG supplier in always knowing the market and that the oil and gas outlook is much stronger than 9 months ago. Even 3 months post our April 28 blog, we haven't heard any significant talks on how major LNG players will be looking at FID for new brownfield LNG projects. We don't have any inside contacts at Shell or LNG Canada, but that is no different than when we looked at the LNG markets in September 2017 and saw the potential for Shell to FID LNG Canada in 2018. We posted a September 20, 2017 blog *"China's Plan To Increase Natural Gas To 10% Of Its Energy Mix Is A Global Game Changer Including For BC LNG*" [LINK]. Last time, it was a demand driven supply gap, this time, it's a supply driven supply gap. We have to believe any major LNG player, including Shell, will be at least looking at their brownfield LNG project list and seeing if they should look to advance FID later in 2021. Shell has LNG Canada Phase 2, which would add 2 additional trains or approx. 1.8 bcf/d. And an advantage to an FID would be that Shell would be able to commit to its existing contractors and fabricators for a continuous construction cycle following on LNG Canada Phase 1 ie. to help keep a lid on capital costs. We believe maintaining a continuous construction cycle is even more important given the stressed global supply chain. No one is talking about the need for these new brownfield LNG projects, but, unless some major change in views happen, we believe its inevitable that these brownfield LNG FID internal discussions will be happening in H2/21. Especially since the oil and gas price outlook is much stronger than it was in the fall and companies will be looking to increase capex in 2022 budgets.

A LNG Canada Phase 2 would be a big plus to Cdn natural gas. LNG Canada Phase 1 is a material natural gas development as its 1.8 bcf/d capacity represents approx. 20 to 25% of Cdn gas export volumes to the US. The EIA data shows US pipeline imports of Cdn natural gas as 6.83 bcf/d in 2020, 7.36 bcf/d in 2019, 7.70 bcf/d in 2018, 8.89 bcf/d in 2017, 7.97 bcf/d in 2016, 7.19 bcf/d in 2015 and 7.22 bcf/d in 2014. A LNG Canada Phase 2 FID would be a huge plus for Cdn natural gas. It would allow another ~1.8 bcf/d of Cdn natural gas to be priced against pricing points other than Henry Hub. And it would provide demand offset versus Trudeau if he moves to make electricity "emissions free" and not his prior "net zero emissions". Mozambique has been a game changer to LNG outlook creating a bigger and sooner LNG supply gap. And with a stronger tone to oil and natural gas prices in 2021, the LNG supply gap will at least provide the opportunity for Shell to consider FID for its brownfield LNG Canada Phase 2 and provide big support to Cdn natural gas for the back half of the 2020s. And perhaps if LNG Canada is exporting 3.6 bcf/d from two phases, it could help flip Cdn natural gas to a premium vs US natural gas especially if Biden is successful in reducing US domestic natural gas consumption for electricity. The next six months will be very interesting to watch for LNG markets and Cdn natural gas valuations. Imagine the future value of Cdn natural gas is there was visibility for 3.6 bcf/d of Western Canada natural gas to be exported to Asia.

Highlights for the month

- Indigenous crude oil and condensate production during May 2023 was 2.50 MMT. OIL registered a production of 0.28 MMT, ONGC registered a production of 1.66 MMT whereas PSC registered production of 0.57 MMT during May 2023.
- 'Total Crude oil processed during May 2023 was 22.7 MMT which is 0.4 % higher than May 2022. Where PSU/JV Refiners processed 15.3 MMT and PVT Refiners Processed 7.4 MMT of Crude Oil. Total Indigenous Crude Oil processed was 2.2 MMT and total Imported Crude oil processed was 20.5 by all Indian Refineries (PSU+JV+PVT).
- Crude oil imports increased by 2.0% and decreased by 3.1% during May 2023 and April-May 2023 respectively as compared to the corresponding period of the previous year. The net import bill for Oil & Gas was $10.0 billion in May 2023 compared to $13.2 billion in May 2022. In this the crude oil imports constitutes $10.3 billion, LNG imports $1.4 billion and the exports were $3.6 billion during May 2023.
- The price of Brent Crude averaged $75.55/bbl during May 2023 as against $84.94/bbl during April 2023 and $113.25/bbl during May 2022. The Indian basket crude price averaged $74.98/bbl during May 2023 as against $83.76/bbl during April 2023 and $109.51 /bbl during May 2022.
- Production of petroleum products was 23.9 MMT during May 2023 which is 2.8% higher than May 2022, where 23.6 MMT was from Refinery production & 0.3 MMT was from Fractionator. There was 0.7 % growth in Production of petroleum products in Apr May FY 2023 – 24 as compared to same period of FY 2022 – 23. Out of total POL production, in May 2023, HSD has 42.2 % share, MS 16.0 %, Naphtha 6.8 %, ATF 6.0 %, Pet Coke 5.8, % LPG 4.8 % which are of major products and rest are shared by Bitumen, FO/LSHS, LDO, Lubes & others.
- POL products imports increased by 10.7% and decreased by 11.1% during May 2023 and April-May 2023 respectively as compared to the corresponding period of the previous year. Decrease in POL products imports during April-May 2023 were mainly due to decrease in imports of liquified petroleum gas (LPG), petcoke etc.

•	Exports of POL products recovered to 93.4% and 87.01% during May 2023 and April-May 2023 respectively as compared to the corresponding period of the previous year. Decrease in POL products exports during April-May 2023 were mainly due to decrease in exports of high speed diesel (HSD), naphtha etc.
•	The consumption of petroleum products during April-May 2023 with a volume of 38.6 MMT reported a growth of 4.7% compared to the volume of 36.8 MMT during the same period of the previous year. This growth was led by 4.3% growth in LPG, 7.1% growth in MS, 10.7% in HSD & 15.5% in ATF consumption besides Naptha, FO/LSHS and LDO during the period. The consumption of petroleum products during May 2023 recorded a growth of 9.0% with a volume of 20.03 MMT compared to the same period of the previous year.
•	Ethanol blending with Petrol was 12% during May 2023 and cumulative ethanol blending during December 2022- May 2023 was 11.7%.
•	Total Natural Gas Consumption (including internal consumption) for the month of May2023 was 5066 MMSCM which was 12.4% lower than the corresponding month of the previous year. The cumulative consumption of 10252 MMSCM for the current financial year till May 2023 was lower by 3.4% compared with the corresponding period of the previous year.
•	Gross production of natural gas for the month of May 2023 (P) was 2909 MMSCM which was lower by 0.1% compared with the corresponding month of the previous year. The cumulative gross production of natural gas of 5654 MMSCM for the current financial year till May 2023 was lower by 1.5% compared with the corresponding period of the previous year.
•	LNG import for the month of May 2023 (P) was 2228 MMSCM which was 24.1% lower than the corresponding month of the previous year. The cumulative import of 4743(P) MMSCM for the current financial year till May 2023 was lower by 5.4% compared with the corresponding period of the previous year.

2. Crude oil, LNG and petroleum products at a glance

	Details	Unit/ Base	2021-22 (P)	2022-23 (P)	May 2022-23 (P)	May 2023-24 (P)	April-May 2022-23 (P)	April-May 2023-24 (P)
1	Crude oil production in India#	MMT	29.7	29.2	2.6	2.5	5.0	4.9
2	Consumption of petroleum products*	MMT	201.7	222.3	18.4	20.0	36.8	38.6
3	Production of petroleum products	MMT	254.3	266.5	23.3	23.9	46.0	46.4
4	Gross natural gas production	MMSCM	34,024	34,450	2,914	2,909	5,741	5,654
5	Natural gas consumption	MMSCM	64,159	59,969	5,784	5,066	9,643	9,351
6	Imports & exports:							
	Crude oil imports	MMT	212.4	232.7	19.6	20.0	41.3	40.0
		$ Billion	120.7	157.6	15.5	10.3	32.3	21.1
	Petroleum products (POL) imports*	MMT	39.0	44.5	3.3	3.6	7.5	6.6
		$ Billion	23.7	26.8	2.3	1.8	5.3	3.3
	Gross petroleum imports (Crude + POL)	MMT	251.4	277.3	22.9	23.7	48.7	46.6
		$ Billion	144.3	184.4	17.8	12.1	37.6	24.4
	Petroleum products (POL) export	MMT	62.8	61.0	5.7	5.3	11.1	9.7
		$ Billion	44.4	57.3	6.5	3.6	12.3	6.9
	LNG imports*	MMSCM	31,028	26,304	2,937	2,228	5,015	4,743
		$ Billion	13.5	17.1	1.8	1.4	3.2	2.5
	Net oil & gas imports	$ Billion	113.4	144.2	13.2	10.0	28.5	20.0
7	Petroleum imports as percentage of India's gross imports (in value terms)	%	23.6	25.8	29.1	21.3	31.5	22.8
8	Petroleum exports as percentage of India's gross exports (in value terms)	%	10.6	12.8	16.6	10.2	15.6	9.9
9	Import dependency of crude oil (on POL consumption basis)	%	85.5	87.3	86.5	88.3	86.4	88.4

#Includes condensate; *Private direct imports are prorated for the period Apr'23 to May'23 for POL. LNG Imports figures from DGCIS are prorated for May 2023. Total may not tally due to rounding off.

3. Indigenous crude oil production (Million Metric Tonnes)

Details	2021-22	2022-23 (P)	May			April-May		
			2022-23 (P)	2023-24 Target*	2023-24 (P)	2022-23 (P)	2023-24 Target*	2023-24 (P)
ONGC	18.5	18.4	1.6	1.6	1.6	3.2	3.3	3.1
Oil India Limited (OIL)	3.0	3.2	0.3	0.3	0.3	0.5	0.6	0.5
Private / Joint Ventures (JVs)	7.0	6.2	0.6	0.6	0.5	1.1	1.1	1.0
Total Crude Oil	**28.4**	**27.8**	**2.4**	**2.5**	**2.3**	**4.8**	**4.9**	**4.6**
ONGC condensate	0.9	1.0	0.08	0.0	0.1	0.2	0.0	0.2
PSC condensate	0.3	0.31	0.02	0.0	0.06	0.04	0.0	0.10
Total condensate	**1.2**	**1.4**	**0.10**	**0.0**	**0.2**	**0.2**	**0.0**	**0.3**
Total (Crude + Condensate) (MMT)	**29.7**	**29.2**	**2.6**	**2.5**	**2.5**	**5.0**	**4.9**	**4.9**
Total (Crude + Condensate) (Million Bbl/Day)	0.60	0.59	0.60	0.59	0.59	0.60	0.59	0.59

*Provisional targets inclusive of condensate.

4. Domestic and overseas oil & gas production (by Indian Companies)

Details	2021-22	2022-23 (P)	May		April-May	
			2022-23 (P)	2023-24 (P)	2022-23 (P)	2023-24 (P)
Total domestic production (MMTOE)	63.7	63.6	5.5	5.4	10.8	10.5
Overseas production (MMTOE)	21.8	19.5	1.6	1.7	3.3	3.4

Source: ONGC Videsh, GAIL, OIL , IOCL, HPCL & BPRL

5. High Sulphur (HS) & Low Sulphur (LS) crude oil processing (MMT)

	Details	2021-22	2022-23 (P)	May		April-May	
				2022-23 (P)	2023-24 (P)	2022-23 (P)	2023-24 (P)
1	High Sulphur crude	185.0	197.9	17.9	18.0	34.5	34.8
2	Low Sulphur crude	56.7	57.4	4.7	4.7	9.8	9.4
Total crude processed (MMT)		**241.7**	**255.2**	**22.6**	**22.7**	**44.2**	**44.2**
Total crude processed (Million Bbl/Day)		4.85	5.13	5.35	5.37	5.31	5.31
Percentage share of HS crude in total crude oil processing		**76.6%**	**77.5%**	**79.2%**	**79.2%**	**77.9%**	**78.8%**

6. Quantity and value of crude oil imports

Year	Quantity (MMT)	$ Million	Rs. Crore
2021-22 (P)	212.4	120,675	9,01,262
2022-23 (P)	232.7	157,597	12,60,910
April-May 2023-24(P)	40.0	21,145	1,73,913

7. Self-sufficiency in petroleum products (Million Metric Tonnes)

Particulars		2021-22	2022-23 (P)	May		April-May	
				2022-23 (P)	2023-24 (P)	2022-23 (P)	2023-24 (P)
1	Indigenous crude oil processing	27.0	26.4	2.3	2.2	4.8	4.2
2	Products from indigenous crude (93.3% of crude oil processed)	25.2	24.7	2.2	2.0	4.4	3.9
3	Products from fractionators (Including LPG and Gas)	4.1	3.5	0.3	0.3	0.6	0.6
4	Total production from indigenous crude & condensate **(2 + 3)**	29.3	28.2	2.5	2.3	5.0	4.5
5	Total domestic consumption	201.7	222.3	18.4	20.0	36.8	38.6
% Self-sufficiency (4 / 5)		**14.5%**	**12.7%**	**13.5%**	**11.7%**	**13.6%**	**11.6%**

8. Refineries: Installed capacity and crude oil processing (MMTPA / MMT)										
Sl. no.	**Refinery**	**Installed capacity (01.05.2023) MMTPA**	**Crude oil processing (MMT)**							
			2021-22	**2022-23 (P)**	**May**			**April-May**		
					2022-23 (P)	**2023-24 (Target)**	**2023-24 (P)**	**2022-23 (P)**	**2023-24 (Target)**	**2023-24 (P)**
1	Barauni (1964)	6.0	5.6	6.8	0.6	0.6	0.6	1.1	1.1	1.1
2	Koyali (1965)	13.7	13.5	15.6	1.4	1.1	1.3	2.7	2.2	2.5
3	Haldia (1975)	8.0	7.3	8.5	0.7	0.7	0.7	1.4	1.4	1.4
4	Mathura (1982)	8.0	9.1	9.6	0.8	0.9	0.8	1.6	1.7	1.7
5	Panipat (1998)	15.0	14.8	13.8	1.3	1.2	1.3	2.4	2.5	2.5
6	Guwahati (1962)	1.0	0.7	1.1	0.09	0.1	0.1	0.18	0.2	0.2
7	Digboi (1901)	0.65	0.7	0.7	0.06	0.06	0.06	0.1	0.1	0.1
8	Bongaigaon(1979)	2.70	2.6	2.8	0.2	0.3	0.3	0.4	0.5	0.5
9	Paradip (2016)	15.0	13.2	13.6	1.4	1.1	1.3	2.7	2.4	2.5
	IOCL-TOTAL	**70.1**	**67.7**	**72.4**	**6.4**	**6.0**	**6.4**	**12.7**	**12.2**	**12.5**
10	Manali (1969)	10.5	9.0	11.3	1.0	0.9	0.9	1.9	1.8	1.9
11	CBR (1993)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CPCL-TOTAL	**10.5**	**9.0**	**11.3**	**1.0**	**0.9**	**0.9**	**1.9**	**1.8**	**1.9**
12	Mumbai (1955)	12.0	14.4	14.5	1.3	1.3	1.3	2.6	2.6	2.6
13	Kochi (1966)	15.5	15.4	16.0	1.4	1.4	1.5	2.7	2.7	2.8
14	Bina (2011)	7.8	7.4	7.8	0.7	0.7	0.7	1.4	1.3	1.3
	BPCL-TOTAL	**35.3**	**37.2**	**38.4**	**3.4**	**3.3**	**3.5**	**6.7**	**6.6**	**6.7**
15	Numaligarh (1999)	3.0	2.6	3.1	0.3	0.1	0.1	0.5	0.1	0.1

Sl. no.	Refinery	Installed capacity (1.05.2023) (MMTPA)	Crude oil processing (MMT)							
			2021-22	2022-23	May			April-May		
					2022-23	2023-24 (Target)	2023-24 (P)	2022-23	2023-24 (Target)	2023-24 (P)
16	Tatipaka (2001)	0.066	0.075	0.073	0.007	0.003	0.006	0.013	0.009	0.013
17	MRPL-Mangalore (1996)	15.0	14.9	17.1	1.4	1.5	1.5	2.9	2.8	3.0
	ONGC-TOTAL	**15.1**	**14.9**	**17.2**	**1.4**	**1.5**	**1.5**	**2.9**	**2.8**	**3.0**
18	Mumbai (1954)	9.5	5.6	9.8	0.8	0.8	0.8	1.6	1.6	1.6
19	Visakh (1957)	11.0	8.4	9.3	0.8	0.9	1.1	1.6	1.8	1.9
20	HMEL-Bathinda (2012)	11.3	13.0	12.7	1.1	1.0	1.1	2.2	2.0	2.2
	HPCL- TOTAL	**31.8**	**27.0**	**31.8**	**2.8**	**2.7**	**3.0**	**5.3**	**5.4**	**5.7**
21	RIL-Jamnagar (DTA) (1999)	33.0	34.8	34.4	3.1	3.1	2.9	6.2	6.2	5.7
22	RIL-Jamnagar (SEZ) (2008)	35.2	28.3	27.9	2.5	2.5	2.8	4.7	4.7	5.3
23	NEL-Vadinar (2006)	20.0	20.2	18.7	1.7	1.7	1.7	3.4	3.4	3.4
All India (MMT)		**253.9**	**241.7**	**255.2**	**22.6**	**21.9**	**22.7**	**44.2**	**43.0**	**44.2**
All India (Million Bbl/Day)		**5.02**	**4.85**	**5.13**	**5.35**	**5.18**	**5.37**	**5.31**	**5.17**	**5.31**

Note: Provisional Targets; Some sub-totals/ totals may not add up due to rounding off at individual levels.

9. Major crude oil and product pipeline network (as on 01.06.2023)

Details		ONGC	OIL	Cairn	HMEL	IOCL	BPCL	HPCL	Others*	Total
Crude Oil	Length (KM)	1,284	1,193	688	1,017	5,301	937			**10,420**
	Cap (MMTPA)	60.6	9.0	10.7	11.3	48.6	7.8			**147.9**
Products	Length (KM)		654			11,861	2,596	5,121	2,386	**22,618**
	Cap (MMTPA)		1.7			70.6	22.6	36.3	9.4	**140.6**

*Others include GAIL and Petronet India. HPCL and BPCL lubes pipeline included in products pipeline data

11. Production and consumption of petroleum products (Million Metric Tonnes)

Products	2021-22		2022-23 (P)		May 2022		May 2023 (P)		Apr-May 2022		Apr-May 2023 (P)	
	Prod	Cons	Prod	Cons	Prod	Cons	Prod	Cons	Prod	Cons	Prod	Cons
LPG	12.2	28.3	12.8	28.5	1.1	2.2	1.1	2.3	2.2	4.3	2.3	4.5
MS	40.2	30.8	42.8	35.0	3.7	3.0	3.8	3.3	7.3	5.8	7.4	6.2
NAPHTHA	20.0	13.2	17.0	12.2	1.5	0.8	1.6	1.1	3.1	1.8	3.0	2.2
ATF	10.3	5.0	15.0	7.4	1.1	0.6	1.4	0.7	2.1	1.1	2.8	1.3
SKO	1.9	1.5	0.9	0.5	0.1	0.1	0.1	0.0	0.3	0.1	0.1	0.1
HSD	107.2	76.7	113.8	85.9	10.1	7.3	10.1	8.2	19.9	14.5	19.5	16.0
LDO	0.8	1.0	0.6	0.7	0.03	0.05	0.04	0.07	0.1	0.1	0.1	0.1
LUBES	1.2	4.5	1.3	3.8	0.1	0.3	0.1	0.3	0.2	0.6	0.2	0.6
FO/LSHS	8.9	6.3	10.4	6.9	1.0	0.5	0.8	0.6	1.8	1.1	1.9	1.2
BITUMEN	5.1	7.8	4.9	7.8	0.5	0.7	0.5	0.7	1.1	1.5	1.0	1.5
PET COKE	15.5	14.3	15.4	17.9	1.3	1.5	1.4	1.4	2.6	3.2	2.6	2.9
OTHERS	30.9	12.3	31.5	15.7	2.6	1.3	2.8	1.2	5.3	2.6	5.4	2.0
ALL INDIA	**254.3**	**201.7**	**266.5**	**222.3**	**23.3**	**18.4**	**23.9**	**20.0**	**46.0**	**36.8**	**46.4**	**38.6**
Growth (%)	**-3.1%**	**-5.4%**	**4.8%**	**10.2%**	**16.7%**	**26.0%**	**2.8%**	**9.0%**	**12.8%**	**19.2%**	**0.7%**	**4.7%**

Note: Prod - Production; Cons - Consumption

15. LPG consumption (Thousand Metric Tonne)

LPG category	2021-22	2022-23	May			April-May		
			2022-23	2023-24 (P)	Growth (%)	2022-23	2023-24 (P)	Growth (%)
1. PSU Sales :								
LPG-Packed Domestic	25,501.6	25,381.5	1,965.1	2,080.0	5.8%	3,920.0	4,018.0	2.5%
LPG-Packed Non-Domestic	2,238.8	2,606.0	162.0	224.1	38.3%	324.3	415.5	28.1%
LPG-Bulk	390.9	408.9	22.6	34.9	54.3%	53.5	52.4	-2.1%
Auto LPG	122.0	106.7	8.9	8.0	-10.1%	18.3	15.2	-17.2%
Sub-Total (PSU Sales)	28,253.3	28,503.1	**2,158.6**	**2,347.1**	**8.7%**	**4,316.1**	**4,501.1**	**4.3%**
2. Direct Private Imports*	0.1	0.1	0.02	0.0	-67.2%	0.0	0.0	-34.4%
Total (1+2)	28,253.4	28,503.2	**2,158.7**	**2,347.1**	**8.7%**	**4,316.1**	**4,501.1**	**4.3%**

*Apr -May'23 DGCIS data is prorated

16. LPG marketing at a glance

Particulars (As on 1st of April)	Unit	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	1.06.23 (P)
LPG Active Domestic Customers	(Lakh)				1486	1663	1988	2243	2654	2787	2895	3053	3140	3146
	Growth					11.9%	19.6%	12.8%	18.3%	5.0%	3.9%	5.5%	2.9%	2.0%
LPG Coverage (Estimated)	(Percent)				56.2	61.9	72.8	80.9	94.3	97.5	99.8	-	-	-
	Growth					10.1%	17.6%	11.1%	16.5%	3.4%	2.3%	-	-	-
PMUY Beneficiaries	(Lakh)						200.3	356	719	802	800	899.0	958.6	958.6
	Growth							77.7%	101.9%	11.5%	-0.2%	12.2%	6.6%	3.4%
LPG Distributors	(No.)	11489	12610	13896	15930	17916	18786	20146	23737	24670	25083	25269	25386	25392
	Growth	9.0%	9.8%	10.2%	14.6%	12.5%	4.9%	7.2%	17.8%	3.9%	1.7%	0.7%	0.5%	0.4%
Auto LPG Dispensing Stations	(No.)	652	667	678	681	676	675	672	661	657	651	601	526	526
	Growth	7.9%	2.3%	1.6%	0.4%	-0.7%	-0.1%	-0.4%	-1.6%	-0.6%	-0.9%	-8.5%	-12.5%	-12.8%
Bottling Plants	(No.)	184	185	187	187	188	189	190	192	196	200	202	208	208
	Growth	0.5%	0.5%	1.1%	0.0%	0.5%	0.5%	0.5%	1.1%	2.1%	2.0%	1.0%	4.5%	4.5%

Source: PSU OMCs (IOCL,BPCL and HPCL)

1.Growth rates as on 01.06.2023 are with respect to figs as on 01.06.2022. Growth rates as on 1 April of any year are with respect to figs as on 1 April of previous year.

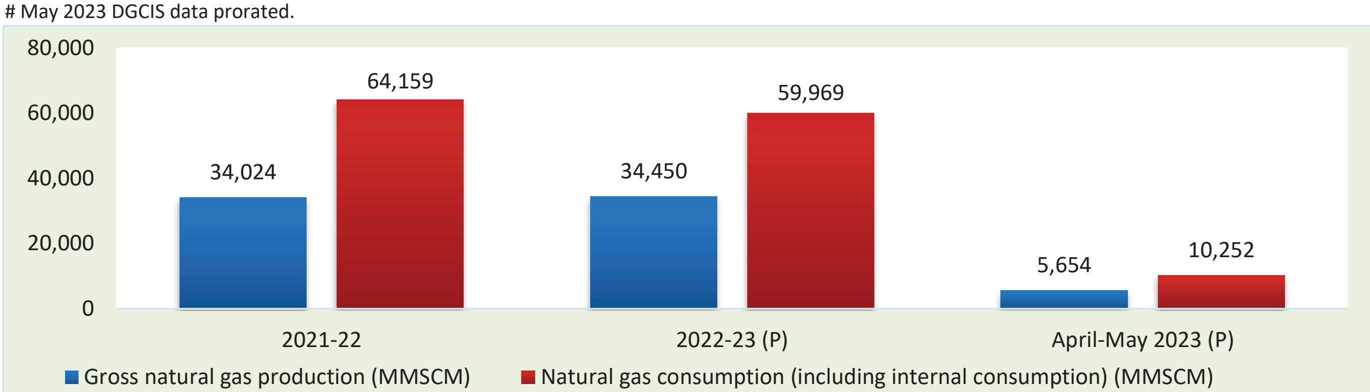
2. The LPG coverage is calculated by PSU OMCs based upon the active LPG domestic connections and the estimated number of households. The number of households has been projected by PSU OMCs based on 2011 census data. Factors like increasing nuclearization of families, migration of individuals/ families due to urbanization and reduction in average size of households etc. impact the growth of number of households. Due to these factors, the estimated no. of households through projection of 2011 census data may slightly differ from the actual no. of households in a State/UT. Further, this methodology does not include PNG (domestic) connections.

18. Natural gas at a glance

(MMSCM)

Details	2021-22 (P)	2022-23 (P)	May			April-May		
			2022-23 (P)	2023-24 (Target)	2023-24 (P)	2022-23 (P)	2023-24 (Target)	2023-24 (P)
(a) Gross production	34,024	34,450	2,914	3,007	2,909	5,741	5,859	5,654
- ONGC	20,629	19,969	1,741	1,757	1,684	3,449	3,478	3,291
- Oil India Limited (OIL)	2,893	3,041	251	258	251	496	486	488
- Private / Joint Ventures (JVs)	10,502	11,440	921	992	974	1,795	1,895	1,875
(b) Net production (excluding flare gas and loss)	33,131	33,664	2,846		2,838	5,594		5,509
(c) LNG import#	31,028	26,304	2,937		2,228	5,015		4,743
(d) Total consumption including internal consumption (b+c)	64,159	59,969	5,784		5,066	10,610		10,252
(e) Total consumption **(in BCM)**	64.2	60.0	5.8		5.1	10.6		10.3
(f) Import dependency based on consumption (%), {c/d*100}	48.4	43.9	50.8		44.0	47.3		46.3

May 2023 DGCIS data prorated.



19. Coal Bed Methane (CBM) gas development in India

Prognosticated CBM resources		91.8	TCF
Established CBM resources		10.4	TCF
CBM Resources (33 Blocks)		62.8	TCF
Total available coal bearing areas (India)		32760	Sq. KM
Total available coal bearing areas with MoPNG/DGH		17652	Sq. KM
Area awarded		20460	Sq. KM
Blocks awarded*		36	Nos.
Exploration initiated (Area considered if any boreholes were drilled in the awarded block)		10670***	Sq. KM
Production of CBM gas	April-May 2023 (P)	107.60	MMSCM
Production of CBM gas	May 2023 (P)	54.64	MMSCM

*ST CBM Block awarded & relinquished twice- in CBM Round II and Round IV -Area considered if any boreholes were drilled in the awarded block. **MoPNG awarded 04 new CBM Blocks (Area 3862 sq. km) under Special CBM Bid Round 2021 in September 2022. ***Area considered if any boreholes were drilled in the awarded block.

19a. Status of Compressed Bio Gas (CBG) projects under SATAT (as on 01.06.2023) (Provisional)

Particulars	Units	IOCL	HPCL	BPCL	GAIL	IGL	Total
No. of CBG plants commissioned/ Sale initiated	No. of plants	22	5	2*	9	3	**41**
Start of CBG sale from retail outlet(s)	Nos.	50	28	45	1		**124**
Sale of CBG in 2022-23	Tons	5,822	77	6	5322#		**11,227**
Sale of CBG in 2023-24 (up to May, 2023)	Tons	1428	8	11	1954		**3,401**
Sale of CBG in CGD network	GA Nos.				18		**18**

* Total No. of CBG and Bio gas plants commissioned are 8. # Sale of CBG sourced under CBG-CGD synchronization scheme through its own marketing channels as well as other CGDs/OMCs.

20. Common Carrier Natural Gas pipeline network as on 31.03.2023

Nature of pipeline		GAIL	GSPL	PIL	IOCL	AGCL	RGPL	GGL	DFPCL	ONGC	GIGL	GITL	Others*	Total
Operational	Length	10,930	2,716	1,484	143	107	304	73	42	24				**15,823**
	Capacity	233.2	43.0	85.0	20.0	2.4	3.5	5.1	0.7	6.0				**-**
Partially commissioned#	Length	4,173			282						1,279	365		**6,099**
	Capacity				-						-	-		**-**
Total operational length		**15,103**	**2,716**	**1,484**	**425**	**107**	**304**	**73**	**42**	**24**	**1,279**	**365**	**0**	**21,921**
Under construction	Length	5,095	100		1,149						1,077	1,666	2,915	**12,002**
	Capacity	-	3.0		-						-	-	-	**-**
Total length		**20,197**	**2,816**	**1,484**	**1,574**	**107**	**304**	**73**	**42**	**24**	**2,356**	**2,031**	**2,915**	**33,141**

Source: PNGRB; Length in KMs ; Authorized Capacity in MMSCMD (Arithmetic sum taken for each entity -capacity may vary from pipeline to pipeline); *Others-APGDC, , IGGL, IMC, Consortium of H-Energy. Total authorized Natural Gas pipelines including Tie-in connectivity, dedicated & STPL is 35379 Kms (P)

21. Existing LNG terminals

Location	Promoters	Capacity as on 01.06.2023	% Capacity utilisation (April 2023)
Dahej	Petronet LNG Ltd (PLL)	17.5 MMTPA	95.4
Hazira	Shell Energy India Pvt. Ltd.	5.2 MMTPA	21.2
Dabhol	Konkan LNG Limited	*5 MMTPA	75.2
Kochi	Petronet LNG Ltd (PLL)	5 MMTPA	19.9
Ennore	Indian Oil LNG Pvt Ltd	5 MMTPA	15.5
Mundra	GSPC LNG Limited	5 MMTPA	9.6
Dhamra	Adani Total Private Limited	5 MMTPA	-
Total Capacity		**47.7 MMTPA**	

* To increase to 5 MMTPA with breakwater. Only HP stream of capacity of 2.9 MMTPA is commissioned

22. Status of PNG connections and CNG stations across India (Nos.), as on 30.04.2023(P)

State/UT (State/UTs are clubbed based on the GAs authorised by PNGRB)	CNG Stations	PNG connections		
		Domestic	Commercial	Industrial
Andhra Pradesh	161	254,143	434	33
Andhra Pradesh, Karnataka & Tamil Nadu	37	170	0	5
Assam	5	49,498	1,344	441
Bihar	93	104,883	77	4
Bihar & Jharkhand	3	7,388	1	0
Bihar & Uttar Pradesh	14	0	0	0
Chandigarh (UT), Haryana, Punjab & Himachal Pradesh	25	25,670	121	25
Chhattisgarh	9	0	0	0
Dadra & Nagar Haveli (UT)	7	11,223	54	58
Daman & Diu (UT)	4	5,134	47	43
Daman and Diu & Gujarat	15	1,945	7	0
Goa	12	10,852	16	32
Gujarat	997	2,993,355	22,498	5,739
Haryana	339	320,198	840	1,726
Haryana & Himachal Pradesh	10	0	0	0
Haryana & Punjab	24	6	0	0
Himachal Pradesh	8	5,715	4	0
Jharkhand	77	112,216	5	1
Karnataka	296	388,033	531	304
Kerala	106	45,466	20	16
Kerala & Puducherry	9	389	0	0
Madhya Pradesh	230	209,166	347	447
Madhya Pradesh and Chhattisgrah	7	0	0	0
Madhya Pradesh and Rajasthan	31	320	0	0
Madhya Pradesh and Uttar Pradesh	16	0	0	2
Maharashtra	754	2,868,603	4,661	900
Maharashtra & Gujarat	60	150,004	5	20
Maharashtra and Madhya Pradesh	9	0	0	0
National Capital Territory of Delhi (UT)	480	1,444,444	3,621	1,798

State/UT (State/UTs are clubbed based on the GAs authorised by PNGRB)	CNG Stations	PNG connections		
		Domestic	Commercial	Industrial
Odisha	67	89,078	5	0
Puducherry	1	0	0	0
Puducherry & Tamil Nadu	8	219	1	0
Punjab	204	68,593	386	253
Punjab & Rajasthan	12	0	0	0
Rajasthan	251	221,957	135	1,541
Tamil Nadu	192	844	3	10
Telangana	150	193,181	78	102
Telangana and Karnataka	2	0	0	0
Tripura	18	59,350	506	62
Uttar Pradesh	801	1,381,243	2,281	2,743
Uttar Pradesh & Rajasthan	40	18,958	39	343
Uttar Pradesh and Uttarakhand	26	8,381	0	0
Uttarakhand	30	68,777	57	86
West Bengal	70	376	0	0
Total	**5,710**	**11,119,778**	**38,124**	**16,734**

Source: PNGRB

Note: 1. All the GAs where PNG connections/CNG Stations have been established are considered as Operational, 2. Under normal conditions. Operation of any particular GA commences within around one year of authorization. 3. State/UTs wherever clubbed are based on the GAs authorised by PNGRB.

23. Domestic natural gas price and gas price ceiling (GCV basis)

Period	Domestic Natural Gas price in	Gas price ceiling in US$/MMBTU
November 2014 - March 2015	5.05	-
April 2015 - September 2015	4.66	-
October 2015 - March 2016	3.82	-
April 2016 - September 2016	3.06	6.61
October 2016 - March 2017	2.5	5.3
April 2017 - September 2017	2.48	5.56
October 2017 - March 2018	2.89	6.3
April 2018 - September 2018	3.06	6.78
October 2018 - March 2019	3.36	7.67
April 2019 - September 2019	3.69	9.32
October 2019 - March 2020	3.23	8.43
April 2020 - September 2020	2.39	5.61
October 2020 - March 2021	1.79	4.06
April 2021 - September 2021	1.79	3.62
October 2021 - March 2022	2.9	6.13
April 2022 - September 2022	6.1	9.92
October 2022 - March 2023	8.57	12.46
1 April 2023 - 7 April 2023	9.16	12.12

Period	Domestic Gas calculated price in US$/MMBTU	Domestic Gas ceiling price for ONGC/OIL in US$/MMBTU	Period	HP-HT Gas price ceiling in US$/MMBTU
8 April 2023 - 30 April 2023	7.92	6.50	April 2023 - September 2023	12.12
1 May 2023 - 31May 2023	8.27	6.50		
1 June 2023 - 30 June 2023	7.58	6.50		

Natural Gas prices are on GCV basis

24. CNG/PNG prices

City	CNG (Rs/Kg)	PNG (Rs/SCM)	Source
Delhi	73.59	48.59	IGL website (13.06.2023)
Mumbai	79.00	49.00	MGL website (13.06.2023)

Indian Natural Gas Spot Price for Physical Delivery

IGX Price Index Month	Avg. Price		Volume (MMSCM)	Source
	INR/MMBtu	$/MMBtu		
May 2022	944	11.46	21.54	As per IGX website: www.igxindia.com

*Prices are weighted average prices |$1=INR 82.34| 1 MMBtu=25.2 SCM (Data Excluding Ceiling Price Gas) https://www.kommersant.ru/doc/6067916?from=top_main_6

24.06.2023, 22:49

Peskov: Prigozhin's criminal case will be dismissed, he will leave for Belarus

Dmitry Peskov said that the criminal case against Yevgeny Prigozhin will be dismissed. The head of the PMC will leave for Belarus, under the guarantees of President Vladimir Putin. Who exactly he will work there is unknown to the president's press secretary. Mr. Peskov assured that the authorities would not persecute the Wagner PMC fighters who participated in the rebellion. Some of the fighters of the private military company, who initially refused to participate in the march organized by Yevgeny Prigozhin, will sign contracts with the Ministry of Defense.

"We managed to resolve this situation without further losses, without increasing the level of tension. As a result, an agreement was reached that the Wagner PMC would return to its camps, "Mr. Peskov told reporters. He also noted that "fighters from the Wagner PMC, who participated in today's events, will not be persecuted." "There was a higher goal to avoid bloodshed and internal confrontation, Lukashenka's efforts were in the name of these goals," the Kremlin spokesman stressed.

Dmitry Peskov clarified that Alexander Lukashenko offered himself as a negotiator, as he has known the head of PMCs for more than 20 years. "It was his personal initiative decision, which was agreed with President Putin," Mr. Peskov said.

"If you are asking what kind of guarantee that Prigozhin will be able to go to Belarus, this is the word of the President of Russia," Dmitry Peskov emphasized.

When asked by journalists whether personnel changes in the Ministry of Defense were discussed, Dmitry Peskov stressed that such issues are the exclusive prerogative of the head of state, and therefore could hardly be discussed during the negotiations. Earlier, Yevgeny Prigozhin called for the resignation of Defense Minister Sergei Shoigu and Chief of the General Staff Valery Gerasimov.

Speaking about the regime of the counter-terrorist operation, the Kremlin spokesman noted that there are all prerequisites for its abolition. There will be no new appeal from Putin in the near future, Dmitry Peskov said.

Tonight, the press service of Alexander Lukashenko reported that the President of Belarus held talks with Yevgeny Prigozhin at the request of Vladimir Putin. According to the press service of Mr. Lukashenko, the result of these agreements was the decision to stop the march of the Wagner PMC. In addition, "an absolutely profitable and acceptable solution to the situation, with security guarantees for the fighters of the Wagner PMC" was prepared. After that, Yevgeny Prigozhin announced the end of the march on Moscow and the return to the field camps.

Last night, June 23, Yevgeny Prigozhin accused the Ministry of Defense of attacking the positions of his company and said that 25 thousand people are marching on a "march of justice" to Moscow. The FSB opened a case of incitement to armed rebellion (up to 20 years in prison). On June 24, his company's fighters blocked military facilities in Rostov-on-Don. Russian President Vladimir Putin called the actions of PMCs a rebellion and betrayal. In Moscow, as well as in the Voronezh and Moscow regions, a counter-terrorist

Read about the situation with Yevgeny Prigozhin in the article "Minsk stopped the march on Moscow".

Mikhail Belyaev

https://t.me/pul_1/9275

Pool of the first

Report of the press service of the President of the Republic of Belarus.

This morning, Russian President Vladimir Putin informed his Belarusian counterpart about the situation in southern Russia with the Wagner private military company. The heads of state agreed on joint actions.
As a follow-up to the agreements, the President of Belarus, having further clarified the situation through his own channels, in agreement with the President of Russia, held talks with the head of the Wagner PMC Yevgeny Prigozhin.
The negotiations lasted throughout the day. As a result, they came to an agreement on the inadmissibility of unleashing a bloody massacre on the territory of Russia. Yevgeny Prigozhin accepted the proposal of the President of Belarus Alexander Lukashenko to stop the movement of Wagner armed persons on the territory of Russia and further steps to de-escalate tensions.
At the moment, on the table is an absolutely profitable and acceptable option for resolving the situation, with security guarantees for the fighters of the Wagner PMC.
As previously reported, the President of Belarus also held two meetings with the country's power bloc on this situation.

t.me/pul_1/9275

2.3M Jun 24 at 11:07

https://www.kommersant.ru/doc/6067885
24.06.2023, 20:14

Lukashenka agreed with Prigozhin to stop the movement of PMCs and de-escalate

The press service of Alexander Lukashenko reported that the President of Belarus held talks with the head of the Wagner PMC, Yevgeny Prigozhin, at the request of Vladimir Putin. They walked all day. As a result, an agreement was reached on the inadmissibility of "unleashing a bloody massacre on the territory of Russia."

Alexander Lukashenko
Photo: Dmitry Azarov, Kommersant

According to the press service, Yevgeny Prigozhin accepted the proposal of the President of Belarus to stop the movement of PMCs and further steps to de-escalate tensions. An "absolutely profitable and acceptable solution to the situation, with security guarantees for the fighters of the Wagner PMC" has been prepared.

Yevgeny Prigozhin himself confirmed that he had given the order to launch the march and "return to the field camps, according to the plan." This, he said, he decided to go to avoid bloodshed.

Last night, June 23, the founder of the private military company Wagner, Yevgeny Prigozhin, accused the Ministry of Defense of attacking the positions of his company and said that 25 thousand people were going to "figure it out". He called his act a "march of justice." After the statements of Yevgeny Prigozhin, the

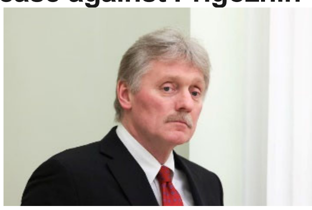
FSB opened a case of calling for an armed rebellion. Russian President Vladimir Putin called the actions of PMCs a rebellion and betrayal. In Moscow, as well as in the Voronezh and Moscow regions, a counter-terrorist operation regime was introduced.

Mikhail Belyaev

https://tass.ru/politika/18111749
24 June, 14:28

The case against Prigozhin on the organization of an armed rebellion

The case against Prigozhin will be dismissed, and the SVO continues. Statements from Peskov's briefing



Press Secretary of the President of Russia Dmitry Peskov

A difficult day that was full of tragic events. This is how **the** press secretary of the head of state, Dmitry Peskov, described Saturday. He also said that the criminal case against the founder of the Wagner PMC, Yevgeny Prigozhin, **would** be dismissed, he would "go to Belarus," and the situation with the rebellion would not affect the course of the NWO in any way.
TASS has collected key statements by the representative of the Kremlin.

Talks with Lukashenka

- In the morning there was a conversation between the presidents of the Russian Federation Vladimir Putin and Belarus Alexander Lukashenko. "There were other conversations between the two presidents," the last one "took place just an hour ago."
- "Lukashenka will provide mediation efforts to resolve the situation. We really appreciate this willingness."
- "Alexander Grigorievich has long been personally acquainted with [the head of the Wagner PMC Yevgeny] Prigozhin, about 20 years, it was his personal initiative proposal." "We are grateful to the President of Belarus for these efforts."
- "The evening conversation between the two presidents was very long, frank, warm and very constructive."

On the terms of the settlement

- It was possible to resolve the situation "without further losses", "without increasing the level of tension."
- "As a result, an agreement was reached that the Wagner PMC would return to its camps. Some of them, who wish, will sign contracts with the Ministry of Defense in the future - this applies to the part that did not take part in this campaign, there were such.
- The rest of the fighters of the Wagner PMC "will not be persecuted by anyone, taking into account their merits at the front." "We will always keep this respect."
- "There was a higher goal - to avoid bloodshed, to avoid internal confrontation, to avoid clashes with unpredictable results - it was in the name of these goals that Lukashenka's mediation efforts were implemented.
- The criminal case against Prigozhin will be dismissed, and "he himself will go to Belarus."
- What he will do in Belarus, the Kremlin does not know. Where he is now, Peskov does not know.

On the impact of the incident on the NWO

- The incident "in no way" will affect the course of the special operation: "The NWO continues, our fighters on the front line are showing heroism."

On the reshuffle in the Ministry of Defence

- Personnel changes in the Ministry of Defense are the exclusive prerogative of the president as commander-in-chief, so this topic could not be raised during the negotiations.
- "I am not aware of any changes [in the issue of Putin's confidence in the defense minister]."

On the regime of the counter-terrorist operation in the regions

- Since "the process of escalating tensions has been reversed," there are all the prerequisites for lifting the CTO regime.

On the work of the President

- "No new presidential addresses are planned tonight or night."
- "Yes, indeed," the president was in the Kremlin.

https://www.kommersant.ru/doc/6067670?from=spot
24.06.2023, 10:26

Putin's appeal to the Russians in connection with the actions of Prigozhin and the Wagner PMC. Full text, video

I appeal to the citizens of Russia, to the personnel of the armed forces, law enforcement agencies and special services, to the soldiers and commanders who are now fighting in their combat positions, repelling enemy attacks, doing it heroically - I know, I spoke again tonight with the commanders of all directions. I also appeal to those who, by deception or threats, were dragged into a criminal adventure, pushed onto the path of a serious crime - an armed rebellion.

Russia today is waging an uphill struggle for its future, repelling the aggression of neo-Nazis and their masters. Virtually the entire military, economic, and information machine of the West is directed against us. We are fighting for the lives and security of our people, for our sovereignty and independence. For the right to be and remain Russia - a state with a thousand-year history.

This battle, when the fate of our people is being decided, requires the unity of all forces, unity, consolidation and responsibility. When everything that weakens us must be cast aside, any strife that our external enemies can and use to undermine us from within.

That is why the actions that split our unity are, in fact, apostasy from our people, from our comrades-in-arms who are now fighting at the front. This is a stab in the back of our country and our people.

It was such a blow that was inflicted on Russia in 1917, when the country was waging the First World War. But the victory was stolen from her. Intrigues, squabbles, politicking behind the backs of the army and the people turned into the greatest shock, the destruction of the army and the collapse of the state, the loss of vast territories. As a result, the tragedy of the civil war.

Russians killed Russians, brothers killed brothers, and all sorts of political adventurers and foreign forces that divided the country and tore it apart extracted selfish benefits.

We will not let this happen again. We will protect both our people and our statehood from any threats. Including - from internal betrayal.

And what we are facing is precisely betrayal. Exorbitant ambitions and personal interests led to betrayal. To the betrayal of their country, and their people, and the cause for which, side by side with our other units and subunits, the fighters and commanders of the Wagner Group fought and died. The heroes who liberated Soledar and Artyomovsk, the cities and towns of Donbass, fought and gave their lives for Novorossia, for the unity of the Russian world. Their name and glory were also betrayed by those who are trying to organize a rebellion, pushing the country towards anarchy and fratricide. To defeat, in the end, and surrender.

I repeat, any internal turmoil is a mortal threat to our statehood, to us as a nation. This is a blow to Russia, to our people. And our actions to protect the Fatherland from such a threat will be tough. All those who deliberately embarked on the path of betrayal, who prepared an armed rebellion, embarked on the path of blackmail and terrorist methods, will be inevitably punished, will answer both before the law and before our people.

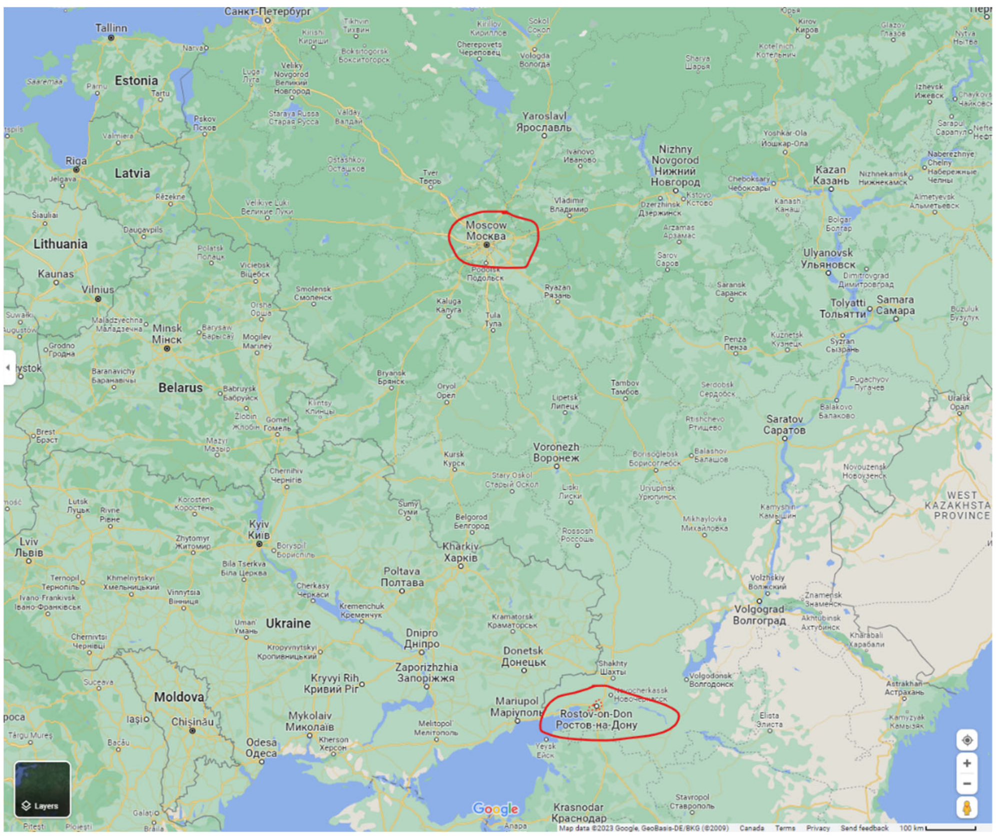
The Armed Forces and other state bodies have received the necessary orders, and additional anti-terrorist measures are now being introduced in Moscow, the Moscow Region and a number of other regions. Decisive action will also be taken to stabilize the situation in Rostov-on-Don. It remains difficult, in fact, the work of civil and military authorities is blocked.

As President of Russia and Supreme Commander-in-Chief, as a citizen of Russia, I will do everything to defend the country, protect the constitutional order, lives, security and freedom of citizens.

Those who organized and prepared a military rebellion, who took up arms against their comrades-in-arms, betrayed Russia. And they will answer for it. And I urge those who are trying to be drawn into this crime not to make a fatal and tragic, unique mistake, to make the only right choice - to stop participating in criminal actions.

I believe that we will preserve and defend what is dear and sacred to us, and together with our Motherland we will overcome any trials, we will become even stronger.

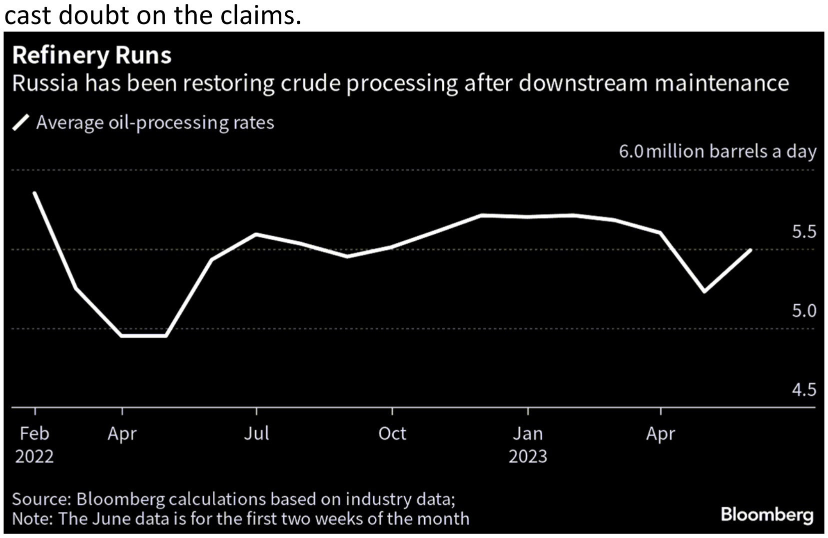
Rostov-on-Don and Moscow



Source: Google Maps

Russia Raises Crude-Oil Processing to Highest in Over Two Months
2023-06-19 12:01:58.159 GMT
By Bloomberg News

(Bloomberg) -- Russian refineries have raised their crude-processing volumes to highest levels in nine weeks as the nation's downstream maintenance season is nearing an end.
Russia's refining facilities processed 5.49 million barrels a day in the week ending June 14, according to a person familiar with the matter. That's nearly 194,000 barrels a day more than the the week before and the country's highest processing rate since the second half of April, historical data show.
Crude supplies to domestic refineries, along with seaborne exports, remain the key gauges for oil-market observers seeking clues to Russia's production levels after the government classified output data amid Western sanctions. The country pledged to cut output by 500,000 barrels a day starting in March, responding to restrictive measures adopted by the West, including a G-7 price cap on its crude sales.
Russia is implementing its cuts in full, Deputy Prime Minister Alexander Novak has said on numerous occasions, most recently at the Vienna meeting of the Organization of Petroleum Exporting Countries and its allies in early June. However, robust seaborne exports and recovering domestic crude processing cast doubt on the claims.



"Russia is restoring its daily refinery throughput as the spring maintenance season is largely over," said Viktor Katona, head of oil analytics at research firm Kpler. "We will see the last key facilities, including Surgutneftegas PJSC's Kirishi, coming back online in the first days of July. Then the refinery runs will fully return to pre-maintenance volumes."
Russian oil-processing volumes so far this year peaked at 5.78 million barrels per day in the first week of April, according to historic data.

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https://libyaobserver.ly/news/new-oil-crisis-looming-rival-pm-threatens-shut-down-oil-sites-east

New oil crisis looming as rival PM threatens to shut down oil sites in the east

BY SAFAALHARATHY SUN, 25/06/2023 - 11:46

Osama Hammad, who is heading the rival government in the east, warned on Saturday to take action and halt oil and gas operations in the main oil sites east of the country.

Hammad accused the National Oil Corporation (NOC) of siding with the UN- recognized Government of National Unity based in Tripoli and giving it access to "seize" $16 billion in oil revenues.

He warned to halt export operations and declare force majeure in response.

Hammad's government said it would "resort to the judiciary to appoint a judicial guard" over the seized funds to stop the ongoing tampering.

"The situation will remain unchanged until completing the relevant legal and financial procedures, which the committee formed by the House of Representatives should reorganize and implement under the supervision of the NOC's chief," a statement by the east-based government said.

Hammad said his administration would withhold development expenses without prejudice to the salary item or the service sector.

His government called on the UN Support Mission in Libya to undertake its tasks without bias and "clarify all that has been wasted from the people's money."

It may be worth noting that the Benghazi Court of Appeal had earlier rejected the NOC's appeal against the parallel government's decision to seize oil revenues and upheld its procedures for confiscating the NOC's accounts, issued on January 25, 2023.

TAGS: OIL SHUT DOWN EAST-BASED GOVERNMENT OSAMA HAMMAD

06/23/2023 05:41:56 [BN] Bloomberg News

OIL DEMAND MONITOR: Economic Woes Rattle Market as Data Muddled

- **Analysts split as economic issues, tightening outlook weighed**
- **Interest rate hikes a big worry but IEA, OPEC see solid demand**

By John Deane

(Bloomberg) -- There’s a discordance at the heart of the oil market, with some analysts fretting over the impact of widespread economic fragility on demand, while others focus on signs of robust overall consumption.

In recent weeks, some of Wall Street’s most prominent oil-watchers have abandoned their belief in a price rally this year, pointing to a combination of plentiful supply and tighter monetary policy eroding fuels usage. Even Goldman Sachs Group Inc., one of the most bullish on oil, felt compelled to slash its forecast for global benchmark Brent to below $90 a barrel by year-end.

The skeptics can point both to macroeconomic trends and oil-specific data in making their case. US Federal Reserve Chair Jerome Powell indicated earlier this week that interest rates will need to move higher to contain price pressures, while the modest pace of China’s stimulus rollout is adding to concerns about the weakening economy. The Asian nation’s diesel exports shrank to a 10-month low in May as faltering global growth cuts consumption of the fuel used in heavy machinery. Meanwhile, China National Petroleum Corp. cut its forecast for the nation’s oil demand this year.

Still, the outlook for demand globally is complex, with wide variations in individual countries’ economic prospects, in usage of different fuels, and in analysts’ interpretations of data.

In its latest Monthly Oil Market Report, the International Energy Agency actually increased its estimate for global oil demand growth this year by about 200,000 barrels a day to 2.4 million, lifting daily consumption to a record 102.3 million.

The Paris-based agency said that China’s post-Covid rebound continues “ unabated,” with its oil demand reaching an all-time high in April. Non-OECD countries account for 90% of gains this year, as demand from the countries of the Organization for Economic Cooperation & Development remains “lackluster” amid a manufacturing slump. The IEA cautioned, though, that an increasingly adverse macroeconomic climate will act as a headwind in 2024, with oil demand growth set to slow to just 860,000 barrels a day.

Read More: Oil Demand Growth to Slow Sharply as Peak Nears, IEA Says

The Vienna-based Organization of Petroleum Exporting Countries left its 2023 global oil demand growth forecast unchanged at about 2.3 million barrels a day, to a total of 101.9 million, with non-OECD countries accounting for almost all of that.

In its outlook for the third quarter, OPEC saw “solid” demand growth of about 800,000 barrels a day in China, with aviation, petrochemicals, personal mobility and construction activity all contributing. In India, it saw growth of 300,000 barrels a day in the period, driven by transportation fuels. The peak driving season in the US was among factors seen supporting modest demand growth in the OECD Americas, while strong airline activity and the use of fuel oil for electricity generation in the hot summer months was seen bolstering demand in the Middle East. The prospects were less promising though for the OECD countries of Europe, as recession fears linger.

"The service sector is doing quite well," Greg Sharenow, who manages a portfolio focused on energy and commodities at Pacific Investment Management Co., said this week in a Bloomberg TV interview. "If you look at the strength in the diesel markets, the strength in the gasoline markets, you look at jet, we have seen a real turn-up in demand. If you look at 2023 demand estimates today versus six months ago, the demand estimates are 400,000 to 500,000 barrels per day higher.

"So that is real strength. But there is real weakness in the manufacturing sector, and there is real weakness in the petrochemicals. And that is undeniable. So it really is very much a split picture."

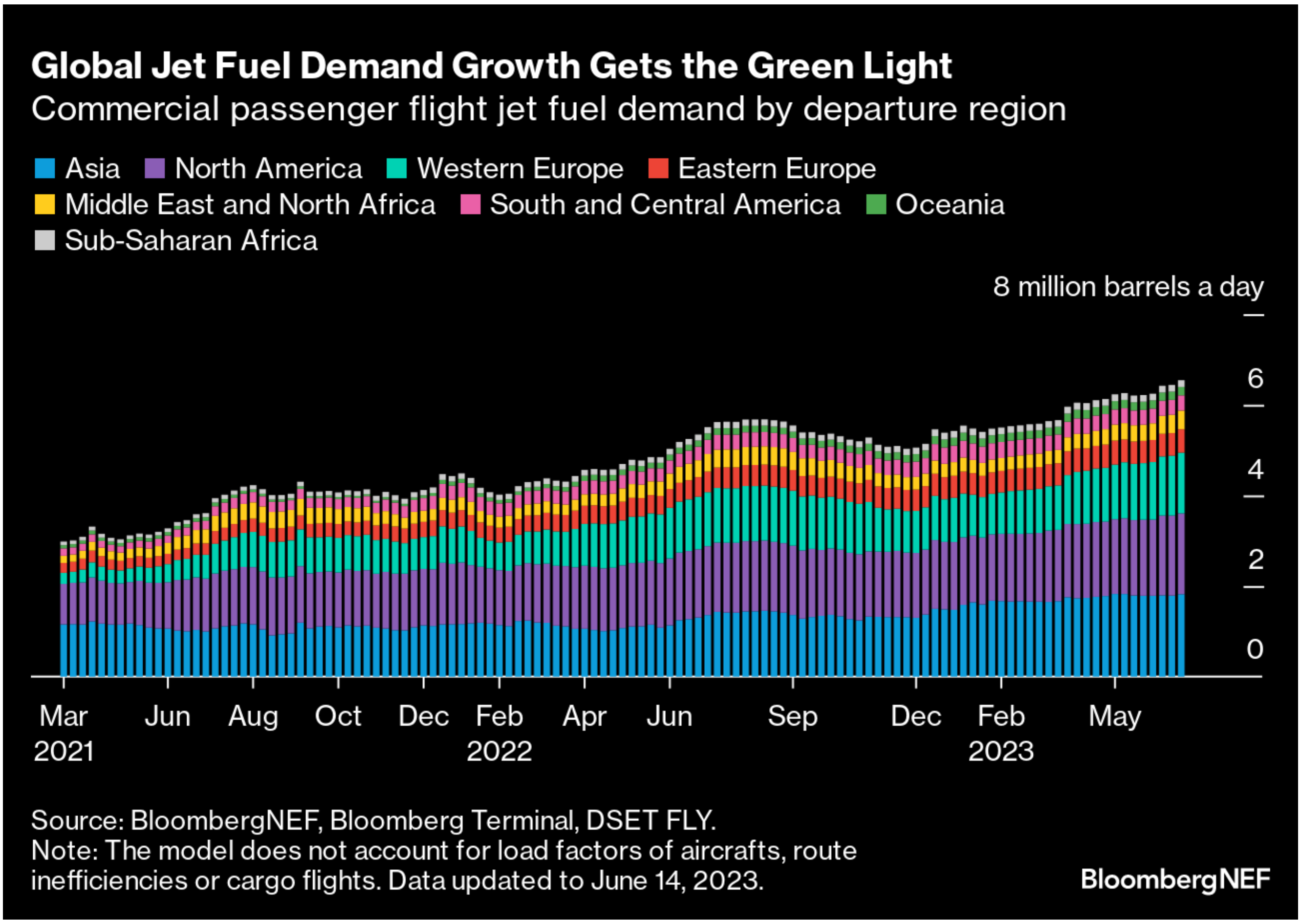
Pimco Commodities and Real Assets Portfolio Manager Greg Sharenow says oil markets are signaling that the services sector is doing well. Bloomberg

To get Bloomberg's Energy Daily newsletter direct into your inbox, click here.

In the latest weekly data from the US government, total oil product supplied — a proxy for demand — was the highest since December, and looked seasonally strong too. Demand for jet fuel on a four-week average basis was the highest since last summer. That didn't stop futures prices from falling sharply on Thursday though, as traders focused on the global threat posed by inflation.

On the roads, four of 13 major world cities — London, Rome, Paris and Berlin — showed more intense traffic congestion on Monday compared with 2019, according to BNEF seven-day moving average calculations based on TomTom data. New York was only fractionally below that level, despite a holiday in the US, and several more were very close. Congestion in major Chinese cities intensified sharply, the data showed.

In the skies, OAG Aviation sees global airline seat capacity trailing 2019 levels by 3.6% currently, though potentially nearing that baseline by the end of August. Over the summer, OAG anticipates record traffic between Western Europe and the US. London's Heathrow Airport handled 6.73 million passengers in May, a 26% year-on-year increase and the highest since the autumn of 2019.



Read More: Summer Upswing Continues for Global Jet Fuel Demand: BNEF Chart

Inventory draws in the most visible locations, such as the US, may be needed to catalyze a rally in oil prices, according to Energy Aspects Ltd.'s Amrita Sen. Inventories at Cushing, Oklahoma, the largest crude storage hub did start to draw down last week, interrupting eight consecutive weeks of builds. Stocks fell by almost 100,000 barrels.

"Sure the base is weak, but India is printing record high growth, US demand particularly on the consumers is still holding up," Sen said in an interview with Bloomberg TV earlier this month. "There is a huge disconnect between the data that has been coming in, and forecasts, versus prices. It is really hard to square right now."

Read More: Refiners Are De-stocking and That's Weighing on Crude, EA Says

The Bloomberg oil-demand monitor uses a range of high-frequency data to help identify emerging trends. Following are the latest indicators. The first two tables shows fuel demand and road congestion, the next shows air travel globally and the last is refinery activity:

Demand Measure	Location	%vs 2022	% vs 2021	% vs 2020	% vs 2019	% m/m	Freq	Latest Date	Latest Value	Source
Gasoline product supplied	US	+10	−0.7	+9	−5.6	−0.7	w	June 16	9.38m b/d	EIA
Distillates product supplied	US	+3	+0.8	+15	−2	−5.2	w	June 16	3.98m b/d	EIA
Jet fuel product supplied	US	+8.2	+16	+128	+9.6	+28	w	June 16	1.83m b/d	EIA
Total oil products supplied	US	+5.1	+0.8	+14	+0.5	+1.1	w	June 16	20.9m b/d	EIA
Car use	UK	+3.1	+4.2	+41	−1	+2.1	m	June 12	99	DfT
Heavy goods vehicle use	UK	unch.	unch.	+18	+9	unch.	m	June 12	109	DfT
All motor vehicle use index	UK	+4	+5.1	+41	+4	+2	m	June 12	104	DfT
Gasoline (petrol) avg sales per filling station	UK	+5.5	+5.2	+82	+0.4	+0.3	m	Week to May 28	7,220 liters/d	BEIS
Diesel avg sales per station	UK	−2.6	−8.3	+49	−12	unch.	m	Week to May 28	9,170 liters/d	BEIS
Total road fuels sales per station	UK	+0.8	−2.8	+62	−6.9	+0.1	m	Week to May 28	16,389 liters/d	BEIS
Diesel sales	India	−6.7				+3.9	m	June 1−15	3.43m tons	Bberg
Gasoline sales	India	−5.7				−6.4	m	June 1−15	1.31m tons	Bberg
Jet fuel sales	India	+2.6				unch.	m	June 1−15	290k tons	Bberg
LPG sales	India	−1.3				−4.2	m	June 1−15	1.15m tons	Bberg
Gasoline deliveries	Spain	+7.1				+2	m	May	530.5k m3	Exolum
Diesel (and heating oil) deliveries	Spain	−0.6				+7.2	m	May	2,241k m3	Exolum
Jet fuel deliveries	Spain	+9.4				+8.3	m	May	611k m3	Exolum
Total oil products deliveries	Spain	+2				+6.6	m	May	3,383k m3	Exolum
Road fuel sales	France	−4.4				+9.1	m	May	4.06m m3	UFIP
Gasoline sales	France	+5.4					m	May	n/a	UFIP
Road diesel sales	France	−8					m	May	n/a	UFIP
Jet fuel sales	France	+9.6				+19	m	May	658k m3	UFIP
All petroleum products sales	France	−1.2				+10	m	May	4.54m tons	UFIP
All vehicles traffic	Italy	−3				−1	m	May	n/a	Anas
Heavy vehicle traffic	Italy	unch.				+12	m	May	n/a	Anas
Gasoline sales	Italy	+7.1			+15	+13	m	May	710k tons	Energy Ministry
Transport diesel sales	Italy	+1			+1	+12	m	May	2.06m tons	Energy Ministry
Diesel/gasoil sales	Italy	+0.8			+0.4	+14	m	May	2.28n tons	Energy Ministry

LPG sales	Itay	+9.5			−4.7	+3	m	May	243k tons	Energy Ministry
Jet fuel sales	Italy	+14			−12	+6.1	m	May	381k tons	Energy Ministry
Total oil product sales	Italy	+1.4			−1.9	+14	m	May	4.53m tons	Energy Ministry
Gasoline consumption	Portugal	+18	+40	+79	+18	+22	m	May	110.5k tons	ENSE
Diesel consumption	Portugal	+10	+26	+41	+10	+17	m	May	478k tons	ENSE
Jet fuel consumption	Portugal	+15	+232	+1,224	+6.6	+4.3	m	May	154k tons	ENSE
% change in toll roads kms travelled	France	+4.8			+14		m	May	n/a	Mundys
% change in toll roads kms travelled	Italy	+1.4			+4.9		m	May	n/a	Mundys
% change in toll roads kms travelled	Spain	−0.5			−2.8		m	May	n/a	Mundys
% change in toll roads kms travelled	Brazil	+4.5			+12		m	May	n/a	Mundys
% change in toll roads kms travelled	Chile	−3.5			+8.6		m	May	n/a	Mundys
% change in toll roads kms travelled	Mexico	+3.5			+15		m	May	n/a	Mundys

Notes: Click here for a PDF with more information on sources, methods. The frequency column shows w for data updated weekly, 2/m for twice a month and m for monthly.

City congestion:

Measure	Location	June 19	June 12	June 5	May 29	May 22	May 15	May 8	May 1	Apr 24	Apr 17	Apr 10	Apr 3
Congestion	Tokyo	91	89	88	90	85	85	67	83	85	81	83	105
Congestion	Taipei	94	90	94	87	86	86	89	80	86	82	66	82
Congestion	Jakarta	69	67	57	69	60	69	69	26	35	85	68	69
Congestion	Mumbai	49	47	44	44	42	43	45	49	50	51	47	45
Congestion	New York	99	92	104	86	109	111	98	97	94	77	76	88
Congestion	Los Angeles	86	86	88	77	93	98	90	95	95	90	86	94
Congestion	London	121	120	103	115	115	122	100	107	122	96	87	107
Congestion	Rome	121	114	99	124	121	122	123	86	110	98	102	113
Congestion	Madrid	83	90	88	90	84	81	77	79	96	92	27	76
Congestion	Paris	122	121	126	98	85	113	74	78	95	98	92	96
Congestion	Berlin	108	106	110	96	99	118	111	94	110	94	75	109
Congestion	Mexico City	70	75	75	76	81	74	73	71	79	63	35	81
Congestion	Sao Paulo	93	67	84	80	80	87	79	72	71	81	69	80

Source: TomTom. Click here for a PDF with more information on sources, methods

NOTE: TomTom changed its methodology for calculating traffic delays with data for Feb. 20 and no longer publishes comparisons with pre−Covid levels. We have therefore switched to using figures calculated by BNEF, which show 7−day moving average congestion indexed to average 2019 levels. See the linked PDF for more details.

NOTE: June 19 was a holiday in the US

Air Travel:

Measure	Location	vs 2022	vs 2021	vs 2020	vs 2019	m/m	w/w	Freq.	Latest Date	Latest Value	Source
		changes shown as %									
All flights	Worldwide	+8.3	+19	+93	+14	+4.5	+1.7	d	June 19	232,865	Flightradar24
Commercial flights	Worldwide	+23	+48	+175	+4	+4.9	+1.7	d	June 19	127,194	Flightradar24
Seat capacity per week	Worldwide	+14	+55	+182	−3.6		+0.9	w	June 19 week	112.4m seats	OAG
Air traffic (flights)	Europe				−8.1	+8.7	+2.6	d	June 19	32,968	Eurocontrol
Airline passenger throughput (7−day avg)	US	+11	+35	+419	−1	+7	+3	w	June 18	2.57m	TSA
Air passenger traffic per month	China	+537	−1.6	+201	−5.3	+10		m	April	50.3m	CAAC
Heathrow airport passengers	UK	+26	+896	+2,850	−0.6	+5.1		m	May	6.73m	Heathrow
Rome % change in passengers carried	Italy	+32			−11			m	May	n/a	Mundys

NOTE: Comparisons versus 2019 are a better measure of a return to normal for most nations, rather than y/y comparisons.

FlightRadar24 data shown above, and comparisons thereof, all use 7−day moving averages, except for w/w which uses single day data.

NOTE: June 19 was a holiday in the US

Refineries:

Measure	Location	vs 2022	vs 2021	vs 2019	m/m chg	Latest as of Date	Latest Value	Source
			Changes are in ppt unless noted					
Crude intake	US	+1.3%	+2.2%	−4.6%	+2.5%	June 16	16.47m b/d	EIA
Utilization	US	−0.9	+0.9	−0.8	+1.4	June 16	93.1%	EIA
Utilization	US Gulf	−2.9	+0.2	−1	−2.6	June 16	92.7%	EIA

Utilization	US East	−18	−7.7	−12	−6.1	June 16	79.9% EIA
Utilization	US Midwest	+0.9	−1.3	−0.6	+6	June 16	95.3% EIA
Utilization (indep. refs)	Shandong, China	−5.8	−11	unch.	−1.1	June 23	60.9% Oilchem

NOTE: US refinery data is weekly. Changes are shown in percentages for the row on crude intake, while refinery utilization changes are shown in percentage points.

Previous versions:

Click here for prior versions of the OIL DEMAND MONITOR or run NI OILDEMON

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−−With assistance from Julian Lee, Alex Longley, Bill Lehane, Lucia Kassai and Sheela Tobben.

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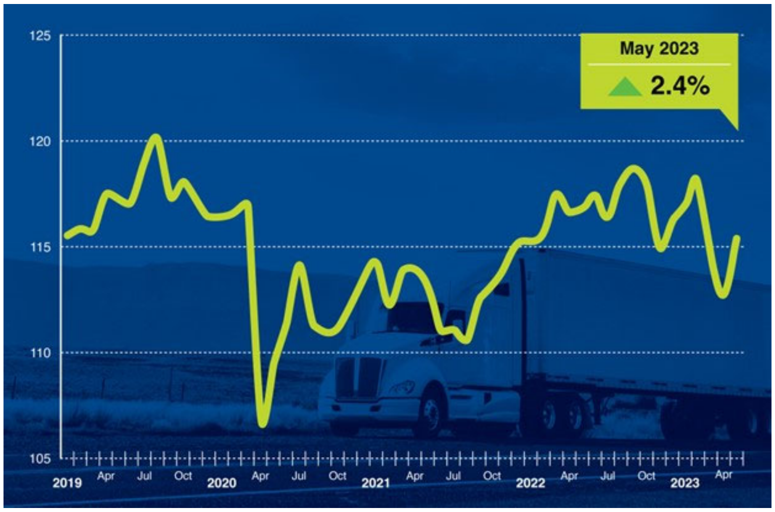
ATA Truck Tonnage Index Increased 2.4% in May

Media Contact: Sean McNally

Jun 20, 2023

Index 1.3% Below May 2022



Washington — American Trucking Associations' advanced seasonally adjusted (SA) For-Hire Truck Tonnage Index rose 2.4% in May after decreasing 1.7% in April. In May, the index equaled 115.4 (2015=100) compared with 112.7 in April.

"Tonnage had a nice gain in May, but remains in recession territory," said **ATA Chief Economist Bob Costello.** "The 2.4 percent gain didn't erase the 4.5 percent total drop the previous two months. Additionally, tonnage continues to contract from year earlier levels as retail sales remain soft, manufacturing production continues to fall from a year ago, and housing starts contract from 2022 levels."

April's decline was unchanged from our May 23 press release.

Compared with May 2022, the SA index decreased 1.3%, which was the third straight year-over-year decrease. In April, the index was down 3.4% from a year earlier.

The not seasonally adjusted index, which represents the change in tonnage actually hauled by the fleets before any seasonal adjustment, equaled 120 in May, 10.1% above the April level (109). In calculating the index, 100 represents 2015. ATA's For-Hire Truck Tonnage Index is dominated by contract freight as opposed to spot market freight.

Trucking serves as a barometer of the U.S. economy, representing 72.2% of tonnage carried by all modes of domestic freight transportation, including manufactured and retail goods. Trucks hauled 10.93 billion tons of freight in 2021. Motor carriers collected $875.5 billion, or 80.8% of total revenue earned by all transport modes.

ATA calculates the tonnage index based on surveys from its membership and has been doing so since the 1970s. This is a preliminary figure and subject to change in the final report issued around the 5th day of each month. The report includes month-to-month and year-over-year results, relevant economic comparisons, and key financial indicators.

Https://www.dallasfed.org/research/surveys/des/2023/2302

Dallas Fed Energy Survey

Oil and gas activity flat; cost increases continue but moderate

Activity in the oil and gas sector was unchanged in second quarter 2023, according to oil and gas executives responding to the Dallas Fed Energy Survey. The business activity index—the survey's broadest measure of conditions facing Eleventh District energy firms—edged down to zero in the second quarter from 2.1 in the first.

Oil and natural gas production increased at a slower pace compared with the prior quarter, according to executives at exploration and production (E&P) firms. The oil production index was 8.0 in the second quarter versus 10.5 in the first. Meanwhile, the natural gas production index declined to 2.1 from 7.4.

Firms reported rising costs for a 10th consecutive quarter. While the indexes remain above series averages, the rate of cost increases slowed. Among oilfield services firms, the input cost index remained positive but fell sharply to 41.2 from 61.6. Among E&P firms, the finding and development costs index plummeted to 14.9 from 46.8. Additionally, the lease operating expenses index declined to 26.0 from 37.6.

Oilfield services firms reported deterioration in most indicators. The equipment utilization index turned negative, falling to -7.9 in the second quarter from 3.9 in the first. The operating margin index tumbled to -21.6 from 1.9. The index of prices received for services remained positive but decreased to 3.9 from 25.0.

The aggregate employment index posted a 10th consecutive positive reading and was relatively unchanged at 13.1. Similarly, the aggregate employee hours index was relatively unchanged at 10.5. Meanwhile, the aggregate wages and benefits index declined to 34.5 from 43.6.

The company outlook index remained negative in the second quarter but moved up to -9.1 from -14.1. The overall outlook uncertainty index remained positive but plunged 26 points to 36.9, suggesting that while uncertainty continued to increase on net, fewer firms noted a rise this quarter than last quarter.

On average, respondents expect a West Texas Intermediate (WTI) oil price of $77 per barrel by year-end 2023; responses ranged from $60 to $100 per barrel. Survey participants expect a Henry Hub natural gas price of $2.97 per million British thermal units (MMBtu) at year-end. For reference, WTI spot prices averaged $69.89 per barrel during the survey collection period, and Henry Hub spot prices averaged $2.03 per MMBtu.

Next release: September 27, 2023

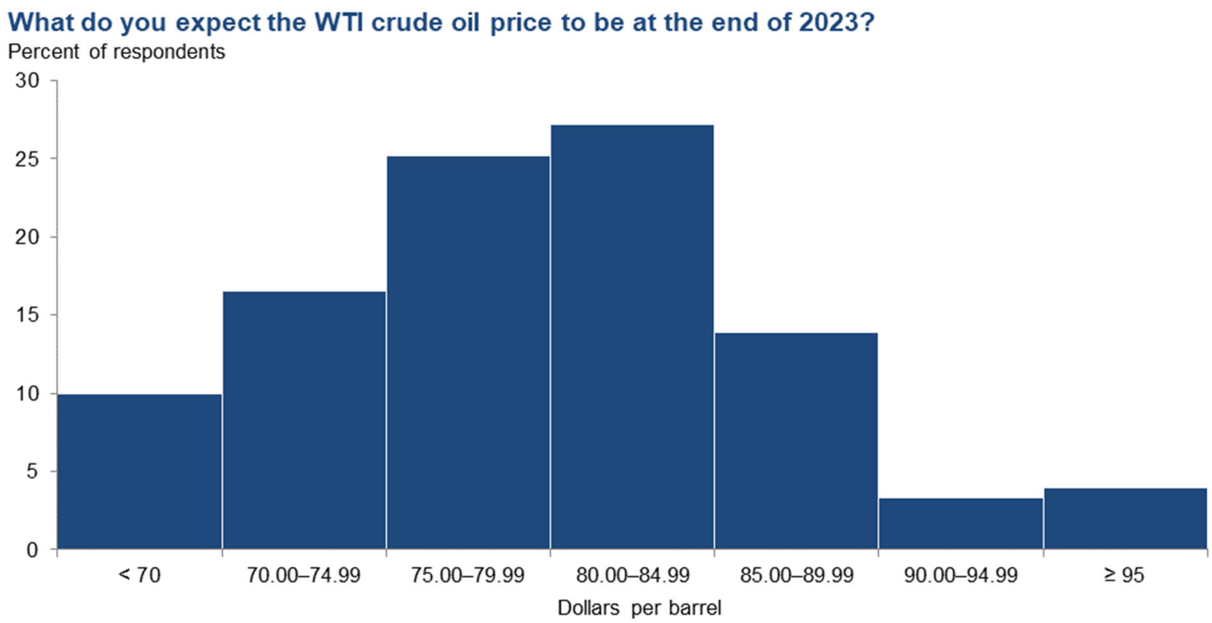
Data were collected June 7–15, and 152 energy firms responded. Of the respondents, 101 were exploration and production firms and 51 were oilfield services firms.

The Dallas Fed conducts the Dallas Fed Energy Survey quarterly to obtain a timely assessment of energy activity among oil and gas firms located or headquartered in the Eleventh District. Firms are asked whether business activity, employment, capital expenditures and other indicators increased, decreased or remained unchanged compared with the prior quarter and with the same quarter a year ago. Survey responses are used to calculate an index for each indicator. Each index is calculated by subtracting the percentage of respondents reporting a decrease from the percentage reporting an increase. When the share of firms reporting an increase exceeds the share reporting a decrease, the index will be greater than zero, suggesting the indicator has increased over the previous quarter. If the share of firms reporting a decrease exceeds the share reporting an increase, the index will be below zero, suggesting the indicator has decreased over the previous quarter.

Second Quarter | June 22, 2023

Price Forecasts

West Texas Intermediate Crude

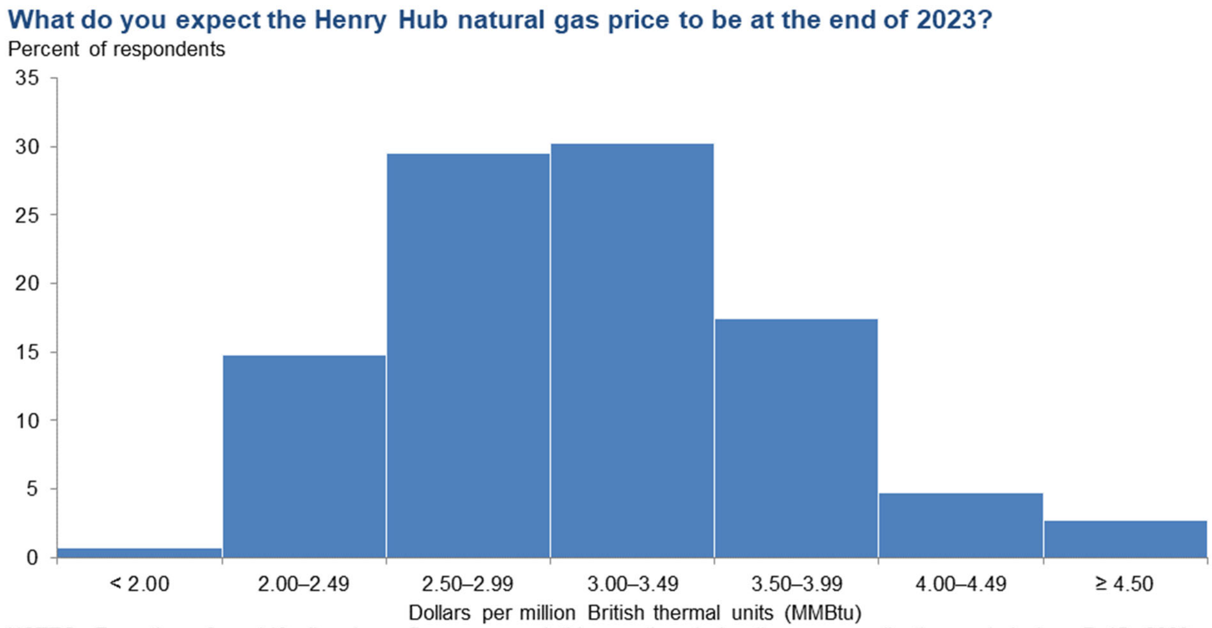


NOTES: Executives from 151 oil and gas firms answered this question during the survey collection period, June 7–15, 2023. The average response was $77 per barrel. For reference, WTI (West Texas Intermediate) spot prices averaged $69.89 per barrel during the period.
SOURCES: Federal Reserve Bank of Dallas; Energy Information Administration (reference price).

West Texas Intermediate crude oil price (dollars per barrel), year-end 2023				
Indicator	Survey Average	Low Forecast	High Forecast	Price During Survey
Current quarter	$77.48	$60.00	$100.00	$69.89
Prior quarter	$79.64	$50.00	$160.00	$68.51

NOTE: Price during survey is an average of daily spot prices during the survey collection period.
SOURCES: Energy Information Administration; Federal Reserve Bank of Dallas.

Henry Hub Natural Gas



NOTES: Executives from 149 oil and gas firms answered this question during the survey collection period, June 7–15, 2023. The average response was $2.97 per MMBtu. For reference, Henry Hub spot prices averaged $2.03 per MMBtu during the period.
SOURCES: Federal Reserve Bank of Dallas; Energy Information Administration (reference price).

Henry Hub natural gas price (dollars per MMBtu), year-end 2023				
Indicator	Survey Average	Low Forecast	High Forecast	Price During Survey
Current quarter	$2.97	$1.80	$6.00	$2.03
Prior quarter	$3.43	$1.75	$12.50	$2.23

NOTE: Price during survey is an average of daily spot prices during the survey collection period.
SOURCES: Federal Reserve Bank of Dallas; Energy Information Administration.

Special Questions

Data were collected June 7–15; 147 oil and gas firms responded to the special questions survey.

Exploration and Production (E&P) Firms

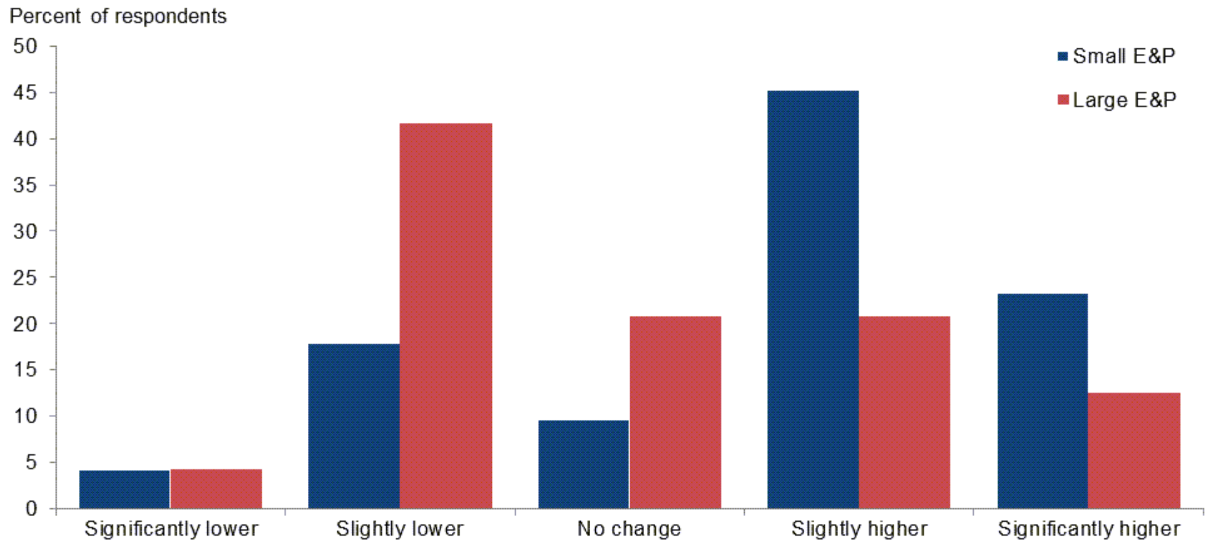
How do you expect your firm's drilling and completion cost per well at year-end 2023 to compare with year-end 2022?

Firms were classified as "small" if they produced fewer than 10,000 barrels per day (b/d) or "large" if they produced 10,000 b/d or more. In the U.S., small E&P firms are greater in number, but large E&P firms make up the majority of production (more than 80 percent). A breakdown of the data is shown below.

Across all firms, 60 percent of executives expect drilling and completion costs per well to end the year higher than where they were at year-end 2022, while 28 percent expect them to be lower. Twelve percent expect no change.

Larger firms more often than not expect their drilling and completion costs to be lower at year-end 2023 than year-end 2022. Forty-two percent of executives at larger firms said they expect their firm's drilling and completion costs per well to be slightly lower, with another 4 percent expecting costs will be significantly lower. Twenty-one percent expect no change, while 21 percent anticipate slightly higher and 13 percent significantly higher costs.

On the other hand, smaller firms on net anticipate their drilling and completion costs at year-end 2023 to be above where those costs were at year-end 2022. Among these firms, 45 percent expect costs to end the year slightly higher and 23 percent expect them to significantly increase. Only 18 percent anticipate slightly lower costs, and 4 percent significantly lower costs.



NOTES: Executives from 97 exploration and production firms answered this question during the survey collection period, June 7–15, 2023. Small firms produced fewer than 10,000 barrels per day (b/d) in fourth quarter 2022, while large firms produced 10,000 b/d or more. Responses came from 73 small firms and 24 large firms.
SOURCE: Federal Reserve Bank of Dallas.

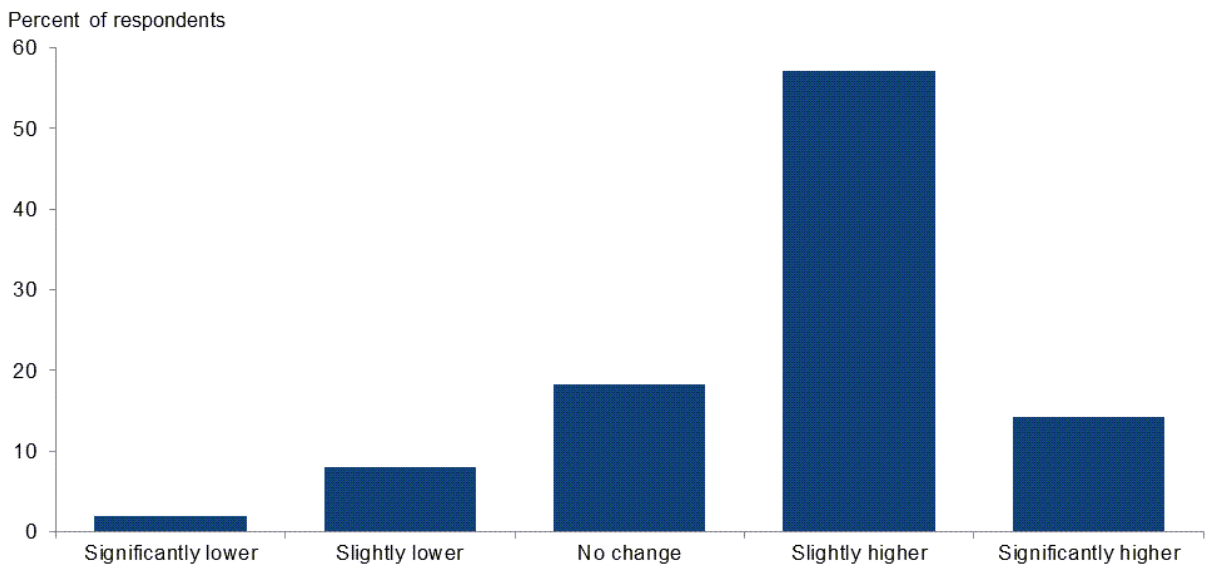
Response	Percent of respondents		
	All firms	Small E&P	Large E&P
Significantly higher	21	23	13
Slightly higher	39	45	21
No change	12	10	21
Slightly lower	24	18	42
Significantly lower	4	4	4

NOTES: Executives from 97 exploration and production firms answered this question during the survey collection period, June 7–15, 2023. Small firms produced less than 10,000 barrels per day (b/d) in fourth quarter 2022, while large firms produced 10,000 b/d or more. Responses came from 73 small firms and 24 large firms. Percentages may not sum to 100 due to rounding.
SOURCE: Federal Reserve Bank of Dallas.

Oil and Gas Support Services

How do you expect the cost of your firm's inputs, excluding labor, at year-end 2023 to compare with year-end 2022?

Most executives expect the cost of their inputs, excluding labor, to be higher at year-end 2023 relative to year-end 2022. Fifty-seven percent of executives said they expect input costs to be slightly higher, while an additional 14 percent anticipate them to be significantly higher. Eighteen percent expect the costs at year-end 2023 to remain close to year-end 2022 levels. Only 10 percent anticipate lower costs in 2023.



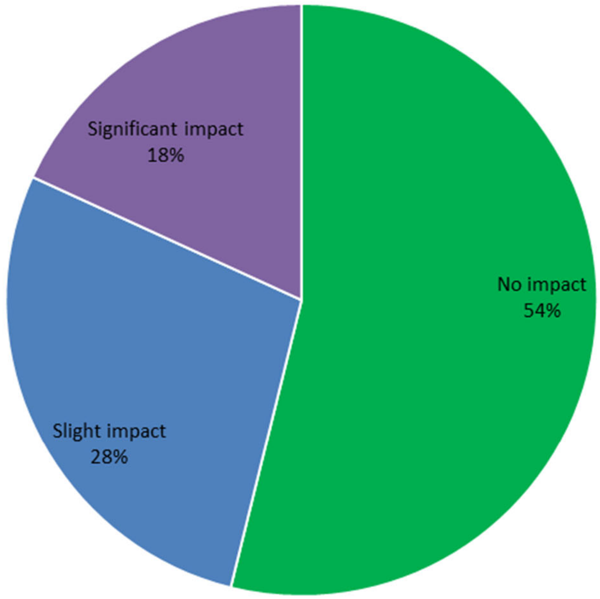
NOTE: Executives from 49 oil and gas support services firms answered this question during the survey collection period, June 7–15, 2023.
SOURCE: Federal Reserve Bank of Dallas.

All Firms

Have tighter credit conditions since February 2023 had an impact on your firm so far?

More than half of the executives—54 percent—note that tighter credit conditions since February 2023 have had no effect. Twenty-eight percent reported a slight impact, and 18 percent reported a significant impact.

A breakdown of the data for E&P firms compared with oil and gas support services firms is shown in the table below. Executives from small E&P firms were more likely to report a significant impact than those from large E&P firms or support services firms. Twenty-four percent of small E&P companies reported a significant impact, compared with 8 percent of large E&P companies and 15 percent of support services firms.



NOTE: Executives from 143 oil and gas firms answered this question during the survey collection period, June 7–15, 2023.
SOURCE: Federal Reserve Bank of Dallas.

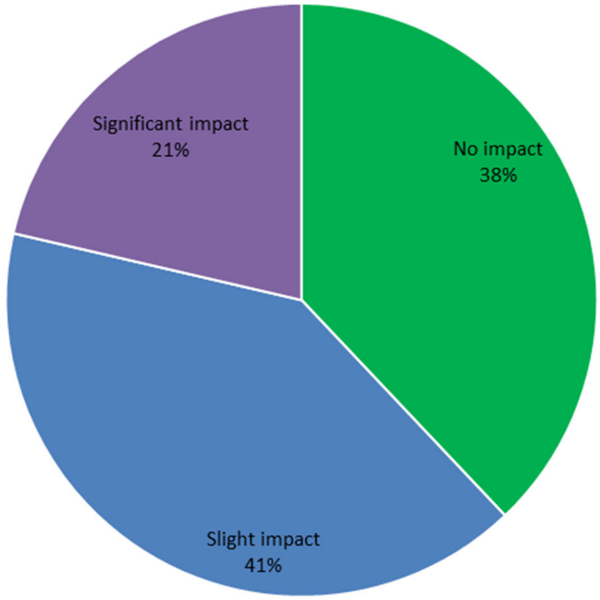
Response	Percent of respondents			
	All firms	Small E&P	Large E&P	Services
No impact	54	58	58	45
Slight impact	28	18	33	40
Significant impact	18	24	8	15

NOTES: Executives from 96 exploration and production firms and 47 oil and gas support services firms answered this question during the survey collection period, June 7–15, 2023. Small E&P firms produced fewer than 10,000 barrels per day (b/d) in fourth quarter 2022, while large E&P firms produced 10,000 b/d or more. Responses came from 72 small firms and 24 large firms. Percentages may not sum to 100 due to rounding.
SOURCE: Federal Reserve Bank of Dallas.

How do you expect tighter credit conditions to affect your business plans through the remainder of the year?

Forty-one percent anticipate that tighter credit conditions will have a slight impact on their business plans through year-end, and 21 percent expect a significant impact. Thirty-eight percent expect that tighter credit conditions won't affect their business plans.

A breakdown of the data for E&P firms compared with oil and gas support services is shown in the table below. Executives from support services firms and small E&P firms and were more likely to expect significant impacts relative to large E&P firms. Twenty-four percent of support services companies expect a significant impact, compared with 22 percent from small E&P companies and 13 percent for large E&P companies.



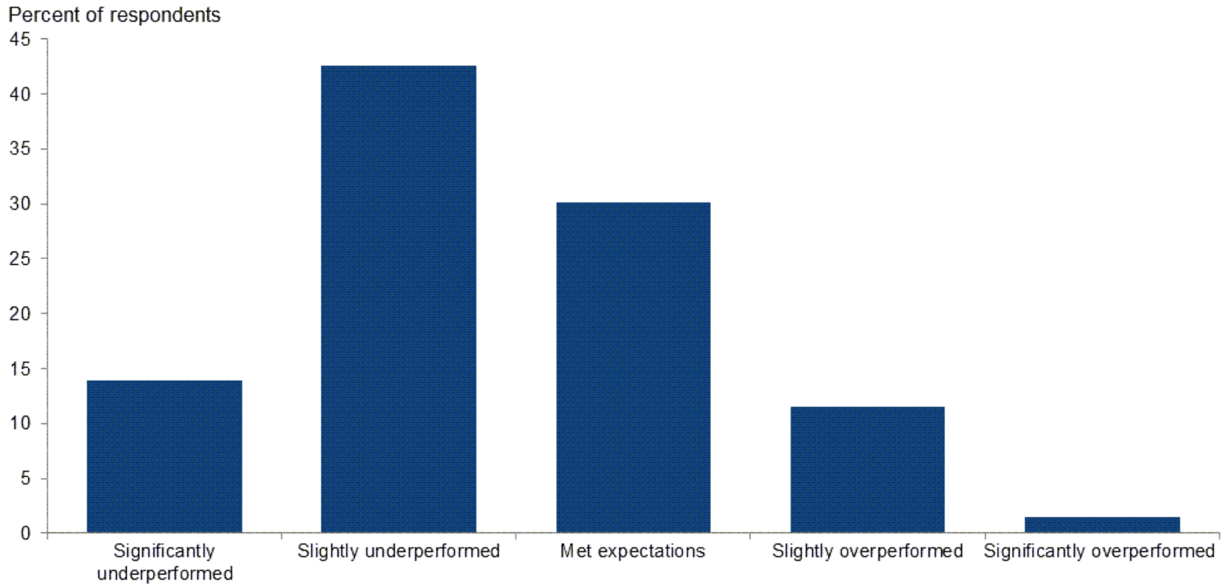
NOTE: Executives from 145 oil and gas firms answered this question during the survey collection period, June 7–15, 2023.
SOURCE: Federal Reserve Bank of Dallas.

Response	Percent of respondents			
	All firms	Small E&P	Large E&P	Services
No impact	38	43	38	31
Slight impact	41	35	50	45
Significant impact	21	22	13	24

NOTES: Executives from 96 exploration and production firms and 49 oil and gas support services firms answered this question during the survey collection period, June 7–15, 2023. Small E&P firms produced fewer than 10,000 barrels per day (b/d) in fourth quarter 2022, while large E&P firms produced 10,000 b/d or more. Responses came from 72 small firms and 24 large firms. Percentages may not sum to 100 due to rounding.
SOURCE: Federal Reserve Bank of Dallas.

How has global oil consumption so far this year compared with what you expected before China announced its reopening in December 2022?

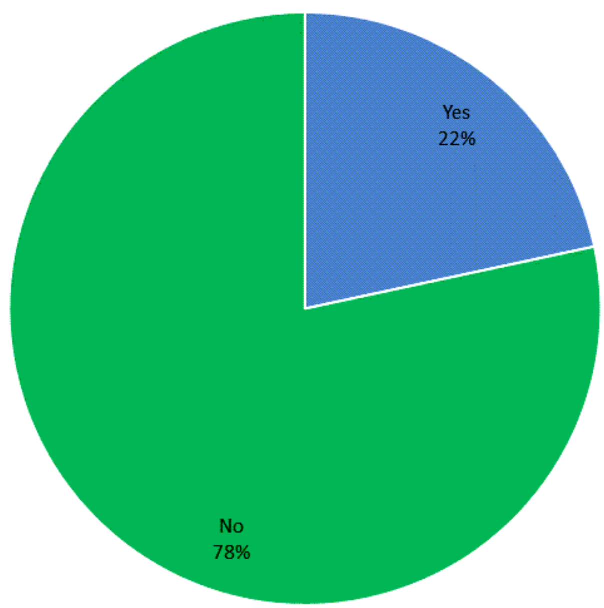
Forty-three percent of executives said global oil consumption so far this year has slightly underperformed when compared with what they expected before China announced its reopening in December 2022. An additional 14 percent said consumption has significantly underperformed. Thirty percent said consumption has met expectations. Only 14 percent said consumption overperformed.



NOTE: Executives from 129 oil and gas firms answered this question during the survey collection period, June 7–15, 2023.
SOURCE: Federal Reserve Bank of Dallas.

Do you expect artificial intelligence (AI) to replace some of your firm's personnel over the next five years?

Seventy-eight percent of executives don't expect artificial intelligence to replace personnel over the next five years. A breakdown of the results is seen in the table below. A significant majority of executives at small E&P companies—84 percent—said they don't expect AI to replace personnel at their firm. Seventy percent of executives at large E&P companies responded the same, as did 74 percent of support services firms.



NOTE: Executives from 134 oil and gas firms answered this question during the survey collection period, June 7–15, 2023.
SOURCE: Federal Reserve Bank of Dallas.

Downloadable chart | Chart data

Response	Percent	
	All firms	Small E&P
Yes	22	16
No	78	84

NOTES: Executives from 87 exploration and production firms and 47 oil and gas support services firm
collection period, June 7–15, 2023. Small E&P firms produced fewer than 10,000 barrels per day (b/d)
produced 10,000 b/d or more. Responses came from 67 small firms and 20 large firms. Percentages r
SOURCE: Federal Reserve Bank of Dallas.

Special Questions Comments

Exploration and Production (E&P) Firms

- The Electric Reliability Council of Texas' West Texas region in the early second quarter (shoulder season) is already consuming more than 1,000 megawatts more power than peak week in summer of 2022. It's not clear how much power could be shipped to the West Texas region, and the risk of power disruptions to operations in summer is increasing materially.
- The industry is currently experiencing almost no encouragement and support from government entities, universities and social media platforms. Operators and suppliers need to rethink strategic business partnering to thrive in an environment which is not friendly to the industry.
- Anyone notice that the U.S. Energy Information Administration said they expect electric vehicles to be less than 20 percent of total passenger car sales between now and 2050? Coupled with a dire outlook for shale production in the next few years, this spells much higher prices than the forward curve would imply.
- We are still globally underinvesting to keep oil production at current levels, while demand continues to increase, with upside in China. These fundamentals are constructive for oil prices. However, central banks are the main player in how inflation and interest rates are moderating and if we have a U.S. recession, and for how long—that is the uncertainty hanging over the commodity market and capital markets.
- It is a tough time to be an E&P, as product pricing is in no-man's land. It is hard to be bullish on natural gas prices (especially considering rigs aren't dropping fast enough), and it's concerning that most in our industry seem to be bullish on oil prices. We would think crude in the low $50s again would be the pain trade. Allocators are afraid to commit to private equity after the recent bank failures, and unless you're a big private equity firm, it's tough to fundraise. It seems to be ideal to stay private if possible, if you have the money (or rich friends) to do so.

- Saudi Arabia's recent production cut of 1 million barrels per day planned for July and the similar cut in May have failed to lift oil prices. In my view this is signaling weak worldwide recessionary demand. However, Russian oil and Iranian exports may be significantly higher than what is reported. U.S. expected growth this year of around 1.2 percent signals slow domestic demand, on top of an expected daily domestic production increase of about 600,000 barrels at year end to 12.75 million barrels per day. These expectations point to continued pressure on West Texas Intermediate posted prices. Chinese demand for crude oil for the remainder of the year is important but difficult to project.
- Our country's leadership for the last two years has created a lot of uncertainty in the energy sector. The crystal ball says that this same leadership over the next two years will maintain that uncertainty and it will grow exponentially.
- The state regulatory environment is worsening. Costs continue to increase just to do business. Insurance companies are leaving the business. It is hard to be in the production business these days.
- Artificial intelligence will replace workers in some areas, such as accounting, and increase the need for others (i.e., reservoir engineering).
- For a small firm where personnel wear multiple hats, it will be difficult for artificial intelligence to replace these employees in the near term. Also, our industry is such that the right answer may not come from what has been done in the past, which is the foundation of artificial intelligence.
- The billions lavished on the green end of the spectrum have not curbed the need for all kinds of energy. The use of hydrocarbons is increasing around the world. We need all groups working together, not pitted against each other. There are significant national security issues that need to be addressed, and green does not cover the bases when it comes to such issues. Politicians should not be anointing certain market winners in order to work to undermine energy companies.
- Natural gas prices are unsustainable, and if they stay at this level for the better part of 2023, it is going to do great damage to our ability to provide natural gas in the future. If we lose the low-producing wells, they aren't coming back.
- Artificial intelligence is a tool. I expect that the service companies will have personnel efficiencies by adopting the use of artificial intelligence.

Oil and Gas Support Services Firms

- Uncertainty is always a fact in the oil and gas business, but the recent underinvestment will undoubtably lead to improved capital expenditures in the coming years.

- The federal government's energy policy seems completely incoherent. Green-washing is amok, while details of energy security, grid expansion and support for domestic energy are nowhere to be found.

Business Indicators: Quarter/Quarter

Business Indicators: All Firms
Current Quarter (versus previous quarter)

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	0.0	2.1	25.2	49.7	25.2
Capital Expenditures	8.5	17.1	30.9	46.7	22.4
Supplier Delivery Time	–4.6	–14.0	11.3	72.8	15.9
Employment	13.1	14.3	21.7	69.7	8.6
Employee Hours	10.5	12.3	19.1	72.4	8.6
Wages and Benefits	34.5	43.6	35.8	62.9	1.3

Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened
Company Outlook	–9.1	–14.1	21.7	47.6	30.8

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Uncertainty	36.9	62.6	47.4	42.1	10.5

Business Indicators: E&P Firms
Current Quarter (versus previous quarter)

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	1.0	–2.1	22.0	57.0	21.0
Oil Production	8.0	10.5	29.0	50.0	21.0
Natural Gas Wellhead Production	2.1	7.4	25.3	51.5	23.2
Capital Expenditures	9.9	11.7	32.7	44.6	22.8
Expected Level of Capital Expenditures Next Year	1.9	6.4	26.7	48.5	24.8
Supplier Delivery Time	–7.0	–16.5	11.0	71.0	18.0
Employment	10.8	8.4	15.8	79.2	5.0
Employee Hours	6.9	10.5	9.9	87.1	3.0
Wages and Benefits	28.0	37.8	30.0	68.0	2.0
Finding and Development Costs	14.9	46.8	30.7	53.5	15.8
Lease Operating Expenses	26.0	37.6	38.0	50.0	12.0

Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened
Company Outlook	–8.4	–18.9	21.1	49.5	29.5

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Uncertainty	41.6	64.2	50.5	40.6	8.9

Business Indicators: O&G Support Services Firms Current Quarter (versus previous quarter)					
Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	–1.9	9.6	31.4	35.3	33.3
Utilization of Equipment	–7.9	3.9	23.5	45.1	31.4
Capital Expenditures	5.9	27.0	27.5	51.0	21.6
Supplier Delivery Time	0.0	–9.6	11.8	76.5	11.8
Lag Time in Delivery of Firm's Services	–2.0	0.0	7.8	82.4	9.8
Employment	17.6	25.0	33.3	51.0	15.7
Employment Hours	17.7	15.4	37.3	43.1	19.6
Wages and Benefits	47.1	53.9	47.1	52.9	0.0
Input Costs	41.2	61.6	47.1	47.1	5.9
Prices Received for Services	3.9	25.0	23.5	56.9	19.6
Operating Margin	–21.6	1.9	15.7	47.1	37.3

Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened
Company Outlook	–10.4	–5.8	22.9	43.8	33.3

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Uncertainty	27.5	59.6	41.2	45.1	13.7

Business Indicators: Year/Year

Business Indicators: All Firms Current Quarter (versus same quarter a year ago)					
Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	17.2	27.7	44.1	29.0	26.9
Capital Expenditures	19.4	37.6	48.6	22.2	29.2
Supplier Delivery Time	–2.8	11.5	21.9	53.4	24.7
Employment	26.6	35.2	35.4	55.8	8.8
Employee Hours	24.0	29.6	32.2	59.6	8.2
Wages and Benefits	55.5	63.5	58.2	39.0	2.7

Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened
Company Outlook	–6.5	16.8	34.1	25.4	40.6

Business Indicators: E&P Firms
Current Quarter (versus same quarter a year ago)

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	3.2	12.2	33.7	35.8	30.5
Oil Production	15.5	11.0	42.3	30.9	26.8
Natural Gas Wellhead Production	3.1	15.5	38.9	25.3	35.8
Capital Expenditures	14.9	26.7	47.9	19.1	33.0
Expected Level of Capital Expenditures Next Year	13.4	14.8	40.2	33.0	26.8
Supplier Delivery Time	–6.3	5.7	20.8	52.1	27.1
Employment	14.5	23.9	22.7	69.1	8.2
Employee Hours	10.4	15.4	15.6	79.2	5.2
Wages and Benefits	52.1	57.8	54.2	43.8	2.1
Finding and Development Costs	45.2	69.7	54.7	35.8	9.5
Lease Operating Expenses	49.5	64.1	58.1	33.3	8.6

Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened
Company Outlook	–23.6	4.7	23.6	29.2	47.2

Business Indicators: O&G Support Services Firms
Current Quarter (versus same quarter a year ago)

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	44.0	54.9	64.0	16.0	20.0
Utilization of Equipment	40.0	54.9	60.0	20.0	20.0
Capital Expenditures	28.0	56.9	50.0	28.0	22.0
Supplier Delivery Time	4.0	21.6	24.0	56.0	20.0
Lag Time in Delivery of Firm's Services	8.0	21.6	18.0	72.0	10.0
Employment	50.0	56.0	60.0	30.0	10.0
Employment Hours	50.0	54.9	64.0	22.0	14.0
Wages and Benefits	62.0	74.0	66.0	30.0	4.0
Input Costs	65.3	76.5	71.4	22.4	6.1
Prices Received for Services	42.0	58.8	58.0	26.0	16.0
Operating Margin	16.0	27.4	44.0	28.0	28.0

Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened
Company Outlook	24.5	38.3	53.1	18.4	28.6

https://www.siemens-energy.com/global/en/company/investor-relations.html

Notice to Shareholders of Siemens Gamesa Renewable Energy

Notice to Shareholders of Siemens Gamesa Renewable Energy

We are pleased to announce that Siemens Gamesa minority shareholders approved the capital reduction and as a result the shareholders will receive compensation of €18.05 per Siemens Gamesa share probably in July. You do not need to take any action in this regard. The payment will be made automatically via your bank in July.

Siemens Energy withdraws profit guidance due to Siemens Gamesa - June 22, 2023

Following the substantial increase in failure rates of wind turbine components, the board of Siemens Gamesa initiated an extended technical review of Siemens Gamesa's installed fleet and product designs.

The current status of the technical review suggests that in order to reach the targeted product quality of certain Onshore platforms, significantly higher costs will be incurred than previously assumed. Potential quality related measures and the associated costs are currently under evaluation and are likely to be in excess of 1 bn Euro.

We are also reviewing assumptions critical to the existing business plans given productivity improvements are not materializing to the extent previously expected. In addition, we continue to experience ramp up challenges in Offshore.

It is too early to have an exact estimate of the potential financial impact of the quality topics and to gauge the impact of the review of our assumptions on our business plans. However, based on our initial assessment as of today, the potential magnitude of the impact leads us to withdraw the profit assumptions for Siemens Gamesa and consequently the profit guidance for Siemens Energy Group for fiscal year 2023. We maintain our revenue guidance for the Group as well as all our assumptions for Gas Services, Grid Technologies and Transformation of Industry. Further details and quantification will be provided in the context of our regular disclosure for the 3rd quarter of fiscal year 2023.

Conference Call on ad-hoc announcement

When: Friday, June 23, 2023
Time: 07:30am (CEST) / 06:30am (BST) / 01:30am (EDT)

If you intend to listen to the call and **to ask a question during the call** please get the **dial-in details** using the following **link for registration**.

You can also follow the call as a webcast.

https://www.ft.com/content/93b5b140-0303-4b60-8c6f-c7d0d055dd30

Shell chief sets ‘ruthless’ new course to catch up with US rivals

Sawan insists strategy to cut emissions still in place even after the oil major pledged to invest in new oil and gas production

Wael Sawan said: 'Shell can play in multiple different areas but actually our strength is when we focus on a handful of things and really mobilise the organisational strength to deliver' © Adam Berry/Getty Images

Tom Wilson in London June 17, 2023

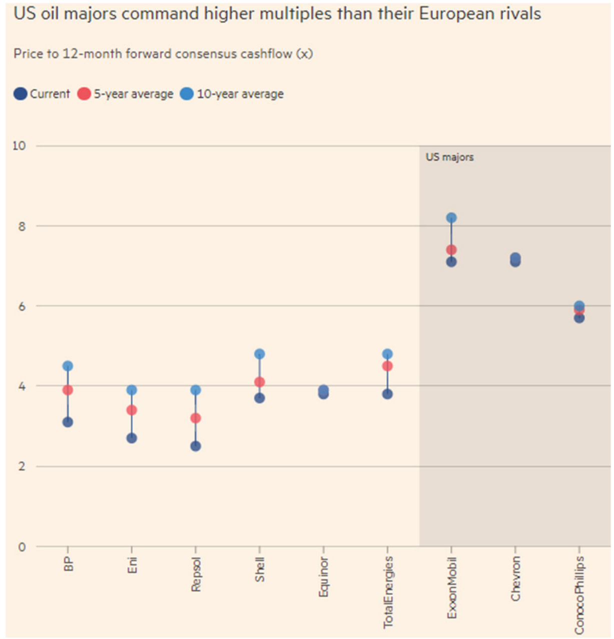
Shell’s new chief executive has promised to be “ruthless” in his pursuit of higher returns for shareholders as he seeks to chart a new path for the company through the energy transition.

Addressing investors in New York last week, Wael Sawan, who was appointed in January, laid out a plan for Europe’s largest energy company to cut costs, boost shareholder payouts and devote a higher proportion of spending to oil and gas.

While the pitch was welcomed by some investors, others questioned whether Sawan was abandoning a strategy launched just two years ago by his predecessor, Ben van Beurden, to achieve net zero emissions by 2050 by increasing investment in clean energy.

In an interview with the Financial Times after the investor day, Sawan insisted the 2021 strategy to cut emissions by gradually overhauling the business remained in place. But he was also clear that his was a new regime.

"While the destination is unchanged . . . the way we are getting there is indeed different," Sawan said.



In a set of commitments seemingly designed to appeal to many of the US investors gathered at the New York Stock Exchange, Shell emphasised plans to maintain oil production at current levels of 1.4mn barrels a day until 2030 and expand its giant liquefied natural gas business. It will also be more selective about the types of clean energy project it backs.

"Ultimately what we need to do is to be able to generate long-term value for our shareholders," Sawan told the FT. "The answer cannot be, 'I am going to invest [in clean energy projects] and have poor returns and that's going to vindicate my conscience'. That's wrong."

Since taking the top job Sawan has focused on how to close a yawning valuation gap with US rivals, which have remained more committed to oil and gas production and are valued at much higher multiples of their cash flow.

Under Shell's new plans, $40bn of investment over the next three years will help it add 500,000 barrels of oil equivalent a day of new oil and gas production by 2025.

In the same period, $10bn to $15bn — or about 20 per cent of total spending — will be invested in low-carbon technology, such as hydrogen, biofuels and vehicle charging.

"In the past few years we have been testing different models and different concepts," Sawan said. "As we grow in confidence in some, like in biofuels and EV charging, we'll look to go further. In others where we have seen significant headwinds, like in consumer home energy retailing, we are taking a pause and reflecting."

He highlighted the Indian renewables group Sprng, the US-based solar developer Savion and the European bio-gas company Nature Energy — all acquired since 2021 — as the "foundations" of Shell's clean energy plans. Other, less profitable parts of the business, such as the UK, Germany and Dutch household energy divisions, will be offloaded.

Sawan, who has spent his entire career at Shell, said he has no qualms about cutting parts of the business that do not deliver enough value.

“The strength of our company is the level of engagement we have with staff . . . but we are at risk when we confuse the concept of caring about people, with the decisiveness around how do we actually allocate capital.”

Such moves are intended to help Shell cut group-wide annual operating costs by $2bn-$3bn by the end of 2025, while capital spending will also fall to $22bn-$25bn a year in 2024 and 2025, down from a planned $23bn-$27bn this year.

As a student at Harvard Business School, Sawan said he was told to be “kind-hearted but tough-minded”, advice he claimed to have carried through to today. “I don’t tend to get emotional around business decisions,” he said.

That approach may have helped Sawan when he moved quickly in his first month as chief executive to cut his executive committee from nine to seven. As part of those changes, Sawan discontinued the role of strategy director, held by Ed Daniels, who will step down from the senior team next month and leave Shell thereafter.

“It is very strange to have a strategy person that is divorced from the CFO because ultimately the choices that you are making around where you want to deploy your capital strategically have to also….[fit] with your financial framework,” he said.

Strategy now sits under chief financial officer Sinead Gorman, who also used the world “ruthless” when presenting on Wednesday.

Gorman, upstream director Zoë Yujnovich and downstream director Huibert Vigeveno, have emerged as Sawan’s key team over the past six months.

Sawan said: “It’s about having around the leadership table a handful of people who can then become really accountable for bigger chunks of responsibility . . . rather than everything having to be debated.”

Vigeveno, a Dutch national who joined Shell in 1995, two years before Sawan, was a rival candidate for chief executive. His portfolio will expand with the addition of the renewables and energy solutions business to the downstream division from next month.

Australian Yujnovich joined Shell from Rio Tinto in 2014 and has risen quickly through different positions in the oil, downstream and integrated gas businesses.

All three executives were key architects of Shell’s new direction, Sawan said.

Bernstein analysts described the investor day as “the most obvious cultural reset and upside potential inside Shell in decades”. Other investors were more circumspect.

Legal & General Investment Management, the UK’s largest asset manager, questioned whether Shell was on course to achieve net zero emissions by 2050. “In our engagements with Shell following its recent announcements we will be assessing how it matches with our expectations,” it said.

Shell shares closed the week up 2 per cent.

For Sawan, a simpler Shell can be a more effective Shell.

“Shell can play in multiple different areas but actually our strength is when we focus on a handful of things and really mobilise the organisational strength to deliver.”

THE INVESTMENT FUNDS INSTITUTE OF CANADA | L'INSTITUT DES FONDS D'INVESTISSEMENT DU CANADA

IFIC Monthly Investment Fund Statistics – May 2023
Mutual Fund and Exchange-Traded Fund Assets and Sales

June 21, 2023 (Toronto) – The Investment Funds Institute of Canada (IFIC) today announced investment fund net sales and net assets for May 2023.

Mutual fund assets totalled $1.865 trillion at the end of May 2023. Assets decreased by $39.6 billion or 2.1% compared to April 2023. Mutual funds recorded net redemptions of $3.8 billion in May 2023.

ETF assets totalled $337.2 billion at the end of May 2023. Assets decreased by $6.9 billion or 2.0% compared to April 2023. ETFs recorded net sales of $2.4 billion in May 2023.

Mutual Fund Net Sales/Net Redemptions ($ Millions)*

Asset Class	May 2023	Apr. 2023	May 2022	YTD 2023	YTD 2022
Long-term Funds					
Balanced	(3,807)	(3,941)	(5,347)	(17,260)	1,017
Equity	(2,170)	(2,782)	(969)	(7,180)	7,504
Bond	639	853	(882)	7,816	(2,950)
Specialty	274	279	59	1,689	903
Total Long-term Funds	(5,064)	(5,590)	(7,140)	(14,936)	6,474
Total Money Market Funds	1,252	992	775	6,361	971
Total	(3,812)	(4,599)	(6,364)	(8,574)	7,445

Mutual Fund Net Assets ($ Billions)*

Asset Class	May 2023	Apr. 2023	May 2022	Dec. 2022
Long-term Funds				
Balanced	889.5	912.1	932.8	880.6
Equity	675.7	692.5	674.9	649.6
Bond	234.2	235.9	238.1	222.7
Specialty	24.2	24.1	22.2	22.2
Total Long-term Funds	1,823.6	1,864.5	1,867.9	1,775.1
Total Money Market Funds	41.5	40.1	27.6	34.5
Total	1,865.1	1,904.7	1,895.5	1,809.6

* Please see below for important information regarding this data.

ETF Net Sales/Net Redemptions ($ Millions)*

Asset Class	May 2023	Apr. 2023	May 2022	YTD 2023	YTD 2022
Long-term Funds					
Balanced	134	141	229	662	1,143
Equity	565	(313)	1,634	4,675	11,791
Bond	819	860	(235)	4,264	1,277
Specialty	(19)	252	593	848	1,373
Total Long-term Funds	1,499	940	2,221	10,449	15,585
Total Money Market Funds	856	1,153	347	4,449	1,126
Total	2,355	2,093	2,568	14,899	16,710

ETF Net Assets ($ Billions)*

Asset Class	May 2023	Apr. 2023	May 2022	Dec. 2022
Long-term Funds				
Balanced	11.6	13.3	12.1	12.0
Equity	208.8	213.4	203.3	194.9
Bond	84.7	85.5	75.7	80.4
Specialty	11.5	12.2	12.4	10.2
Total Long-term Funds	316.6	324.3	303.4	297.5
Total Money Market Funds	20.6	19.7	7.5	16.3
Total	337.2	344.1	310.9	313.7

* Please see below for important information regarding this data.

IFIC direct survey data (which accounts for approximately 85% of total mutual fund industry assets and approximately 83% of total ETF industry assets) is complemented by estimated data to provide comprehensive industry totals.

*** Important Information Regarding Investment Fund Data:**

1. Mutual fund data is adjusted to remove double counting arising from mutual funds that invest in other mutual funds.
2. Starting with January 2022 data, ETF data is adjusted to remove double counting arising from Canadian-listed ETFs that invest in units of other Canadian-listed ETFs. Any references to IFIC ETF assets and sales figures prior to 2022 data should indicate that the data has not been adjusted for ETF of ETF double counting.
3. The Balanced Funds category includes funds that invest directly in a mix of stocks and bonds or obtain exposure through investing in other funds.
4. Mutual fund data reflects the investment activity of Canadian retail investors.
5. ETF data reflects the investment activity of Canadian retail and institutional investors.

About IFIC

The Investment Funds Institute of Canada is the voice of Canada's investment funds industry. IFIC brings together 150 organizations, including fund managers, distributors and industry service organizations, to foster a strong, stable investment sector where investors can realize their financial goals. By connecting Canada's savers to Canada's economy, our industry contributes significantly to Canadian economic growth and job creation. To learn more about IFIC, please visit www.ific.ca.

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416-309-2317

Dan Tsubouchi @Energy_Tidbits · 4h

Risk to Libya's stable #Oil production that's been ~1.2 mmb/d for months?

Looks like back to Eastern LIbya not believing getting their fair share of oil revenues.

Eastern Libya govt head Osama Hammad warns could halt oil exports & declare force majeure

#OOTT... Show more

1 6 18 3,641

Dan Tsubouchi @Energy_Tidbits · 5h

Money talks?

Not getting much coverage, but note Belarus statement "on the table is an **absolutely profitable** and acceptable option for resolving the situation, with security guarantees for the fighters of the Wagner PMC."

Did Prigozhin & his troops get paid? If so, would seem...Show more

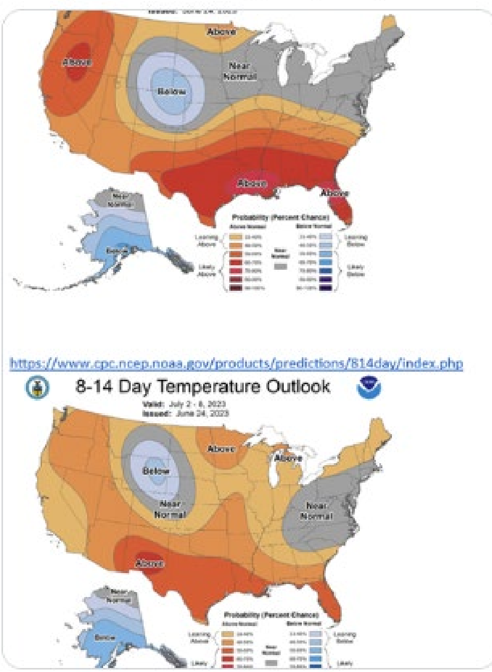
Post of the first
Report of the press service of the President of the Republic of Belarus.

This morning, Russian President Vladimir Putin informed his Belarusian counterpart about the situation in southern Russia with the Wagner private military company. The heads of state agreed on joint actions.
As a follow-up to the agreements, the President of Belarus, having further clarified the situation through his own channels, in agreement with the President of Russia, held talks with the head of the Wagner PMC Yevgeny Prigozhin.
The negotiations lasted throughout the day. As a result, they came to an agreement on the inadmissibility of unleashing a bloody massacre on the territory of Russia. Yevgeny Prigozhin accepted the proposal of the President of Belarus Alexander Lukashenko to stop the movement of Wagner armed persons on the territory of Russia and further steps to de-escalate tensions.
At the moment, on the table is an absolutely profitable and acceptable option for resolving the situation, with security guarantees for the fighters of the Wagner PMC.
As previously reported, the President of Belarus also held two meetings with the country's power bloc on this situation.

2 1 3 1,884

Dan Tsubouchi @Energy_Tidbits · 19h

Today's @NOAA 6-10 & 8-14 day temperature outlook covering June 30-July 8 calls for more of the US to hjave warmer than normal temperatures. Should provide for #NatGas prices, but may not drive them up. #OOTT



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Dan Tsubouchi @Energy_Tidbits · 19h

reports Wagner head Prigozhin stopped advance on Moscow and turned forces around

#OOTT

> CNN Breaking News @cnnbrk · 22h
>
> Wagner boss Prigozhin publishes new audio claiming he is turning his forces around from a march toward Moscow cnn.it/3XqBzOx

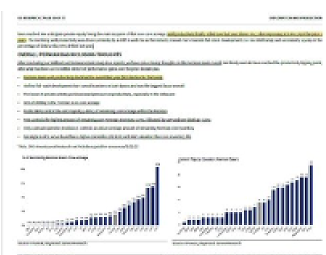
1 2 2,683

Dan Tsubouchi @Energy_Tidbits · 20h

Reminder why a maturing Permian Basin (Delaware + Midland) is positive for #Oil in 2020s, it is the 3rd largest #Oil producer in the world, only behind Saudi Arabia and Russia.

@RaymondJames John Freeman estimates Delaware Basin at 2.7 mmb/d and Midland Basin at 2.4 mmb/d... Show more

> Dan Tsubouchi @Energy_Tidbits · 20h
>
> Must read #Permian #DelawareBasin report by @RaymondJames John Freeman.
>
> "remaining core inventory (~8 yrs) continues to fall at a rapid rate"
>
> "Well productivity finally rolled over last year (down 6%), after improving at a 9% CAGR the prior 5 years"
>
> Combined with 👇 06/05/23... twitter.com/Energy_Tidbits... Show more

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Dan Tsubouchi @Energy_Tidbits · 20h

Must read #Permian#DelawareBasin report by @RaymondJames John Freeman.

"*remaining core inventory (~8 yrs) continues to fall at a rapid rate*"

"*Well productivity finally rolled over last year (down 6%), after improving at a 9% CAGR the prior 5 years*"

Combined with 👇 06/05/23...Show more

> **Dan Tsubouchi** @Energy_Tidbits · Jun 5
>
>
>
> Must read #Permian #MidlandBasin report by @RaymondJames John Freeman.
>
> Core inventory dwindling at a rapid rate
>
> ...

2 · 12 · 34 · 14.2K

Dan Tsubouchi @Energy_Tidbits · Jun 24

#Vortexa crude #Oil floating storage at June 23 est 120.33 mmb, +8.96 mmb WoW vs revised up big by +7.25 mmb June 16 of 111.37 mmb. Will be watching Asia, at 62.57 mmb is only 2nd week in last yr that >60 mmb, vs YTD average of 52 mmb. Thx @Vortexa @business. #OOTT

Vortexa Crude Oil Floating Storage by Region (mmb)				Original Posted	Recent Peak	
Region	June 23/23	June 16/23	WoW	June 16/23	Apr 7/23	June 23 vs Apr 7
Asia	62.57	48.29	14.28	44.96	58.78	3.79
Europe	6.96	8.08	-1.12	7.54	23.82	-16.86
Middle East	9.50	8.03	1.47	9.14	4.97	4.53
West Africa	5.76	4.61	1.15	2.78	5.94	-0.18
US Gulf Coast	1.31	0.90	0.41	0.90	3.17	-1.86
Other	34.23	41.46	-7.23	38.82	17.21	17.02
Global Total	120.33	111.37	8.96	104.12	113.89	6.44

Vortexa crude oil floating storage posted on Bloomberg 9am MT on June 24
Source: Vortexa, Bloomberg

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

1 · 10 · 1,543

Dan Tsubouchi @Energy_Tidbits · Jun 24

didn't get the phone on quick enough missed the first 20 elk scrambling. can't see any coyotes or anything but something got the entire elk gang, including the 2023 calves, to all of a sudden take off for the trees.

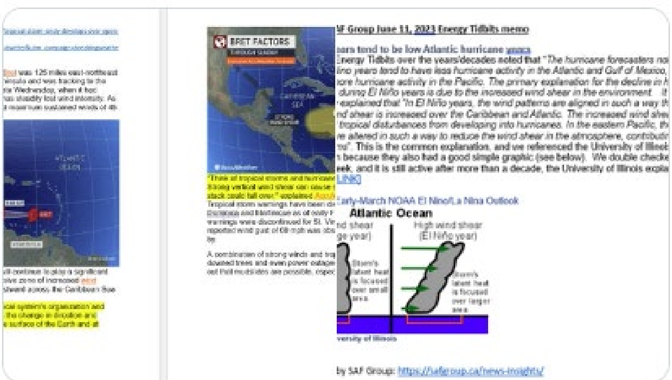
1 17 2,076

Dan Tsubouchi @Energy_Tidbits · Jun 24

Tropical Storm Bret forecast to dissipate.

There are always hurricanes storms, but 👇 @accuweather Alex DaSilva reminds wind shear can be critical factor in causing storms to dissipate.

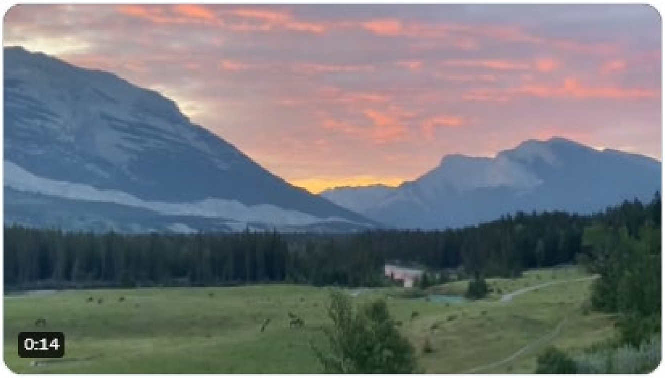
See 👇 @ATMS_Illinois prior reminder that El Nino years tend to bring more wind shear.... Show more



984

Dan Tsubouchi @Energy_Tidbits · Jun 24

always a good morning to look out and see some of the local #Canmore elk gang having breakfast by the Bow River in the Canadian Rockies. great morning sky panning around at end to two of the famous Three Sisters



1 · 8 · 1,194

Dan Tsubouchi @Energy_Tidbits · Jun 24

RUS tipping point?

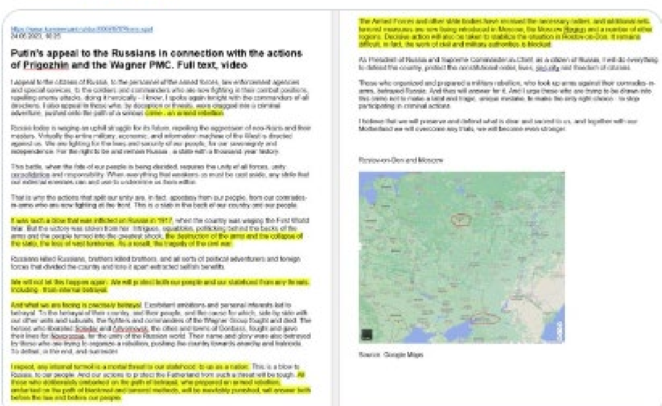
See 👇 Putin speech.

Is key question, will army turn their guns on Wagner to stabilize Rostov-on-Don?

If not, then what?

Prigozhin & troops know death is penalty for treason.

Putin raised Russian Revolution 1917 and "will not let this happen again"…. Show more



Putin's appeal to the Russians in connection with the actions of Prigozhin and the Wagner PMC. Full text, video

Rostov-on-Don and Moscow

1 · 3 · 7 · 3,283

Dan Tsubouchi @Energy_Tidbits · Jun 23

Breaking.

1st public sign of major disunity? RUS accuses Wagner group head of call for armed civil conflict in RUS.

"We call on PMC fighters not to make irreparable mistakes, to stop any military actions against the Russian people, not to carry out Prigozhin's criminal and... Show more

[illegible]

23 June, 15:16,
Updated June 23, 16:37 p.m.

The case against Prigozhin on the organization of an armed rebellion

The FSB called on the fighters of the Wagner PMC to take measures to detain Prigozhin

Yevgeny Prigozhin
© Lev Borodin/ TASS

The statements of the founder of the PMC in the department were called a provocation

MOSCOW, June 24. /TASS/. The statements and actions of the founder of the Wagner PMC, Yevgeny Prigozhin, are actually calls for the beginning of an armed civil conflict, the FSB of Russia said on Saturday.

"Prigozhin's statements and actions are actually calls for the beginning of an armed civil conflict on the territory of the Russian Federation and are a stab in the back of Russian servicemen fighting with pro-fascist Ukrainian forces," they said.

The ministry also noted that the widespread statements about the strikes of the Ministry of Defense of the Russian Federation on the Wagner PMC are not true and are a provocation.

"All the information disseminated on social networks on behalf of Prigozhin about the alleged missile and bomb strikes by the Russian Defense Ministry on the rear units of the Wagner PMC is not true and is an information provocation," the FSB public relations center said.

In addition, PMC fighters were urged to refuse to carry out Prigozhin's orders, as well as to contribute to his detention.

"We call on PMC fighters not to make irreparable mistakes, to stop any military actions against the Russian people, not to carry out Prigozhin's criminal and treacherous orders, to take measures to detain him," the FSB DSP said.

They added that the Russian army continues to carry out combat missions on the line of contact with the Armed Forces of Ukraine in the zone of the special military operation.

"The Russian Armed Forces continue to carry out combat missions on the line of contact with the Armed Forces of Ukraine in the area of the NMD," the statement said.

The department explained that the case on the fact of calling for rebellion by Prigozhin was initiated in connection with the seriousness of the situation and the threat of escalation of the confrontation in Russia.

"Due to the seriousness of the situation and the threat of escalation of confrontation in the Russian Federation, the FSB opened a criminal case on the fact of calling for an armed rebellion by Yevgeny Prigozhin," they said.

Dan Tsubouchi @Energy_Tidbits · Jun 23

ALL China steel indicators keep getting worse in May.

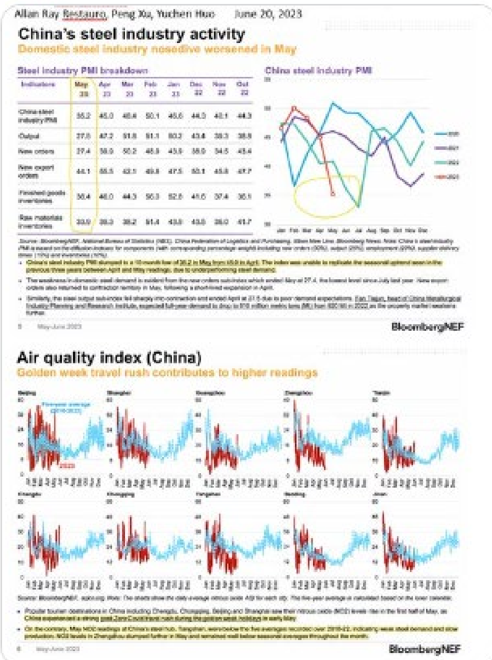
China steel industry PMI hits 10-mth low in May.

Steel output indicator 27.5 in May vs 51.8 in March.

NO2 emissions in China steel hubs below norms ie. less activity.

Thx @BloombergNEF

#OOTT


Allan Ray Restauro, Peng Xu, Yuchen Huo June 20, 2023

China's steel industry activity

Domestic steel industry nosedive worsened in May

Steel industry PMI breakdown

Indicators	May 23	Apr 23	Mar 23	Feb 23	Jan 23	Dec 22	Nov 22	Oct 22
China steel industry PMI	35.2	45.0	46.4	50.1	46.6	44.3	40.1	44.3
Output	27.5	47.2	51.8	51.1	50.2	43.4	39.3	38.8
New orders	27.4	38.9	50.2	46.9	43.9	38.0	34.5	43.4
New export orders	44.1	55.5	42.1	49.8	47.5	50.1	45.8	47.7
Finished goods inventories	36.4	46.0	44.3	50.3	52.8	41.6	37.4	36.1
Raw materials inventories	33.9	39.3	38.2	51.4	43.0	43.0	39.0	41.7

BloombergNEF

Air quality index (China)

Golden week travel rush contributes to higher readings

BloombergNEF

6 9 1,686

Dan Tsubouchi @Energy_Tidbits · Jun 22

WOW!

Big hit to wind generation aspirations in #EnergyTransition.

Even worse than expected vs @SiemensGamesa 👇 02/06/23 warning.

06/22/23: "*Following the substantial increase in failure rates of wind turbine components .... initiated an extended technical review of Siemens...*Show more

https://www.siemens-energy.com/global/en/company/investor-relations.html

Notice to Shareholders of Siemens Gamesa Renewable Energy

Notice to Shareholders of Siemens Gamesa Renewable Energy

We are pleased to announce that Siemens Gamesa minority shareholders approved the capital reduction and as a result the shareholders will receive compensation of €18.05 per Siemens Gamesa share probably in July. You do not need to take any action in this regard. The payment will be made automatically via your bank in July.

Siemens Energy withdraws profit guidance due to Siemens Gamesa - June 22, 2023

Following the substantial increase in failure rates of wind turbine components, the board of Siemens Gamesa initiated an extended technical review of Siemens Gamesa's installed fleet and product designs.

The current status of the technical review suggests that in order to reach the targeted product quality of certain Onshore platforms, significantly higher costs will be incurred than previously assumed. Potential quality related measures and the associated costs are currently under evaluation and are likely to be in excess of 1 bn Euro.

We are also reviewing assumptions critical to the existing business plans given productivity improvements are not materializing to the extent previously expected. In addition, we continue to experience ramp up challenges in Offshore.

It is too early to have an exact estimate of the potential financial impact of the quality topics and to gauge the impact of the review of our assumptions on our business plans. However, based on our initial assessment as of today, the potential magnitude of the impact leads us to withdraw the profit assumptions for Siemens Gamesa and consequently the profit guidance for Siemens Energy Group for fiscal year 2023. We maintain our revenue guidance for the Group as well as all our assumptions for Gas Services, Grid Technologies and Transformation of Industry. Further details and quantification will be provided in the context of our regular disclosure for the 3rd quarter of fiscal year 2023.

Conference Call on ad-hoc announcement

When: Friday, June 23, 2023
Time: 07:30am (CEST) / 06:30am (BST) / 01:30am (EDT)

If you intend to listen to the call and to ask a question during the call please get the dial-in details using the following link for registration.

You can also follow the call as a webcast.

Dan Tsubouchi @Energy_Tidbits · Feb 6

WOW!

👇 @SiemensGamesa wind industry hit by slow permitting, grid constrains, regulatory uncertainty, auction mechanisms that allow for negative pricing. ...

4 29 67 23.1K

Dan Tsubouchi @Energy_Tidbits · Jun 22

Continued @ific balanced & equity mutual funds net sales/redemptions in 2022 continues thru May 2023.

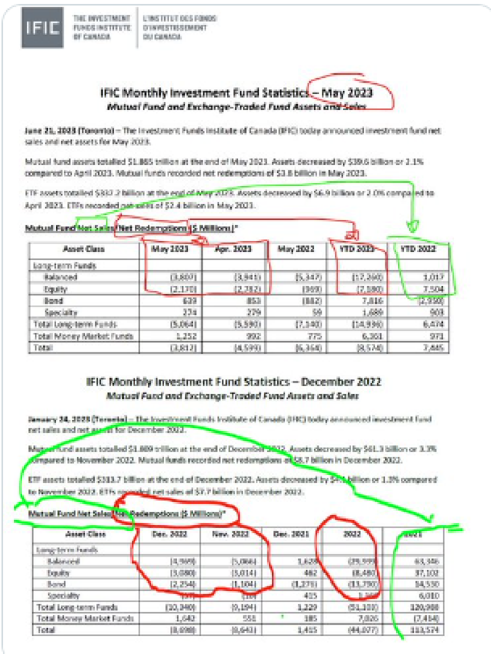
YTD May 31/23 net REDEMPTIONS $24.44b

YTD May 31/22 net SALES $8.52b

YoY diff is $32.96b

See 👇 01/26/23 tweet, YoY difference in 2022 was $138.9b!

#OOTT



IFIC | THE INVESTMENT FUNDS INSTITUTE OF CANADA | L'INSTITUT DES FONDS D'INVESTISSEMENT DU CANADA

IFIC Monthly Investment Fund Statistics – May 2023

Mutual Fund and Exchange-Traded Fund Assets and Sales

June 21, 2023 (Toronto) – The Investment Funds Institute of Canada (IFIC) today announced investment fund net sales and net assets for May 2023.

Mutual fund assets totalled $1.865 trillion at the end of May 2023. Assets decreased by $39.6 billion or 2.1% compared to April 2023. Mutual funds recorded net redemptions of $3.8 billion in May 2023.

ETF assets totalled $337.2 billion at the end of May 2023. Assets decreased by $6.9 billion or 2.0% compared to April 2023. ETFs recorded net sales of $2.4 billion in May 2023.

Mutual Fund Net Sales/Net Redemptions ($ Millions)*

Asset Class	May 2023	Apr. 2023	May 2022	YTD 2023	YTD 2022
Long-term Funds					
Balanced	(3,807)	(3,941)	(5,347)	(17,260)	1,017
Equity	(2,170)	(2,782)	(969)	(7,180)	7,504
Bond	639	853	(882)	7,816	(2,950)
Specialty	274	279	59	1,689	903
Total Long-term Funds	(5,064)	(5,590)	(7,140)	(14,936)	6,474
Total Money Market Funds	1,252	992	775	6,361	971
Total	(3,812)	(4,599)	(6,364)	(8,574)	7,445

IFIC Monthly Investment Fund Statistics – December 2022

Mutual Fund and Exchange-Traded Fund Assets and Sales

January 24, 2023 (Toronto) – The Investment Funds Institute of Canada (IFIC) today announced investment fund net sales and net assets for December 2022.

Mutual fund assets totalled $1.809 trillion at the end of December 2022. Assets decreased by $61.3 billion or 3.3% compared to November 2022. Mutual funds recorded net redemptions of $8.7 billion in December 2022.

ETF assets totalled $313.7 billion at the end of December 2022. Assets decreased by $4.1 billion or 1.3% compared to November 2022. ETFs recorded net sales of $7.7 billion in December 2022.

Mutual Fund Net Sales/Net Redemptions ($ Millions)*

Asset Class	Dec. 2022	Nov. 2022	Dec. 2021	2022	2021
Long-term Funds					
Balanced	(4,969)	(5,066)	1,628	(29,599)	63,346
Equity	(3,080)	(3,014)	462	(8,480)	37,102
Bond	(2,254)	(1,104)	(1,271)	(13,790)	14,530
Specialty	(37)	(10)	415	[illegible]	6,010
Total Long-term Funds	(10,340)	(9,194)	1,229	(51,103)	120,988
Total Money Market Funds	1,642	551	185	7,026	(7,414)
Total	(8,698)	(8,643)	1,415	(44,077)	113,574

Dan Tsubouchi @Energy_Tidbits · Jan 26

WOW!

@IFIC balanced & equity mutual funds net sales/redemptions data for 2022.

...

2 · 1 · 3,383

Dan Tsubouchi @Energy_Tidbits · Jun 22

duct tape is great but glad this wasn't our plane getting the duct tape repair to the nose

5 1 17 2,707

Dan Tsubouchi @Energy_Tidbits · Jun 22

For those, like me, who weren't near their laptops at 9am MT, @EIAgov just released its #Oil #Gasoline #Distillates inventory as of June 16. Table below compares EIA data vs @businessexpectations and vs @APIenergy yesterday.
#OOTT

Oil/Products Inventory June 16: EIA, Bloomberg Survey Expectations, API

(million barrels)	EIA	Expectations	API
Oil	-3.83	0.45	-1.25
Gasoline	0.48	0.80	2.94
Distillates	0.43	1.00	-0.30
	-2.92	2.25	1.39

Note: Oil is commercial so builds in a draw of 1.7 mmb in SPR for the June 16 week
Note: Included in the oil data, Cushing had a 0.10 mmb draw for June 16 week
Source EIA, Bloomberg
Prepared by SAF Group https://safgroup.ca/news-insights/

1 1 2 1,601

Dan Tsubouchi @Energy_Tidbits · Jun 22

No visibility to when Kurdistan/Iraq #Oil exports via Turkey will restart post Erdogan/Barzani Tues talks that "yielded no tangible results" reports @FiratKozok

#OOTT

Iraqi Oil Flows Through Turkey Unlikely to Start This Week
2023-06-22 10:47:28.426 GMT

By Firat Kozok
(Bloomberg) -- Iraqi oil flows through Turkey's Mediterranean port of Ceyhan are unlikely to start this week, according to people familiar with the matter.
* Tuesday's talks between Turkish President Recep Tayyip Erdogan and Masrour Barzani, the prime minister of the semi-autonomous Kurdish government in Iraq, in Ankara yielded no tangible results, the people say
* Talks over legal and technical aspects will continue with both Iraqi and Kurdish officials oming econ
* NOTE: Turkey closed pipeline running to Ceyhan in late March after Iraq won a nearly nine-year-old arbitration case at the International Chamber of Commerce
* READ, May 12: Turkey Official Nixes Idea Iraqi Oil Is About to Flow Again

To contact the reporter on this story:
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To contact the editors responsible for this story:
Alaric Nightingale at anightingal1@bloomberg.net;
Onur Ant at oant@bloomberg.net

To view this story in Bloomberg click here:
https://blinks.bloomberg.com/news/stories/RWNFZ3DWLU69

4 4 2,367

Dan Tsubouchi @Energy_Tidbits · Jun 22

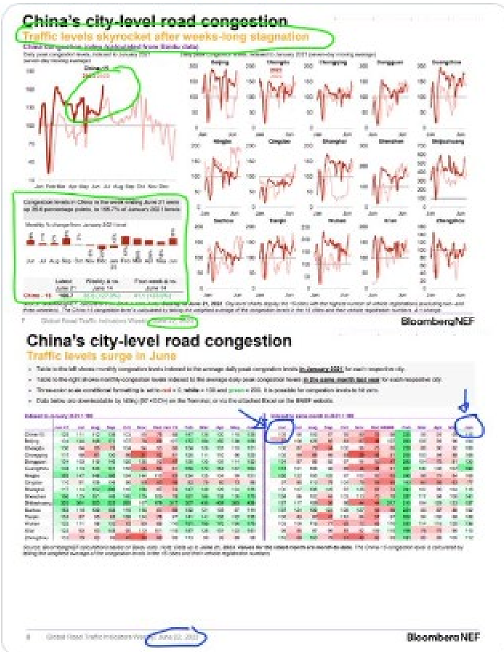
Better but room to go.

China Baidu city-level road congestion "skyrocket after weeks long stagnation". Big up week.

BUT see 👇 @BloombergNEF top 15 cities table.

Top 15 cities. Indexed to 06/21. 06/23 is 116, up YoY vs Covid restricted 06/22 of 108.

10 of top 15 cities up... Show more



1 7 11 2,886

Dan Tsubouchi @Energy_Tidbits · Jun 20

Math of #RenewableEnergy replacing #NatGas

#BHP currently powers mines in the Pilbara with 190MW of #NatGas power capacity.

can be replaced by 500MW of #Solar/#Wind/#Battery capacity PLUS keep the existing 190MW #NatGas to fill in gaps from renewables.

#OOTT

3 9 20 5,647

Dan Tsubouchi @Energy_Tidbits · Jun 20

Not unusual to see a 30C temperature difference between San Jose del Cabo vs Calgary. But that is in the winter and not on June 20. Car registered 38C just now after driving back from #FloraFarms.

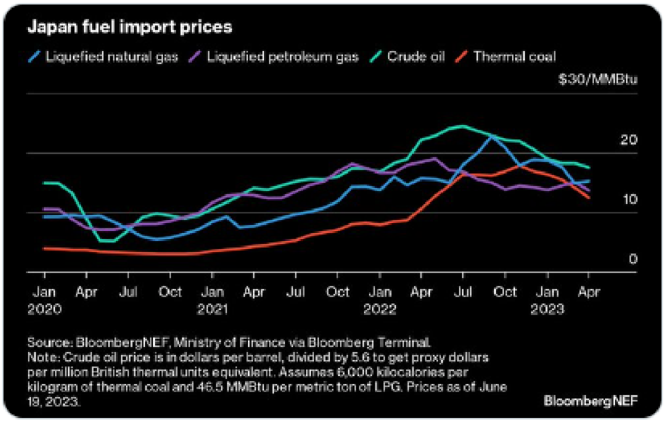
1 1 1,179

Dan Tsubouchi @Energy_Tidbits · Jun 20

Japan "#LNG import costs plunge as global markets loosen up, but fuel switching with coal isn't in sight" reports @BloombergNEF @olympe_mattei
.

ie. thermal coal prices also declining for Japan so remain cheaper on BTU basis.

#OOTT #natGas



4 5 1,985

Dan Tsubouchi @Energy_Tidbits · Jun 20

h/t to 🇺🇸 for 🇺🇦 continued key weapons defense support.

Not as specific as 👇 12/06/22 tweet, but @RaytheonTech CEO today "We're going thru our war stocks, call it Stinger anti-aircraft missiles, Javelin anti-tank missiles, 155mm artillery shells, we're going thru those... Show more

Dan Tsubouchi @Energy_Tidbits · Dec 6, 2022

h/t to 🇺🇸 for 🇺🇦 key weapons defence support. "... we've gone thru in the 1st 10 mths of the war, 5 yrs work of Javelin anti-tank missiles and we've gone thru 13 yrs worth of Stinger [surface-to-air missiles] production" @RaytheonTech CEO to @andrewrsorkin.

1 1 2,477

SAF

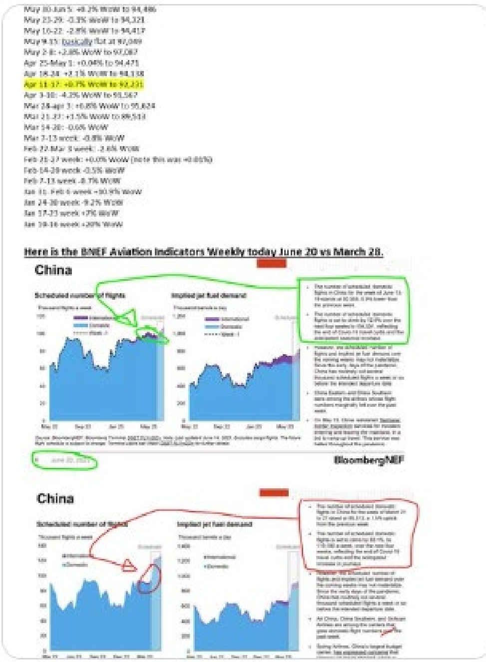
Dan Tsubouchi @Energy_Tidbits · Jun 20

China's stalling recovery.

2nd consecutive WoW decline in scheduled domestic flights, -0.9% WoW to 92,568.

Given up May Day Holiday increase and more, now back to Apr 11-17 levels.

Thx @BloombergNEF Claudio Lubis
#OOTT



2 5 7 3,397

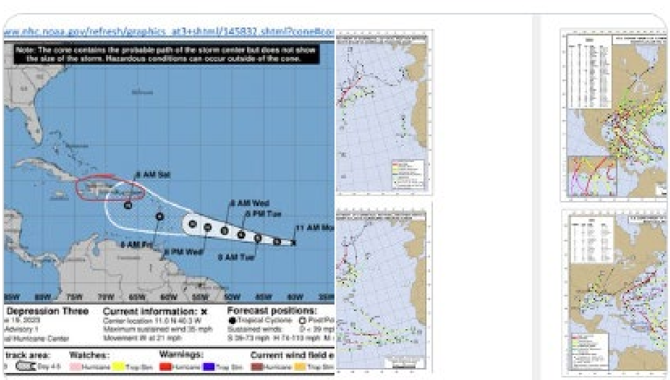
SAF

Dan Tsubouchi @Energy_Tidbits · Jun 19

Will forecast @NHC_Atlantic hurricane go south of Dominican Republic?

No 100% rule, See 👇 2019-22 track maps. Hurricanes/tropical storms that move horizontally in west direction south of DR have a higher chance hitting #Oil #NatGas #LNG in Gulf of Mexico/Gulf Coast.

#OOTT



1 6 1,934

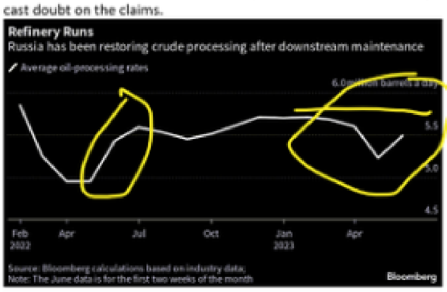
Dan Tsubouchi @Energy_Tidbits · Jun 19

More RUS refinery processing = less oil for export.

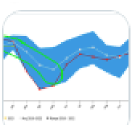
Russian refineries increase crude #Oil processing +194,000 bpd WoW for June 14 week.

Tracking to normal seasonal Jun/Jul/Aug pattern for increasing RUS refinery runs following turnarouds that see oil intake -500,000 bpd from... Show more

the the week before and the country's highest processing rate since the second half of April, historical data show.
Crude supplies to domestic refineries, along with seaborne exports, remain the key gauges for oil-market observers seeking clues to Russia's production levels after the government classified output data amid Western sanctions. The country pledged to cut output by 500,000 barrels a day starting in March, responding to restrictive measures adopted by the West, including a G-7 price cap on its crude sales.
Russia is implementing its cuts in full, Deputy Prime Minister Alexander Novak has said on numerous occasions, most recently at the Vienna meeting of the Organization of Petroleum Exporting Countries and its allies in early June. However, robust seaborne exports and recovering domestic crude processing cast doubt on the claims.



"Russia is restoring its daily refinery throughput as the spring maintenance season is largely over," said Viktor Katona, head of oil analytics at research firm Kpler. "We will see the last key facilities, including Surgutneftegas PJSC's Kirishi, coming back online in the first days of July. Then the refinery

> **Dan Tsubouchi** @Energy_Tidbits · May 27
>
> 
>
> Should see RUS #oil production cuts hit Jun/Jul/Aug physical markets & why cuts hasn't hit exports yet.
>
> Normal seasonal pattern of RUS refinery turnarounds reduce oil intake by ~500,000 b/d from Feb thru May...

4 · 15 · 5,531

Dan Tsubouchi @Energy_Tidbits · Jun 19

WOW! Direct CEO messaging for a change!

@Shell CEO Sawan

"The answer cannot be, 'I am going to invest [in clean energy projects] and have poor returns and that's going to vindicate my conscience'. That's wrong."

"...but we are at risk when we confuse the concept of caring... Show more

> **Tom Wilson** @thomas_m_wilson · Jun 18
> Replying to @thomas_m_wilson
> Shell chief sets 'ruthless' new course to catch up with US rivals
> on.ft.com/3Nc9TZe

3 · 4 · 4,649

Dan Tsubouchi @Energy_Tidbits · Jun 19

Blunt reality check comments on Sustainable Aviation Fuel from @qatarairways CEO.

Being pushed to get SAF into airplanes, SAF is "exorbitantly expensive & unavailable"

Paying 4x the cost to have SAF "what do you expect"

Are 2050 targets achievable? "No ….. I don't think so,… Show more

SAF Group created transcript of Qatar Airways CEO Akbar Al Baker comments with Bloomberg's Guy Johnson on June 19, 2023. https://www.bloomberg.com/news/videos/2023-06-19/qatar-airways-ceo-at-paris-airshow-video

Items in "*Italics*" are SAF Group created transcript

At 3:15 min mark, after talking about supply chain issues impacting aircraft and engine supply at a time where back to 2019 levels and high fares is all because of supply and demand, Al Baker "*I think fares are going to stay high. Also keep in mind that the oil prices are high. We are now being pushed to get SAF [Sustainable Aviation Fuel] into our airplanes. Again, which is exorbitantly expensive and unavailable So all this is a factor that is increasing the cost of the value that you have to pay to travel.*" Johnson "*So the move to SAF is going to be inflationary so you think?*" Al Baker "*Absolutely. If you are paying four times the price of Avgas to have SAF, what do you expect?*" Johnson "*And do you think the 2050 targets are looking achievable at this point?*" Al Baker "*No. I don't think so. Please explain to me one SAF manufacturer undertaking that they will be able to fill in the demand of 2050. I don't think so. Let us not fool ourself. First let us see from them, from Shell, ExxonMobil, TotalEnergies, all these people, ask them what is the volume they will [xxx?] produce? And they will never give you an answer.*"

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

Dan Tsubouchi @Energy_Tidbits · Jun 6

Challenge and will take a very long time to decarbonize airline industry.

@IATA Sustainable Aviation Fuel update.

...

4 17 8,776

Dan Tsubouchi @Energy_Tidbits · Jun 18

30 min ago, a good sized 6.3 earthquake in Gulf of California, about 100 km east of San Jose del Cabo. Felt a little something as we stook up to leave from lunch at the One & Only Palmilla.

1 · 4 · 2,092