

Energy Tidbits

G20 Elevates Energy Security, Access, Affordability & Market Stability to Same Priority as Advancing Energy Transitions

Produced by: Dan Tsubouchi

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Dan Tsubouchi
Chief Market Strategist
dtsubouchi@safgroup.ca

Ryan Dunfield
CEO
rdunfield@safgroup.ca

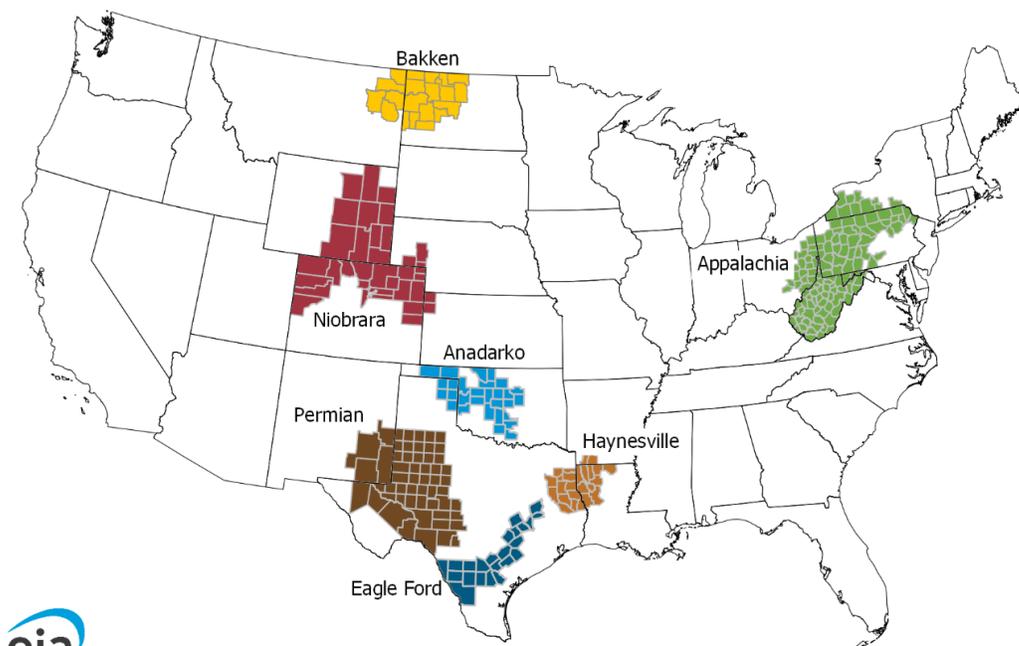
Aaron Bunting
COO, CFO
abunting@safgroup.ca

Ryan Haughn
Managing Director
rhaughn@safgroup.ca



Drilling Productivity Report

For key tight oil and shale gas regions



Data source: U.S. Energy Information Administration

Contents

Year-over-year summary	2
Anadarko Region	3
Appalachia Region	4
Bakken Region	5
Eagle Ford Region	6
Haynesville Region	7
Niobrara Region	8
Permian Region	9
Explanatory notes	10
Sources	11



Year-over-year summary

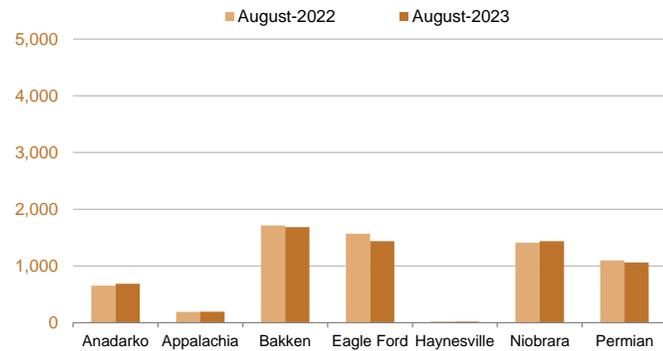
July 2023

Drilling Productivity Report

drilling data through June
projected production through August

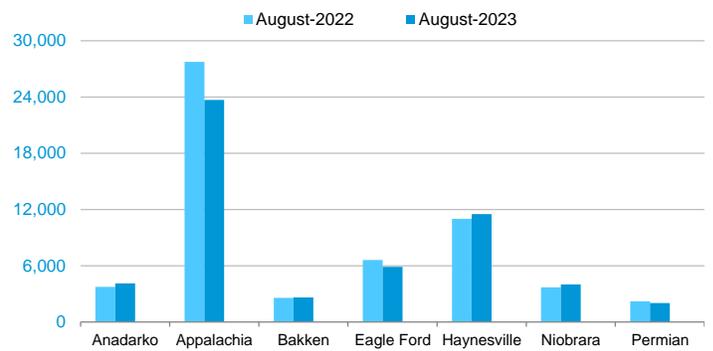
New-well oil production per rig

barrels/day



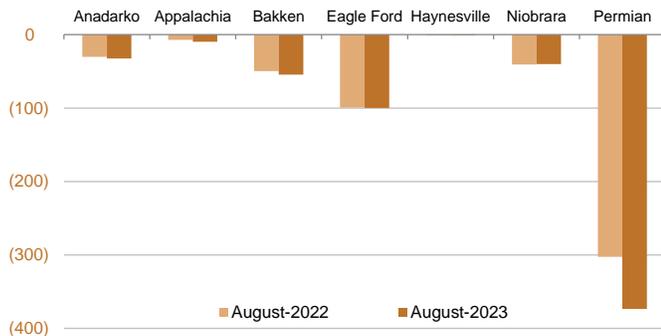
New-well gas production per rig

thousand cubic feet/day



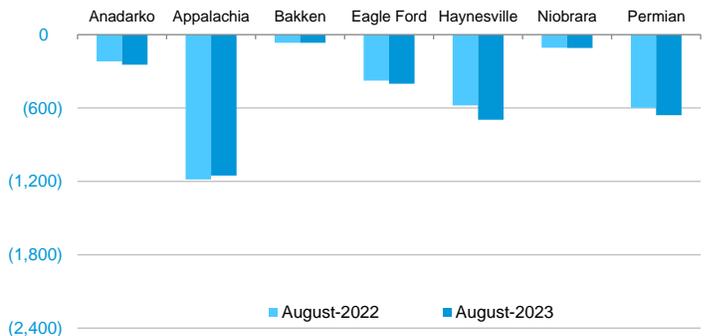
Legacy oil production change

thousand barrels/day



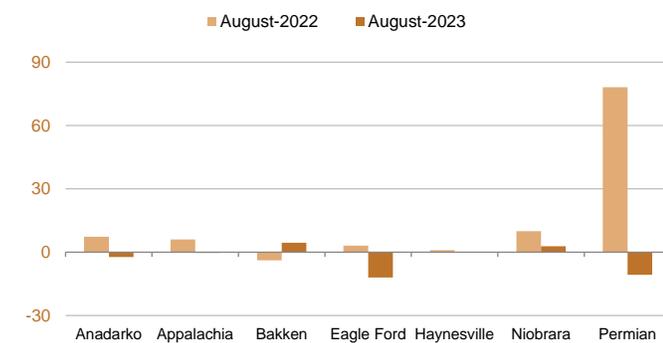
Legacy gas production change

million cubic feet/day



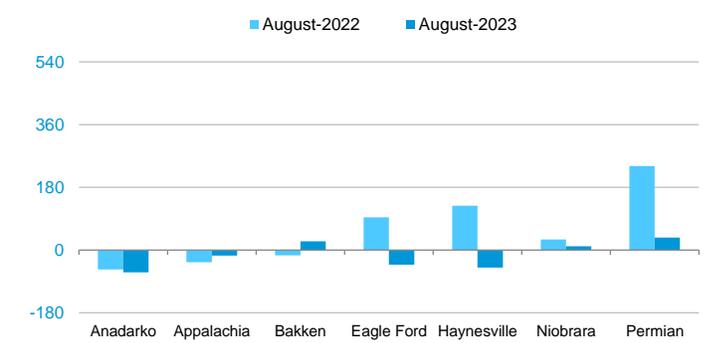
Indicated monthly change in oil production (Aug vs. Jul)

thousand barrels/day



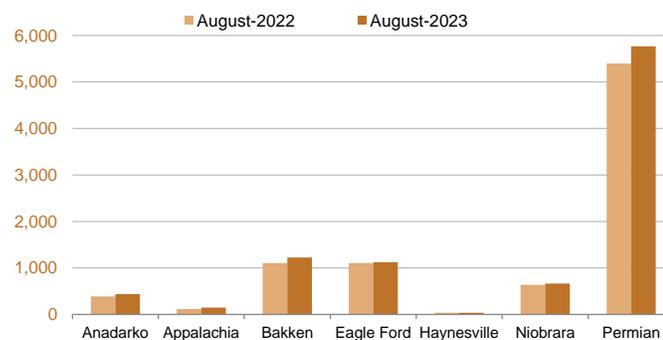
Indicated monthly change in gas production (Aug vs. Jul)

million cubic feet/day



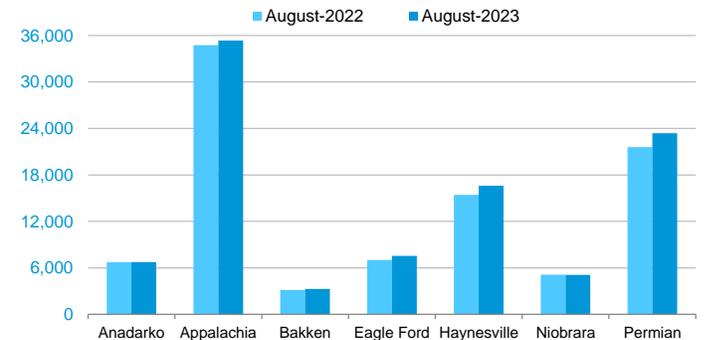
Oil production

thousand barrels/day



Natural gas production

million cubic feet/day



Oil +7
barrels/day
month over month

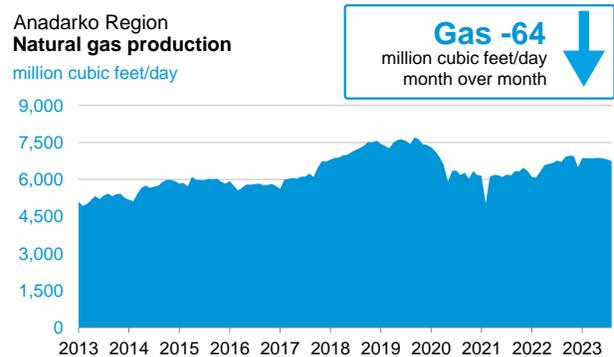
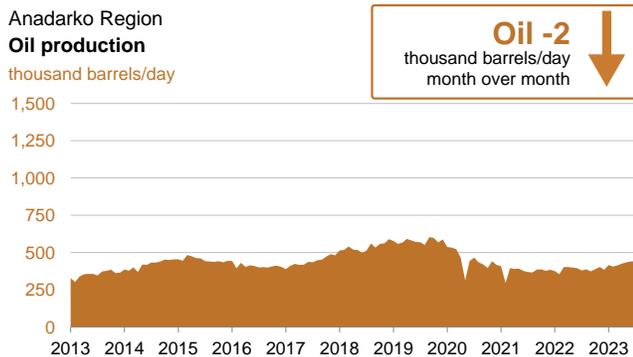
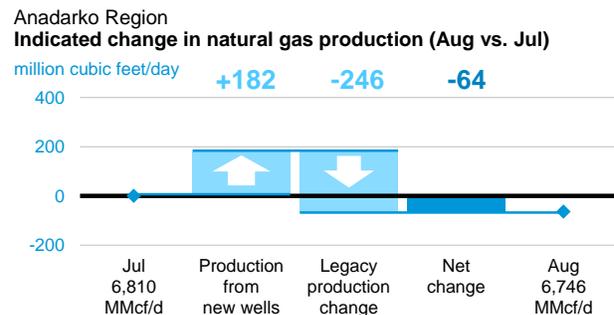
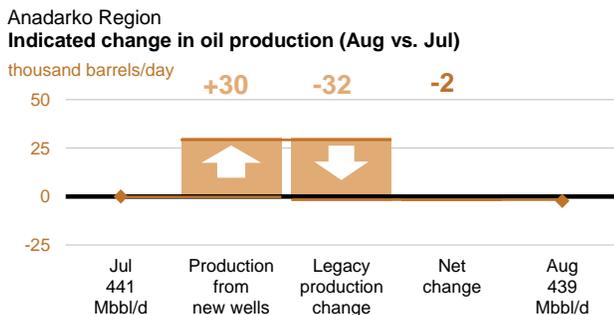
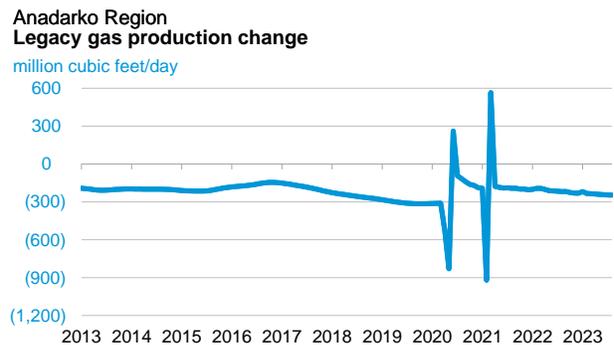
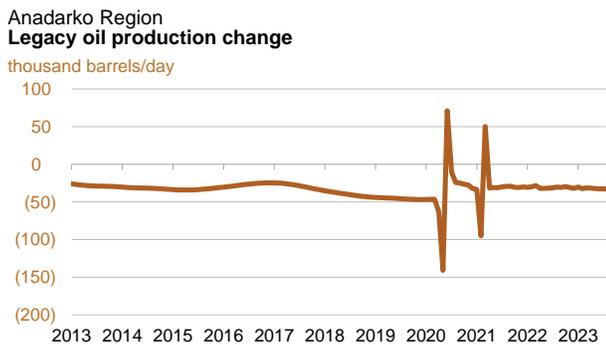
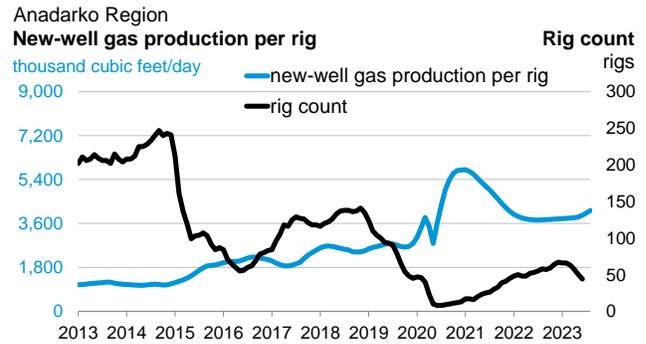
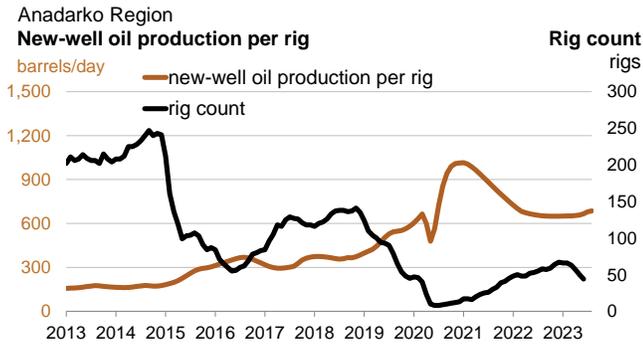


686 August
679 July
barrels/day

Monthly additions from one average rig

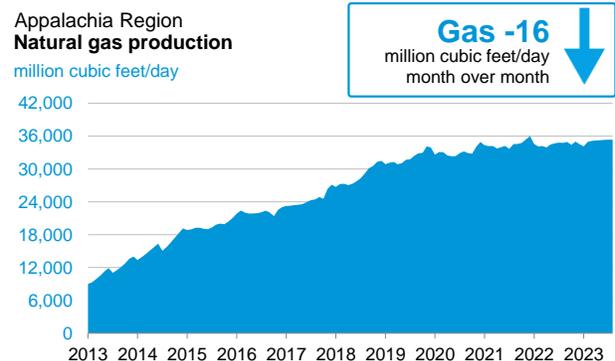
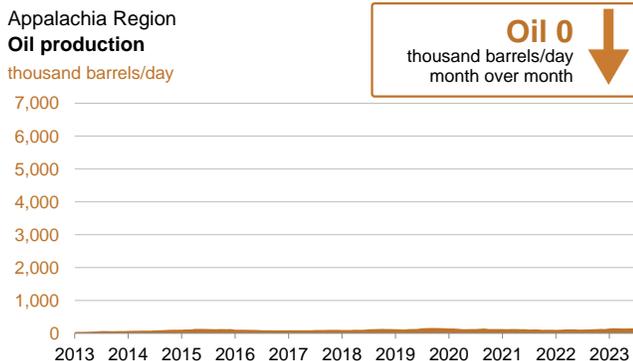
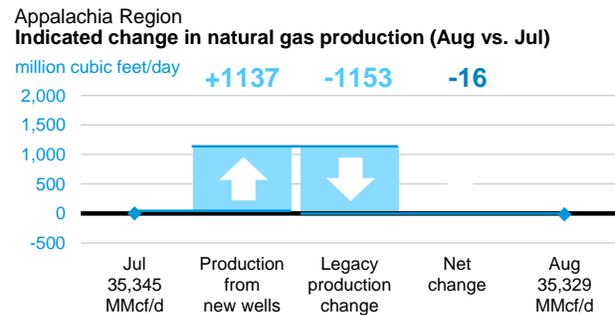
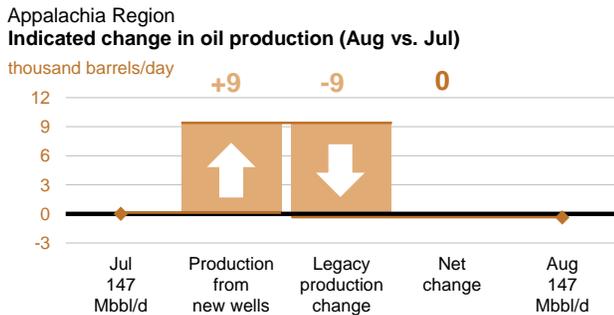
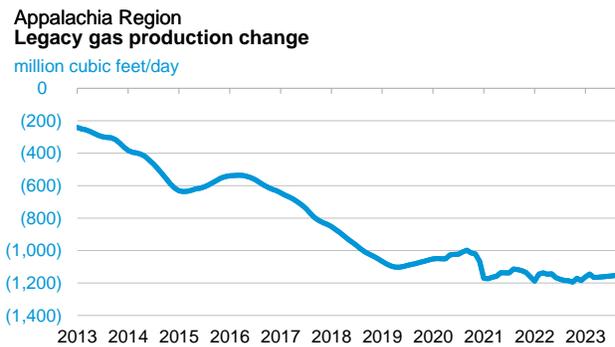
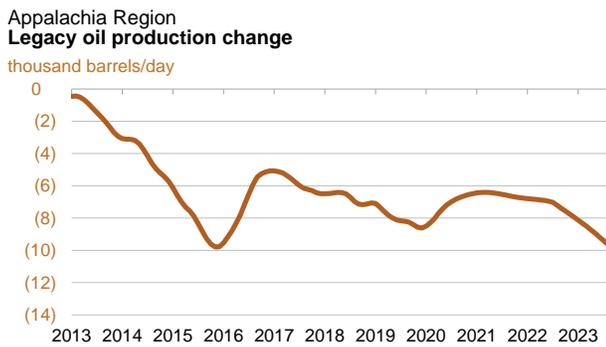
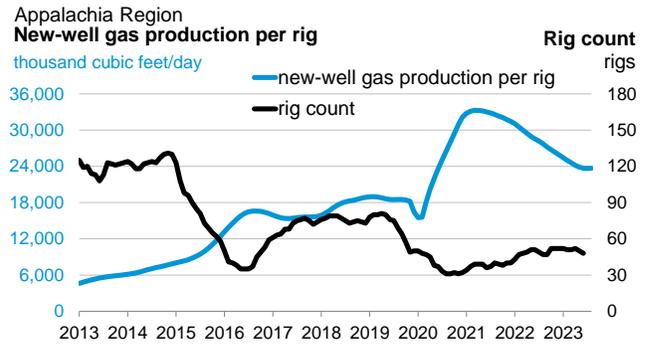
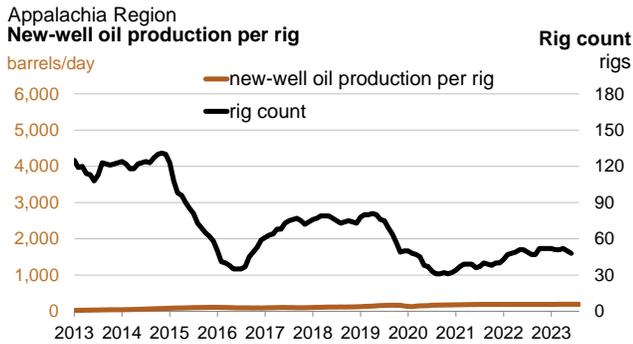
August **4,132**
July **4,031**
thousand cubic feet/day

Gas +101
thousand cubic feet/day
month over month



Monthly additions from one average rig



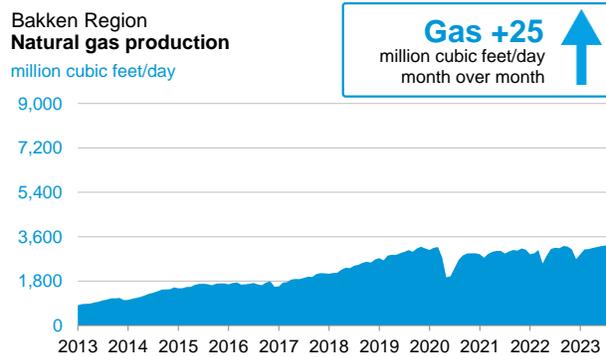
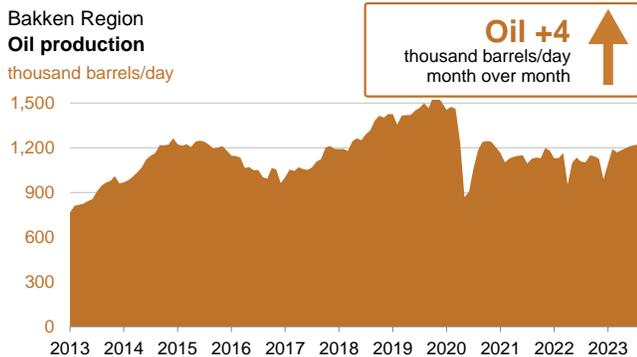
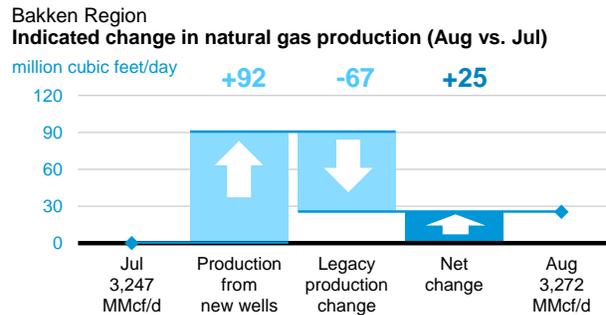
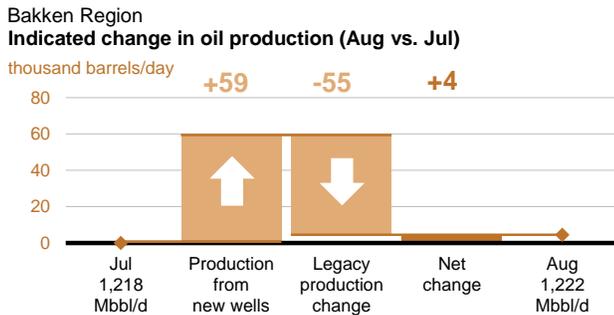
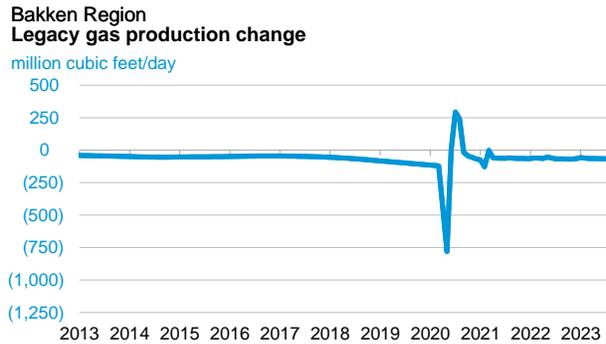
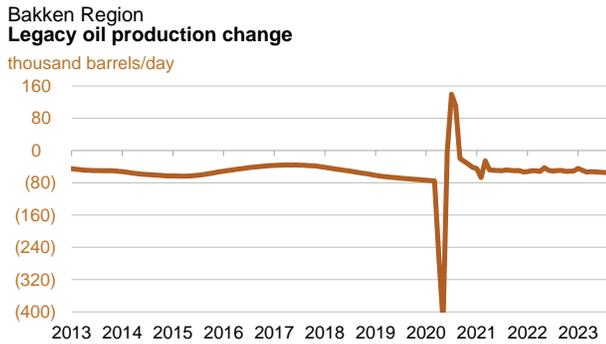
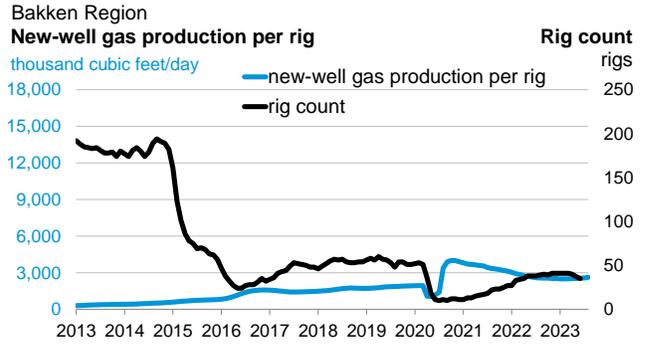
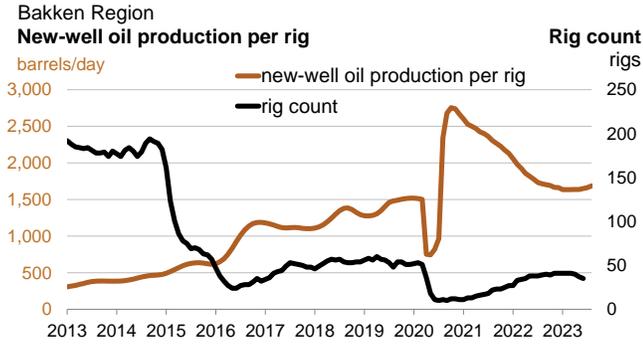
Oil +24
barrels/day
month over month

1,686 August
1,662 July
barrels/day

Monthly additions from one average rig

August **2,618**
July **2,572**
thousand cubic feet/day

Gas +46
thousand cubic feet/day
month over month



Oil +15
barrels/day
month over month

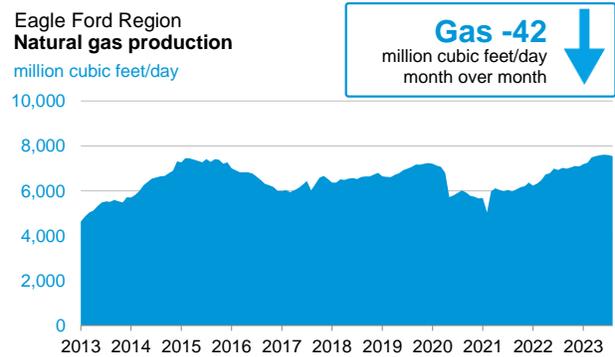
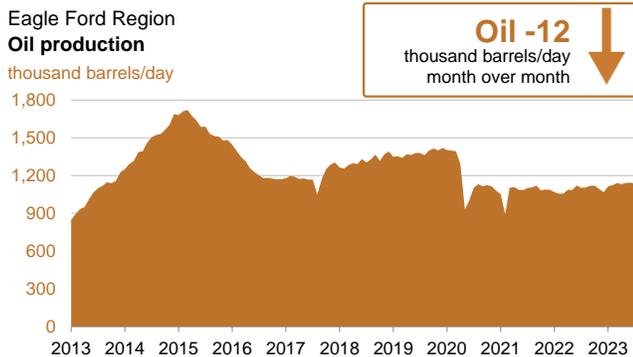
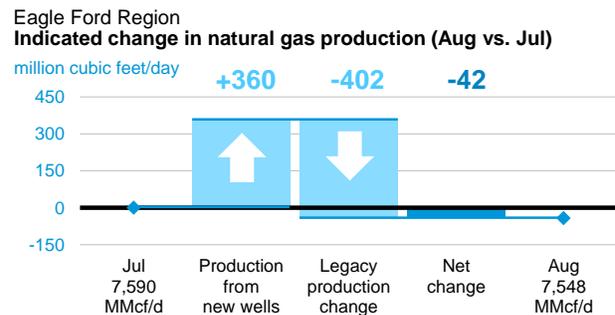
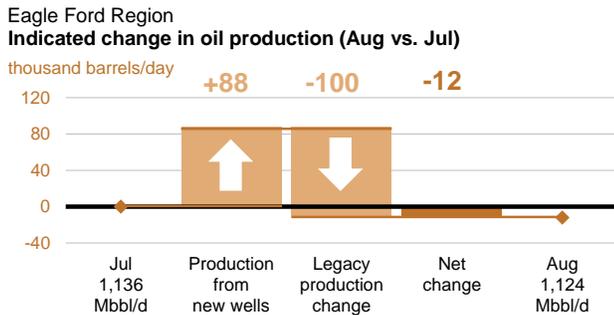
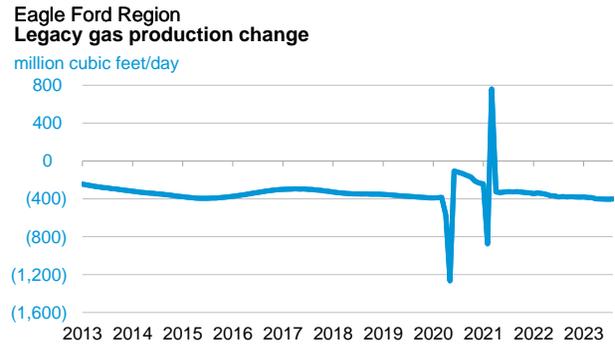
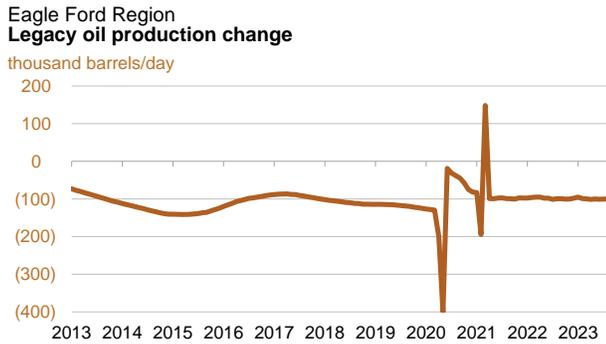
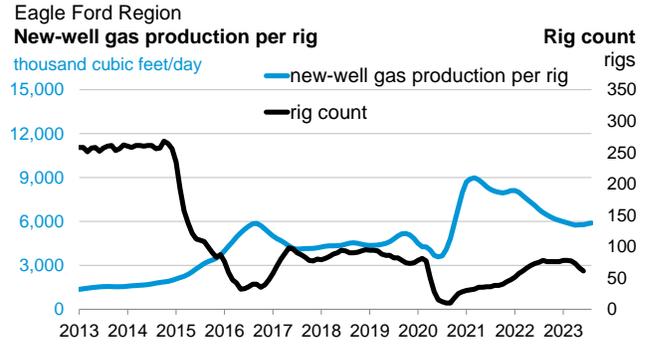
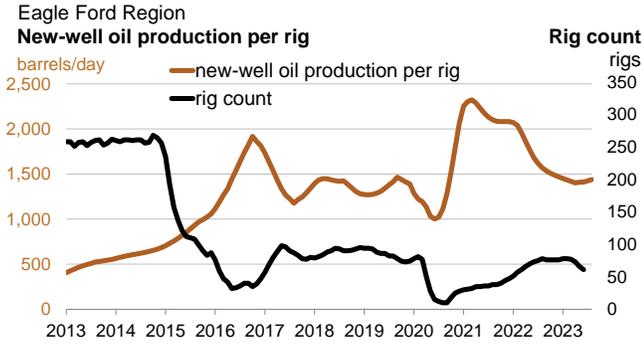


1,439 August
1,424 July
barrels/day

Monthly additions from one average rig

August **5,896**
July **5,838**
thousand cubic feet/day

Gas +58
thousand cubic feet/day
month over month

eia Haynesville Region

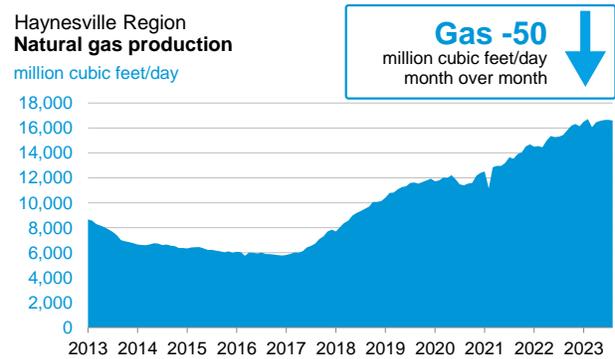
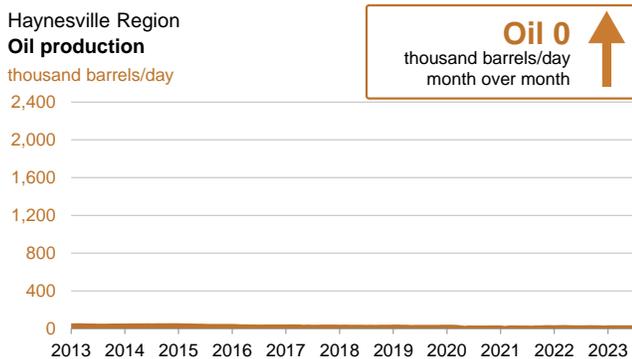
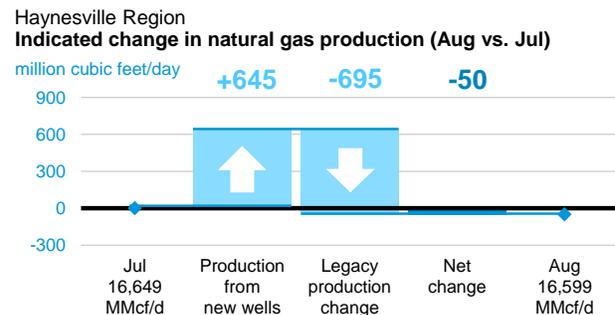
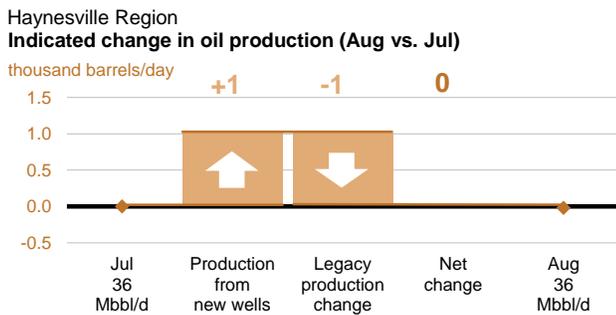
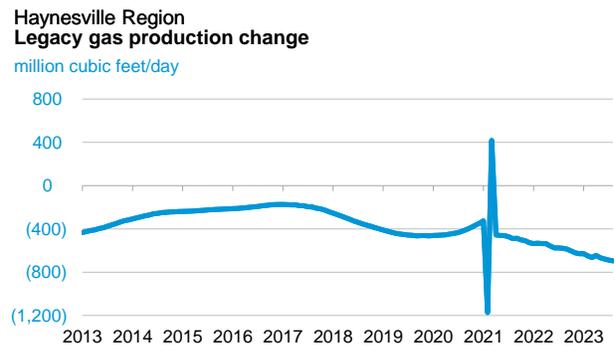
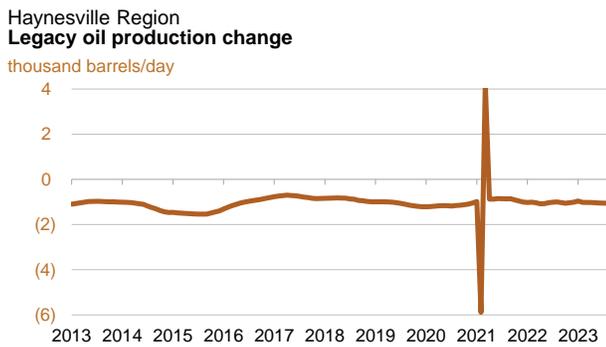
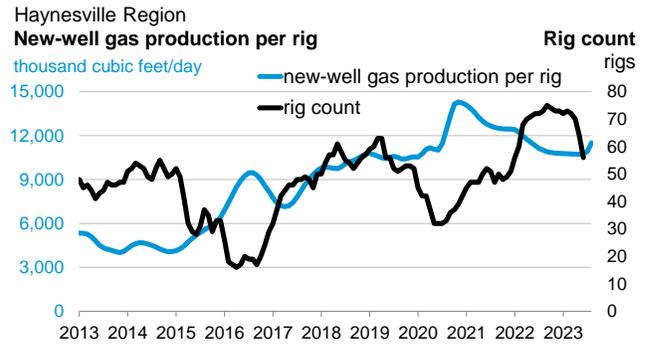
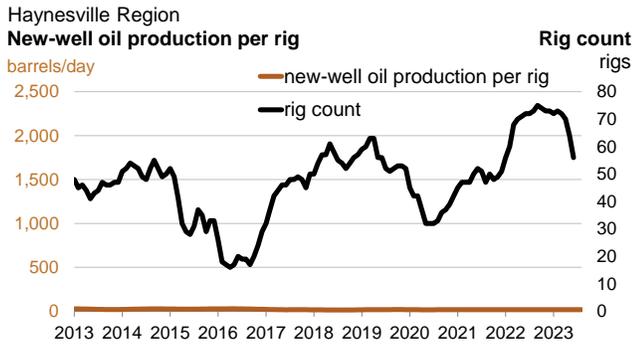
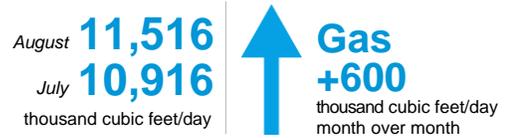
Drilling Productivity Report

July 2023

drilling data through June
projected production through August

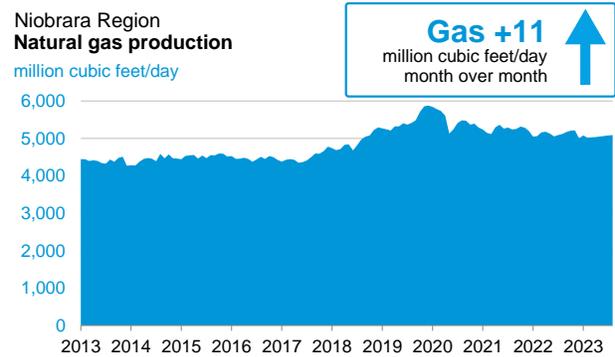
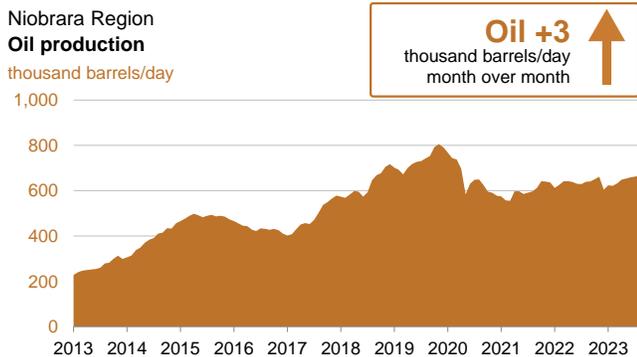
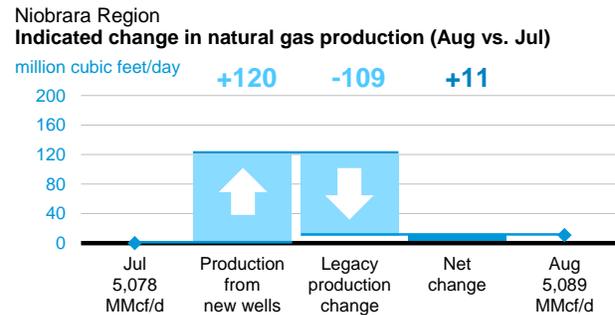
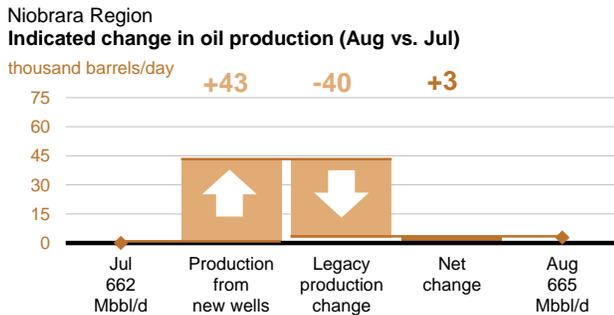
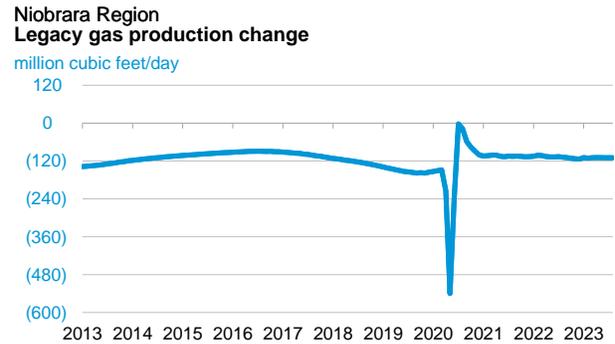
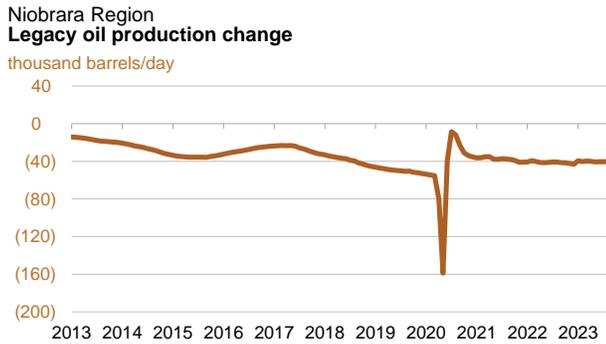
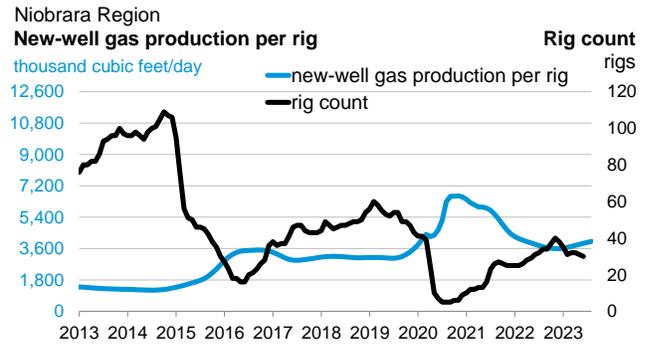
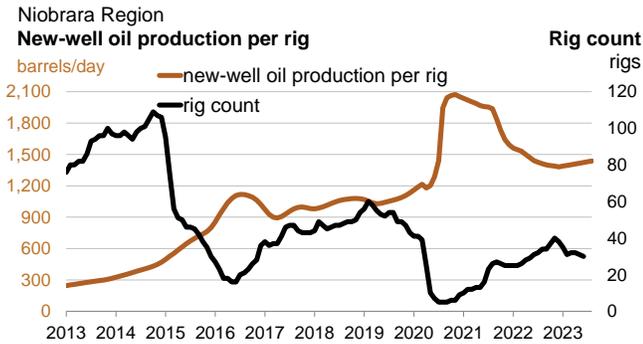
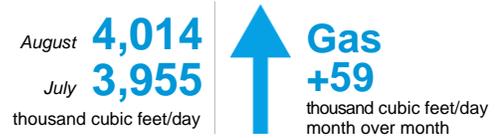


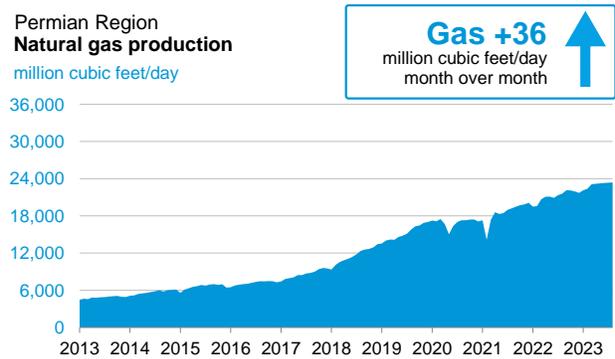
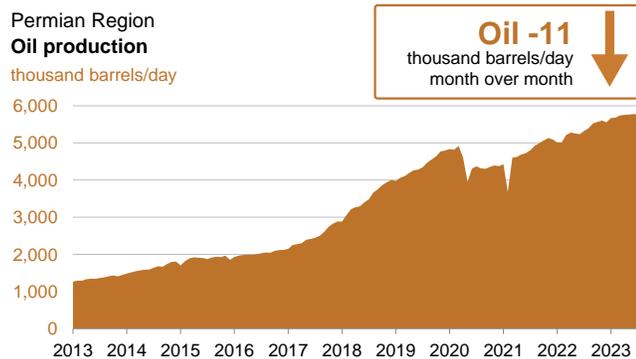
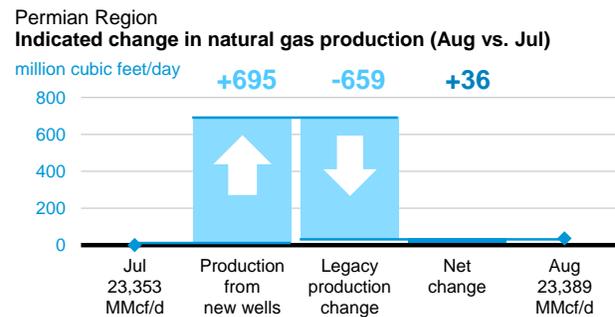
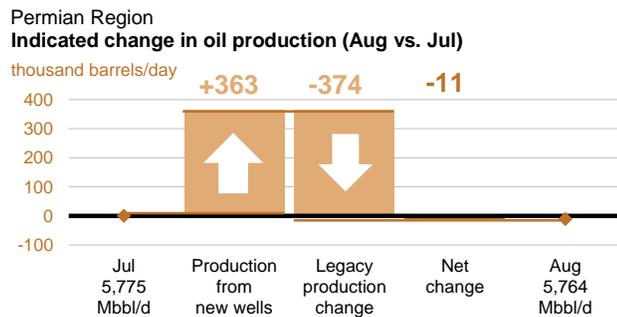
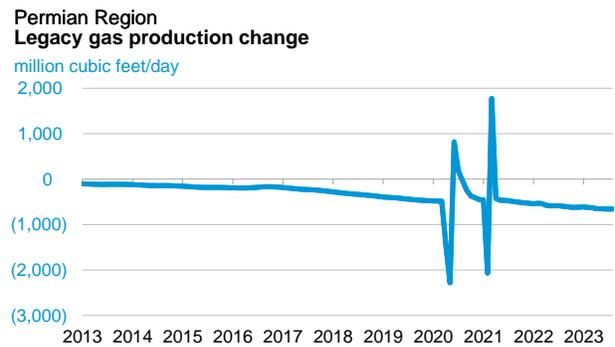
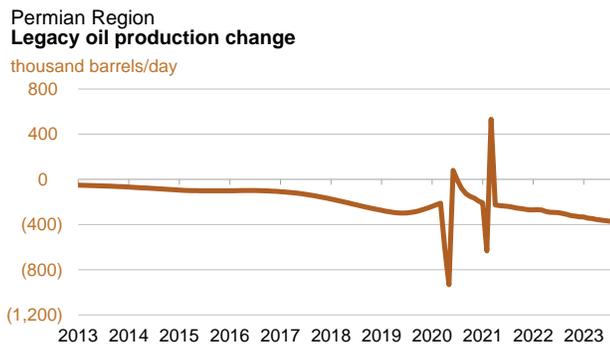
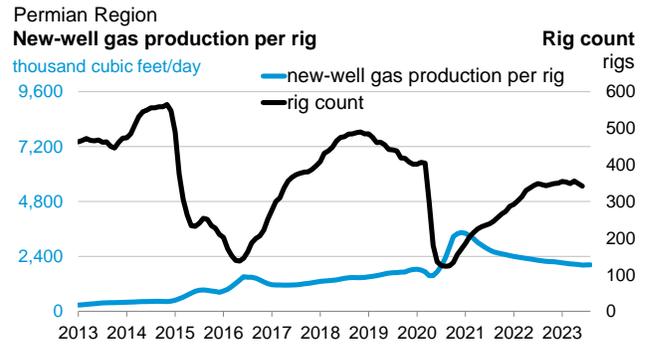
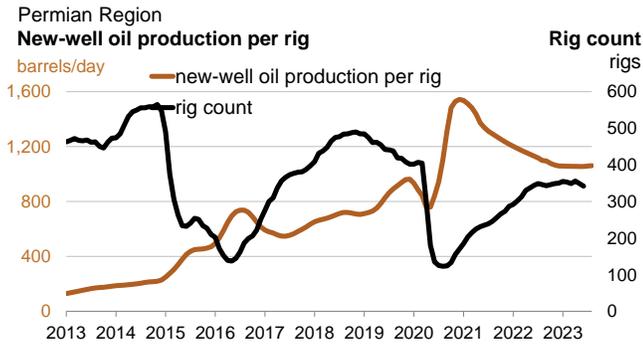
Monthly additions from one average rig





Monthly additions from one average rig





The Drilling Productivity Report uses recent data on the total number of drilling rigs in operation along with estimates of drilling productivity and estimated changes in production from existing oil and natural gas wells to provide estimated changes in oil¹ and natural gas² production for seven key regions. EIA's approach does not distinguish between oil-directed rigs and gas-directed rigs because once a well is completed it may produce both oil and gas; more than half of the wells do that.

Monthly additions from one average rig

Monthly additions from one average rig represent EIA's estimate of an average rig's³ contribution to production of oil and natural gas from new wells.⁴ The estimation of new-well production per rig uses several months of recent historical data on total production from new wells for each field divided by the region's monthly rig count, lagged by two months.⁵ Current- and next-month values are listed on the top header. The month-over-month change is listed alongside, with +/- signs and color-coded arrows to highlight the growth or decline in oil (brown) or natural gas (blue).

New-well oil/gas production per rig

Charts present historical estimated monthly additions from one average rig coupled with the number of total drilling rigs as reported by Baker Hughes.

Legacy oil and natural gas production change

Charts present EIA's estimates of total oil and gas production changes from all the wells other than the new wells. The trend is dominated by the well depletion rates, but other circumstances can influence the direction of the change. For example, well freeze-offs or hurricanes can cause production to significantly decline in any given month, resulting in a production increase the next month when production simply returns to normal levels.

Projected change in monthly oil/gas production

Charts present the combined effects of new-well production and changes to legacy production. Total new-well production is offset by the anticipated change in legacy production to derive the net change in production. The estimated change in production does not reflect external circumstances that can affect the actual rates, such as infrastructure constraints, bad weather, or shut-ins based on environmental or economic issues.

Oil/gas production

Charts present all oil and natural gas production from both new and legacy wells since 2007. This production is based on all wells reported to the state oil and gas agencies. Where state data are not immediately available, EIA estimates the production based on estimated changes in new-well oil/gas production and the corresponding legacy change.

Footnotes:

1. Oil production represents both crude and condensate production from all formations in the region. Production is not limited to tight formations. The regions are defined by all selected counties, which include areas outside of tight oil formations.
2. Gas production represents gross (before processing) gas production from all formations in the region. Production is not limited to shale formations. The regions are defined by all selected counties, which include areas outside of shale formations.
3. The monthly average rig count used in this report is calculated from weekly data on total oil and gas rigs reported by Baker Hughes.
4. A new well is defined as one that began producing for the first time in the previous month. Each well belongs to the new-well category for only one month. Reworked and recompleted wells are excluded from the calculation.
5. Rig count data lag production data because EIA has observed that the best predictor of the number of new wells beginning production in a given month is the count of rigs in operation two months earlier.

The data used in the preparation of this report come from the following sources. EIA is solely responsible for the analysis, calculations, and conclusions.

Drilling Info (<http://www.drillinginfo.com>) Source of production, permit, and spud data for counties associated with this report. Source of real-time rig location to estimate new wells spudded and completed throughout the United States.

Baker Hughes (<http://www.bakerhughes.com>) Source of rig and well counts by county, state, and basin.

North Dakota Oil and Gas Division (<https://www.dmr.nd.gov/oilgas>) Source of well production, permit, and completion data in the counties associated with this report in North Dakota

Railroad Commission of Texas (<http://www.rrc.state.tx.us>) Source of well production, permit, and completion data in the counties associated with this report in Texas

Pennsylvania Department of Environmental Protection

(<https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Welcome/Welcome.aspx>) Source of well production, permit, and completion data in the counties associated with this report in Pennsylvania

West Virginia Department of Environmental Protection (<http://www.dep.wv.gov/oil-and-gas/Pages/default.aspx>) Source of well production, permit, and completion data in the counties associated with this report in West Virginia

Colorado Oil and Gas Conservation Commission (<http://cogcc.state.co.us>) Source of well production, permit, and completion data in the counties associated with this report in Colorado

Wyoming Oil and Conservation Commission (<http://wogcc.state.wy.us>) Source of well production, permit, and completion data in the counties associated with this report in Wyoming

Louisiana Department of Natural Resources (<http://dnr.louisiana.gov>) Source of well production, permit, and completion data in the counties associated with this report in Louisiana

Ohio Department of Natural Resources (<http://oilandgas.ohiodnr.gov>) Source of well production, permit, and completion data in the counties associated with this report in Ohio

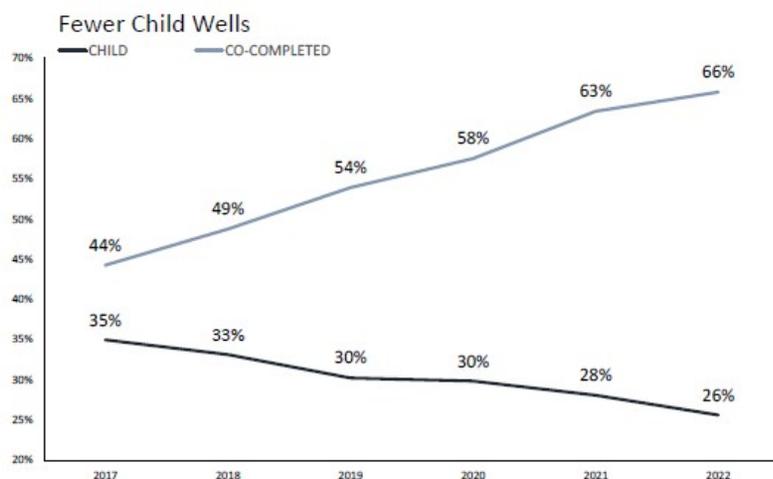
Oklahoma Corporation Commission (<http://www.occeweb.com/og/oghome.htm>) Source of well production, permit, and completion data in the counties associated with this report in Oklahoma

- 6-month per well volumes were unchanged year-over-year
- No improvement despite higher proppant loadings and longer lateral lengths
- Since 2017, 6-month volumes have increased 54% on the back of 34% longer laterals and 35% higher proppant loadings

- Productivity per foot noticeably lower due to mix issues
- It should be pointed out that the core Haynesville zone demonstrated flat per foot volumes, but the basin overall was driven lower by declining per foot metrics by the Bossier and Cotton Valley zones.
- Given the trend, we expect gross per-well productivity to be down in 2023

Haynesville: Are We Running Into Parent Child Issues? Well Spacing?

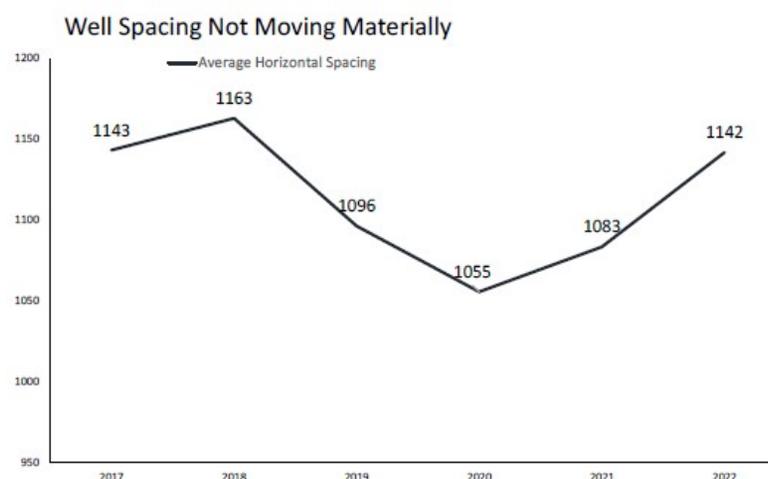
The Haynesville is distinctly moving away from child wells, with co-completions steadily rising every year for the past 6 years. Interestingly, it looks like things should have improved year-over-year in the basin. However, slightly fewer child wells (26% vs 28%) and wider well spacing (5% increase) were not enough to improve overall well productivity in the basin.



Source: Enverus, Raymond James Research

Parent Child Ratio Continues Positive Trend

- Haynesville has held a steady trendline, decreasing child wells and increasing co-completions every year.
- 2021's huge uplift in productivity was partially due to fewer child wells
- Early 2023 data suggests that trend might be reversing with child wells so far representing 29% of total (up from 26% last year)



Source: Enverus, Raymond James Research

Well Spacing Up 5% in 2022, but Unchanged Over Past Several Years

- Spacing widened 5% last year after shrinking by ~8% between 2018 and 2020. However, were back to same levels from 2017-2018.
- Spacing differences less pronounced, peaked at 5 wells per section in 2020 but still sitting at ~4.6 on average.

Main Takeaways

- SWN contains the largest portion (25%) of Core + Tier 1 locations remaining, followed closely by Aethon (20%)
- At \$3/Mcf gas, Aethon and CRK see material amounts of inventory become economic
- Core + Tier 1 inventory life is ~6 ½ years (only up slightly from the 6 years of core inventory life)

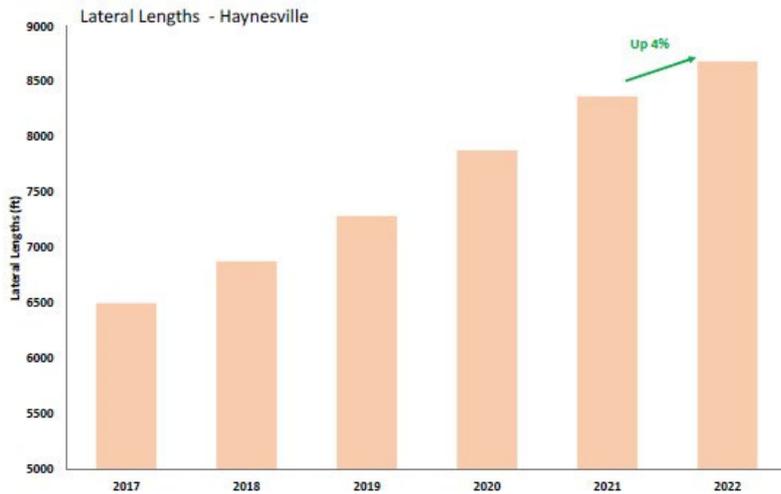
Key Takeaways and Conclusion

1. SWN and CHK control ~45% of remaining core inventory
2. Core M&A opportunities remain within the Haynesville, specifically Aethon, Rockcliff, and GEP II
3. Haynesville has 6 years of core inventory remaining and 6 ½ years when Tier 1 inventory is included (at current development cadence)
4. Current Haynesville rig count may be overstating core inventory life remaining (many operators expect falling production volumes y/y)
5. \$3/Mcf gas more than doubles the Haynesville’s economically viable (>20% IRR) remaining inventory

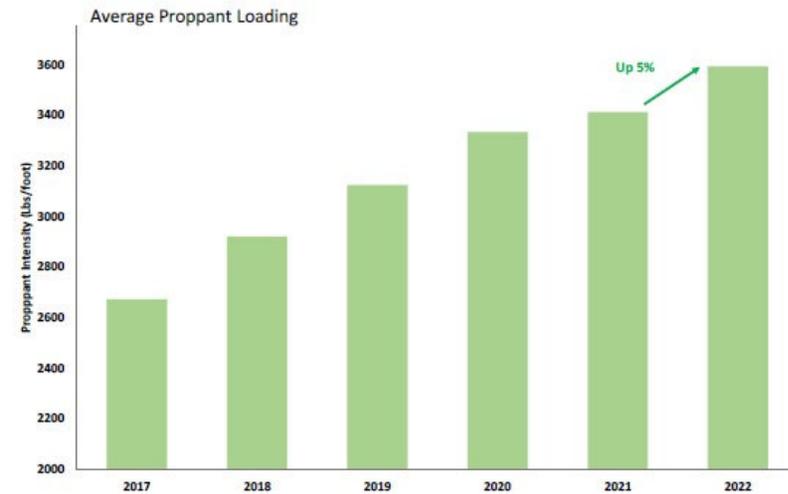
HAYNESVILLE — WELL PRODUCTIVITY OVERVIEW

Haynesville Well Productivity Finally Hitting the Wall

Continuing our approach from the Permian Basin, we are choosing to focus on per well 6-month production volumes. We seem to be at the top of the productivity hill in the Haynesville given flat 6-month per well volumes and the steep 7% decline in per-foot production at the 6-month mark. The lack of productivity gains occurred despite longer laterals (up 4%) and higher proppant loadings (up 5%) last year. The prior 5 years the Haynesville increased well productivity at a ~10% CAGR so this represents a potential inflection point.



Source: Enverus, Raymond James Research



Source: Enverus, Raymond James Research

King Creole - Can Anyone Challenge Cheniere As The King Of U.S. LNG?

Friday, 07/14/2023

Published by: [Lindsay Schneider](#)

U.S. LNG development has seen a resurgence in the post-COVID world, with five projects with a combined 61.1 MMtpa (8.1 Bcf/d) of new LNG export capacity reaching a final investment decision (FID) in the past 18 months and one additional project closing in on that milestone. Five of these six projects are from the “Big Three” of U.S. LNG — Cheniere, Sempra and Venture Global — leading some to wonder if there’s room for anyone else. But while all three companies are big in U.S. LNG and have projects under development, only one is a behemoth. In today’s RBN blog, we continue our look at the pre-FID projects under development by the Big Three, focusing on the king of U.S. LNG, Cheniere.

In [Part 1](#), we took a closer look at the projects under development by Sempra, because at the time, Sempra had the project most likely to take FID next: Cameron Phase 2, a 7-MMtpa (0.93-Bcf/d) expansion of its existing terminal in Louisiana. The expansion includes a fourth train as well as 1 MMtpa (0.13 Bcf/d) of additional capacity from debottlenecking at the existing terminal. The project is being developed in conjunction with existing offtakers, although Sempra has elected to market some of the capacity itself as well. The project is currently completing front-end engineering design (FEED) work, which is expected to be complete later this summer, with an FID following later this year.

Since [Part 1](#) was posted, NextDecade has taken FID on Phase 1 of the Rio Grande LNG project, just a few weeks after announcing a major offtake and equity agreement with TotalEnergies. TotalEnergies took a 17.5% stake in the Rio Grande LNG project and agreed to take 5.4 MMtpa (0.72 Bcf/d) of LNG, functionally selling out the first three trains. NextDecade said at the time it was working on closing out the financing for the project and would take FID by mid-July, which it did with the official announcement and a full notice to proceed issued July 12 to Bechtel, its engineering, procurement and construction (EPC) contractor. The three-train project has a capacity of 17.6 MMtpa (2.3 Bcf/d) and will likely begin operations in 2027. (For more of the project specifics for Rio Grande, see [Jump in the Line, Part 4](#).) Rio Grande is the first U.S. project since Golden Pass took FID in early 2019 to come from outside the Big Three. But Rio Grande is an exception to the current paradigm, not a regime change — every other project that has taken FID post-COVID has come from Cheniere, Sempra and Venture Global, and all three of those companies have projects progressing that are likely to eventually take FID, with Sempra’s Cameron Phase 2 a likely next FID at some point later this year.

Cheniere currently operates 45 MMtpa (6 Bcf/d) of LNG export capacity at its two terminals — Sabine Pass (yellow boxes in Figure 1) and Corpus Christi (green boxes) — and is by far the largest U.S. producer. Globally, Cheniere ranks as the second-largest LNG producer, behind only QatarEnergy. Cheniere has an additional 10 MMtpa (1.3 Bcf/d) of capacity under construction at Corpus Christi with its Stage III expansion (purple-dotted boxes). As that project was closing in on FID, Cheniere began to sell offtake capacity from an as-yet-unnamed Corpus Christi expansion. It quickly announced three deals totaling 2.8 MMtpa (0.37 Bcf/d) of LNG, then later announced that this would be an expansion of Stage III, adding an additional two mid-scale trains (8 and 9, blue-striped boxes) for a total of 2.9 MMtpa (0.38 Bcf/d) of capacity. The expansion was sold out before it even had a name or had filed any regulatory applications. In March, Cheniere made its formal application with FERC and Cheniere will likely take FID on the project once it receives its regulatory approvals. Cheniere has said it is planning a continuous construction process, basically tacking the expansion onto the end of the initial Stage III construction, which began last year.

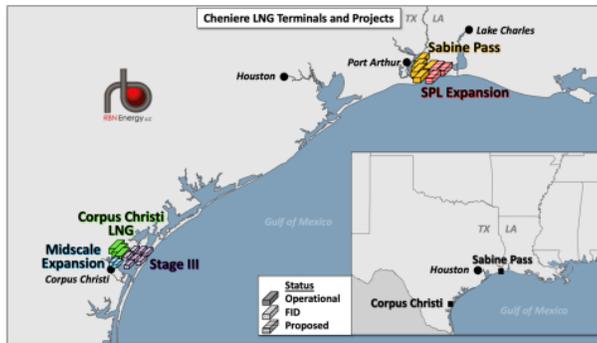


Figure 1. Cheniere LNG Terminals and Projects. Source: RBN

Cheniere considered that latest Corpus Christi expansion “low-hanging fruit,” tacking on a little extra capacity that could essentially function within the infrastructure (pipeline, vessel berths, etc.) of the Stage III expansion. The next expansion after that would require a bit more work. Cheniere owns land adjacent to both terminals to facilitate further expansions, which Cheniere will continue to pursue as long as there is global appetite. Although Corpus Christi has a slight feedgas location advantage, being in South Texas — and therefore closer to the Permian and further from the increasingly congested Gillis area of Louisiana — Sabine Pass has the marine infrastructure in place to support a larger expansion. Late last year, Cheniere placed the Sabine Pass terminal’s third vessel berth into service. In February, Cheniere announced that it was developing the SPL expansion project (red-striped boxes in Figure 1), adding three additional trains and 20 MMtpa (2.65 Bcf/d) of capacity to Sabine Pass. FERC accepted the project into the pre-filing review process on May 30, so the project will likely file its formal application at the end of this year. Cheniere has also already sold 3.2 MMtpa (0.42 Bcf/d) from the project’s first train, tying in bridge volumes from Cheniere’s marketing arm CMI and then increasing the volumes of the offtake agreement toward the end of the decade, subject to a FID on at least the first train of the expansion.

Cheniere Offtake Agreements Tied to Pre-FID Projects

Project	Offtaker	Amount (MMtpa)	Full Volume Start & Length
Corpus Christi Midscale 8 & 9	Equinor	0.90	15 years, from 2026
Corpus Christi Midscale 8 & 9	Chevron	1.00	15 years, from 2026
Corpus Christi Midscale 8 & 9	PetroChina	0.90	25 years, from 2026
SPL Expansion	KOSPO	0.40	18 years, from 2028
SPL Expansion	Equinor	1.75	15 years, from 2030
SPL Expansion	ENN	1.80	20 years, from Commercial Ops T7

Figure 2. Cheniere Offtake Agreements Tied to Pre-FID projects. Source: RBN LNG Voyager

The first deal for the expansion, a 0.4-MMtpa (0.05 Bcf/d) sales and purchase agreement (SPA) with South Korea’s Korea Southern Power Co. (KOSPO), was announced in May. It begins in 2024, with a small volume sold through Cheniere’s CMI, increasing through 2027. Beginning in 2028 (see Figure 2 above), the deal is contingent on FID of at least the first train of the SPL expansion. Then in June, Cheniere announced two additional deals — one with Equinor, for 0.875 MMtpa (0.12 Bcf/d) beginning in 2027, again from CMI volumes, and then doubling to 1.75 MMtpa (0.23 Bcf/d) at the end of the decade, subject to FID on the first train of the SPL expansion. The second deal is with China’s ENN for 1.8 MMtpa (0.24 Bcf/d), with deliveries starting in mid-2026, ramping to 0.9 MMtpa (0.12 Bcf/d) in 2027 and then doubling to the full 1.8 MMtpa (0.24 Bcf/d) if and when the first train of the expansion begins commercial operations.

This strategy of bridging volumes from Cheniere’s general portfolio and existing infrastructure with new capacity has been extremely popular with offtakers as well as effective for Cheniere. The SPL expansion is in its infancy, and is likely at least a few years out from FID, but as offtake capacity from the Cheniere portfolio is otherwise contracted, buying into the Cheniere portfolio likely means buying into the SPL

expansion, so more deals like this are likely. Should all of those expansions come to fruition, they would put Cheniere at 78 MMtpa (10.3 Bcf/d) of Gulf Coast liquefaction capacity.

Already, Cheniere has 55 MMtpa (7.3 Bcf/d) of LNG capacity operational or under construction, compared to Venture Global's 30 MMtpa (4 Bcf/d) and Sempra's 28 MMtpa (3.7 Bcf/d; U.S. and Mexico). All three companies have projects likely to reach FID, so for the foreseeable future it looks like Cheniere will remain king. But as more projects take FID, what's the limit? The U.S. has the gas supplies for continued LNG growth, but at what price? And how exactly does that all that gas get to the terminal? We're already pushing up against the midstream infrastructure in certain regions, including southern Louisiana, where many of these new LNG projects are located. And if there is a limit to what can be built, offtakers can be even more picky about who they buy from, further setting the giants apart from the smaller, single-project developers. We'll wrap up our series next time with the last of our Big Three, Venture Global.

"King Creole" was written by Jerry Lieber and Mike Stoller. It appears as the first song on side one of Elvis Presley's second soundtrack album, *King Creole*. The song was released as a single in the U.K. in September 1958 and went to #2 on the U.K. Singles chart. An interesting scene in the movie is where Elvis lip syncs the song. At about 1:20 in the scene Elvis is supposedly playing Scotty Moore's guitar solo. Moore is in the background, as are other members of Elvis' band, and Elvis and Moore give each other a funny look during the solo, which features Moore's hands in the edit, not Elvis'. Elvis' backup singers, The Jordanaires, are featured as singing horn players in the same scene. Personnel on the record were: Elvis Presley (lead vocals), The Jordanaires (backing vocals), Scotty Moore (electric guitar), Tiny Timbrell (acoustic guitar), Bill Black (electric bass), Neal Matthews (acoustic bass), D.J. Fontana (drums), Bernie Mattinson (percussion), Elmer Schneider and Warren Smith (trombone), Justin Gordon (sax), and Teddy Buckner (trumpet).

The album, *King Creole*, was recorded in four days in January-February 1958 at Radio Recorders in Hollywood. Felton Jarvis, Walter Schark, and Phil Khagan produced the LP. It features music written specifically for the film starring Presley. Released in September 1958 in conjunction with the movie's release, it went to #2 on the Billboard 200 Album chart and has been certified Gold by the Recording Industry Association of America (RIAA). Two Eps, *Vol. 1* and *Vol. 2*, were also released from the film. Two singles were released from the LP. "Hard Headed Woman," released in the U.S. in June 1958, went to #1 on the Billboard Hot 100 Singles chart. It became the first rock and roll single to be certified Gold by the RIAA.

Elvis Presley was an American rock and roll singer and actor. Dubbed "The King of Rock and Roll," he is one of the most significant figures in popular culture in the 20th century. He released 23 studio albums, 18 soundtrack albums, eight live albums, 13 compilation albums, 29 Eps, and 117 singles, and has sold more than 500 million records worldwide. Presley starred in 31 films and five concert specials. He is a member of the Rock and Roll Hall of Fame, has a Grammy Lifetime Achievement Award, is a recipient of the Presidential Medal of Freedom, and has a star on the Hollywood Walk of Fame. Presley died in Memphis in August 1977 at the age of 42.

Summary

Overview of Activity for May 2022

- **Top five countries of destination, representing 46.4% of total U.S. LNG exports in May 2022**
 - France (47.8 Bcf), Spain (40.3 Bcf), Netherlands (28.9 Bcf), Japan (24.0 Bcf), and Italy (21.7 Bcf)
- **351.1 Bcf of exports in May 2022**
 - 6.4% increase from April 2022
 - 11.5% more than May 2021
- **114 cargos shipped in May 2022**
 - Sabine Pass (39), Corpus Christi (23), Freeport (22), Cameron (20), Cove Point (8), Elba Island (2)
 - 107 cargos in April 2022
 - 102 cargos in May 2021

1a. Table of Exports of Domestically-Produced LNG Delivered by Region (Cumulative from February 2016 through May 2022)

Region	Number of Countries Receiving Per Region	Volume Exported (Bcf)	Percentage Receipts of Total Volume Exported (%)	Number of Cargos*
East Asia and Pacific	8	3,993.4	34.9%	1163
Europe and Central Asia	13	4,343.8	37.9%	1348
Latin America and the Caribbean**	13	2,021.6	17.7%	715
Middle East and North Africa	5	346.4	3.0%	101
South Asia	3	746.8	6.5%	223
Sub-Saharan Africa	0	0.0	0.0%	0
Total LNG Exports	42	11,452.0	100.0%	3,550

*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 May 2022)

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	440	1,532.3	13.4%
2. Japan*	East Asia and Pacific	325	1,120.1	9.8%
3. China*	East Asia and Pacific	264	906.8	7.9%
4. Spain*	Europe and Central Asia	270	852.8	7.4%
5. United Kingdom*	Europe and Central Asia	209	717.4	6.3%
6. France*	Europe and Central Asia	202	655.4	5.7%
7. Brazil*	Latin America and the Caribbean	208	585.3	5.1%
8. India*	South Asia	164	553.5	4.8%
9. Mexico*	Latin America and the Caribbean	162	543.0	4.7%
10. Turkey*	Europe and Central Asia	159	519.6	4.5%
11. Netherlands*	Europe and Central Asia	147	486.6	4.2%
12. Chile*	Latin America and the Caribbean	129	409.0	3.6%
13. Taiwan*	East Asia and Pacific	79	266.8	2.3%
14. Italy*	Europe and Central Asia	80	263.5	2.3%
15. Argentina*	Latin America and the Caribbean	94	228.3	2.0%
16. Portugal*	Europe and Central Asia	69	219.7	1.9%
17. Poland*	Europe and Central Asia	56	188.5	1.6%
18. Greece*	Europe and Central Asia	56	133.8	1.2%
19. Pakistan*	South Asia	40	128.9	1.1%
20. Dominican Republic*	Latin America and the Caribbean	56	128.7	1.1%
21. Kuwait	Middle East and North Africa	36	126.1	1.1%
22. Jordan*	Middle East and North Africa	36	124.2	1.1%
23. Belgium*	Europe and Central Asia	34	111.4	1.0%
24. Lithuania	Europe and Central Asia	34	107.5	0.9%
25. Singapore*	East Asia and Pacific	28	91.1	0.8%
26. Croatia	Europe and Central Asia	23	73.0	0.6%
27. Thailand*	East Asia and Pacific	19	68.7	0.6%
28. Bangladesh*	South Asia	19	64.5	0.6%
29. Jamaica*	Latin America and the Caribbean	25	57.3	0.5%
30. United Arab Emirates	Middle East and North Africa	15	51.1	0.4%
31. Panama*	Latin America and the Caribbean	26	47.3	0.4%
32. Israel*	Middle East and North Africa	9	28.0	0.2%
33. Colombia*	Latin America and the Caribbean	15	19.0	0.2%
34. Egypt*	Middle East and North Africa	5	16.9	0.1%
35. Malta*	Europe and Central Asia	9	14.6	0.1%
36. Indonesia*	East Asia and Pacific	7	4.0	0.0%
37. Malaysia	East Asia and Pacific	1	3.7	0.0%
Total Exports by Vessel		3,550	11,448.3	
38. Barbados	Latin America and the Caribbean	304	1.3	0.0%
39. Bahamas	Latin America and the Caribbean	547	1.2	0.0%
Jamaica	Latin America and the Caribbean	73	0.8	0.0%
40. Haiti	Latin America and the Caribbean	116	0.4	0.0%
41. Antigua and Barbuda	Latin America and the Caribbean	1	0.0	0.0%
42. Nicaragua	Latin America and the Caribbean	1	0.0	0.0%
Total Exports by ISO		1040	3.7	
Total Exports by Vessel and ISO		4,590	11,452.0	

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

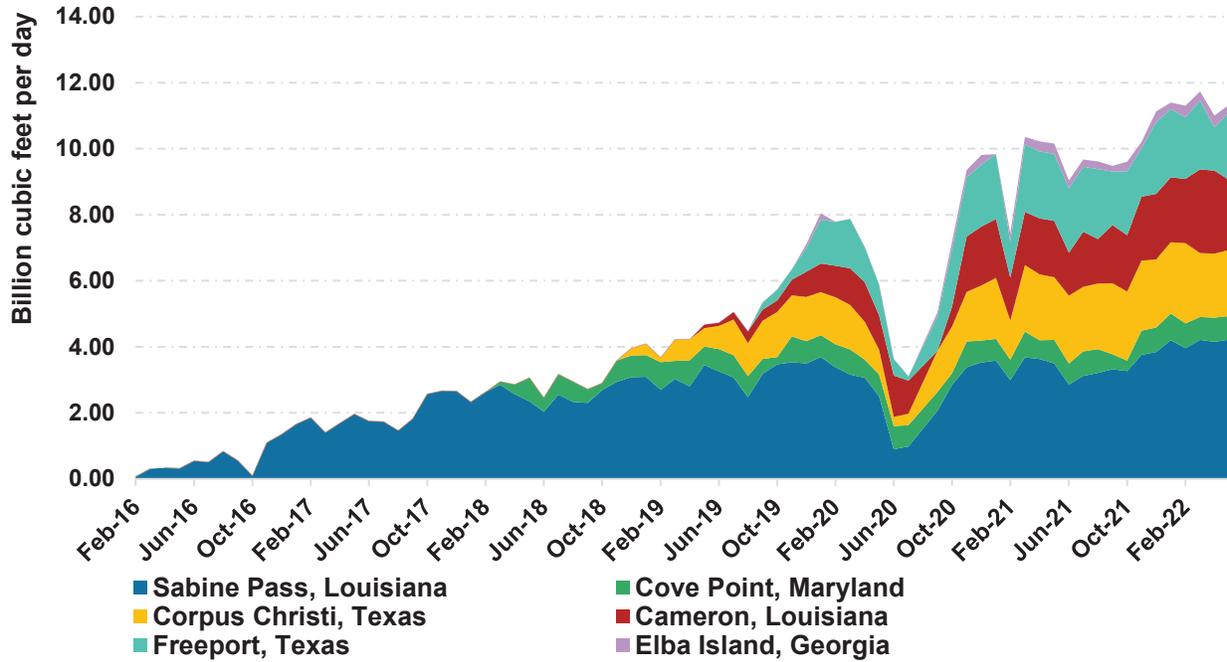
* Split cargos counted as both individual cargos and countries.

Vessel = LNG Exports by Vessel and ISO container = LNG Exports by Vessel in ISO Containers.

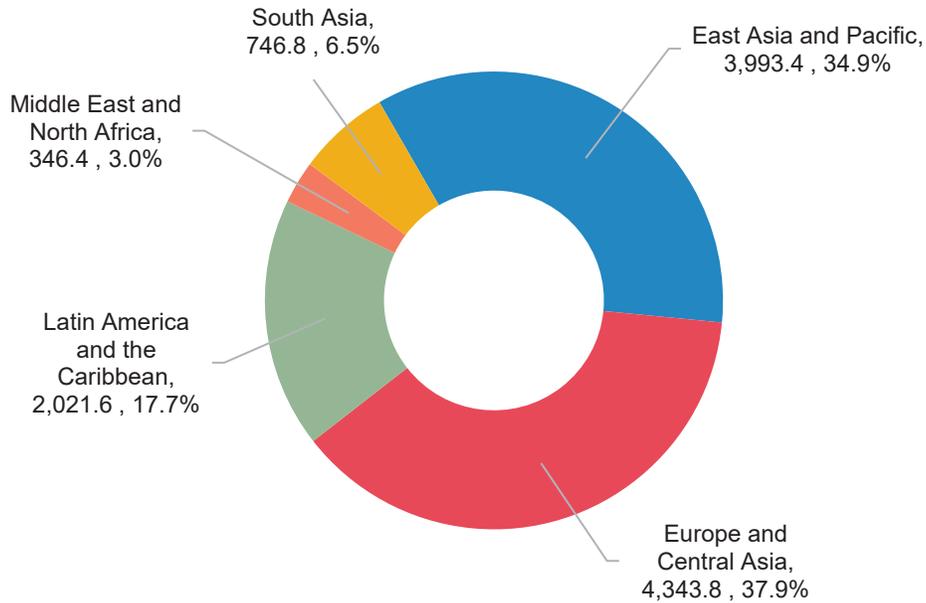
Does not include re-exports of previously-imported LNG. See table 2c for re-exports data.

Totals may not equal sum of components because of independent rounding.

1c. Domestically-Produced LNG Exported by Terminal (February 2016 through May 2022)



1d. Domestically-Produced LNG Exported by Region (Cumulative from February 2016 through May 2022) (Bcf, %)



ADNOC Gas Announces a \$7-9 Billion,14-year LNG Supply Agreement with Indian Oil Corporation Ltd.

July 18, 2023 – Abu Dhabi, UAE

ADNOC Gas Announces a \$7-9 Billion,14-year LNG Supply Agreement with Indian Oil Corporation Ltd.

ADNOC Gas to supply up to 1.2 million metric tonnes of LNG per annum to India

Agreement underscores ADNOC Gas' position as a reliable global supplier of LNG, and paves the way

for potential further supplies

Abu Dhabi, UAE – July 18, 2023: ADNOC Gas plc (“ADNOC Gas” or the “Company”), a world-class integrated gas processing company, today announced a 14-year supply agreement with Indian Oil Corporation Ltd (IOCL) for the export of up to 1.2 million metric tonnes per annum (mmtpa) of liquefied natural gas (LNG) to India's largest integrated and diversified energy company. The agreement, valued in the range of \$7 billion to \$9 billion (AED25.7 to AED33 billion) over its 14-year term, signifies a major step forward in the partnership between the two industry leaders.

The landmark deal marks another significant milestone for ADNOC Gas as it expands its global reach, reinforcing its position as a global LNG export partner of choice, and reaffirming IOCL as its key strategic partner in the LNG market.

Commenting on the agreement, **Ahmed Alebri, Chief Executive Officer of ADNOC Gas**, said: “We are pleased to announce this long-term LNG sale, further strengthening the long-standing partnership with IOCL. We look forward to expanding our collaboration and take pride in the knowledge that ADNOC Gas' LNG exports will further support the development of IOCL and contribute to India's growth story.” Under the terms of the agreement, ADNOC Gas will deliver up-to 1.2 mmtpa of LNG to IOCL in India. The deal serves as a testament to ADNOC Gas' ability to meet the growing global demand for LNG, a critical fuel in the energy transition.

About ADNOC Gas

ADNOC Gas, listed on the ADX (ADX symbol: “ADNOCGAS” / ISIN: “AEE01195A234”), is a world-class, large-scale integrated gas processing company operating across the gas value chain, from receipt of raw gas feedstock from ADNOC through large, long-life operations for gas processing and fractionation to the sale of products to domestic and international customers. ADNOC Gas supplies approximately 60% of the UAE's sales gas needs and supplies end-customers in over 20 countries. To find out more, visit: www.adnocgas.ae.

For media inquiries, please contact:

Mayyasa Saeed Al Yammahi
External Communications Manager, Corporate Communication & CSR
+971 50 117 1779
mayyasa@adnoc.ae

For investor inquiries, please contact:

Zoltan Pandi
Vice President, Investor Relations
+971 56 4362067
zpandi@adnoc.ae

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

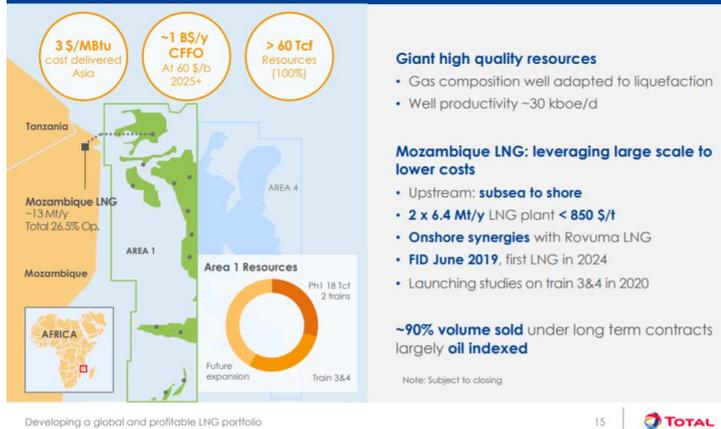
Posted Wednesday April 28, 2021. 9:00 MT

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.

Total declares force majeure on Mozambique LNG, 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

Mozambique LNG: unlocking world-class gas resources



Source: Total Investor Day September 24, 2019

Total's Mozambique force majeure is no surprise, especially the need to the restoration of security and stability "in a sustained manner". 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".

Does anyone really think Total will risk another quick 2-3 month restart or even in 2021? 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.

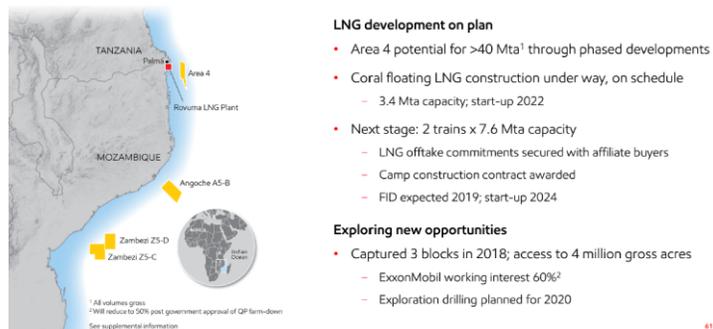
Mozambique's security issues pushes back 5.0 bcf/d of new LNG supply at least a couple years. The global LNG issue is that 5 bcf/d of new Mozambique LNG supply (apart from the Eni Coral FLNG of 0.45 bcf/d) won't start up in 2024 and

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 bcf/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 timeline) 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

UPSTREAM MOZAMBIQUE

Five outstanding developments



Source: Exxon Investor Day March 6, 2019

Won't LNG and natural gas get hit by Biden's push for carbon free electricity? 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

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[\[LINK\]](#) 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 will 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



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

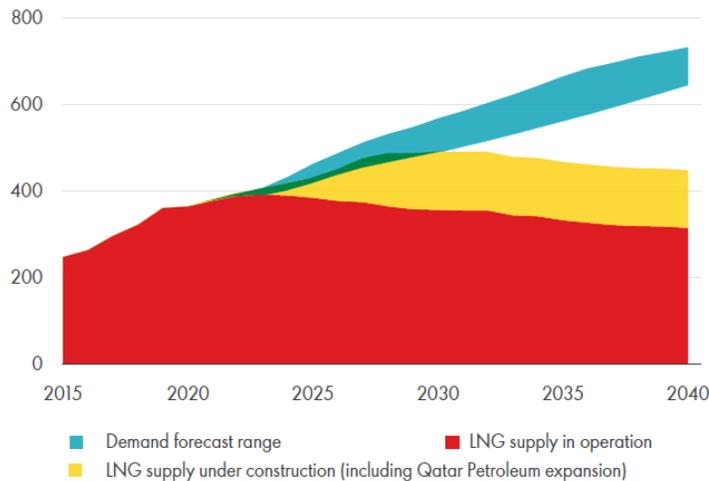
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would have reflected some delay, perhaps 1 year, at Mozambique but would be surprised if they put a 2-3 year delay in for the 5 bcf/d from Total Phase 1 +2 and Exxon Rozuma Phase 1. Compared to their LNG Outlook 2020, it looks like there was no change 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

Emerging LNG supply-demand gap

MTPA



Source: Shell LNG Outlook 2021, Feb 25, 2021

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.. 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.

And does this bigger, nearer supply gap force LNG players to look at what brownfield LNG projects they could advance?

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

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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.

Sea change in Asian LNG buyers is also the best validation of the LNG supply gap and big to LNG supply FIDs. 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.

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. 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 bcf/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

One of the reasons why it went under the radar is that major LNG suppliers played stupid on the Mozambique impact. 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 @olympemattei @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 Dec's a day of US NAT gas from almost a 100 different producers on 26 different pipelines and deliver it to our facilities. So we take care of a lot of what the customer needs*".

There are other LNG supply delays/interruptions beyond Mozambique. 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 Melkøya 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 Melkøya 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 Melkøya 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

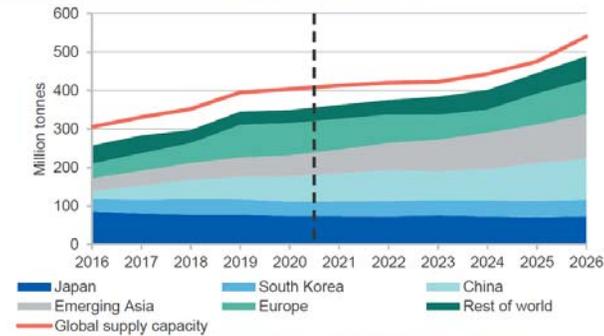
But we still see major LNG suppliers like Australia hinting but not outright saying that LNG supply gap is coming sooner. We have to believe Australia will be unveiling a sooner LNG supply gap in their September forecast. On June 28, we tweeted [\[LINK\]](#) on Australia's Resources and Energy Quarterly 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

March 2021 LNG Outlook

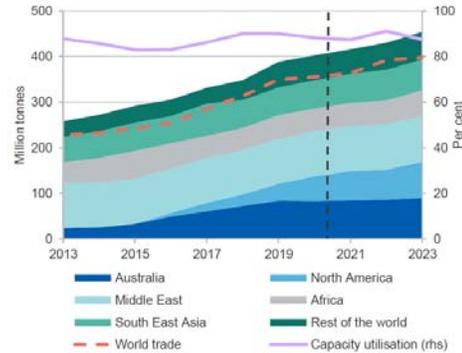
Figure 7.1: LNG demand and world supply capacity



Source: Nexant (2021) World Gas Model; Department of Industry, Science, Energy and Resources (2021)

June 2021 LNG Outlook

Figure 7.1: LNG demand and world supply capacity



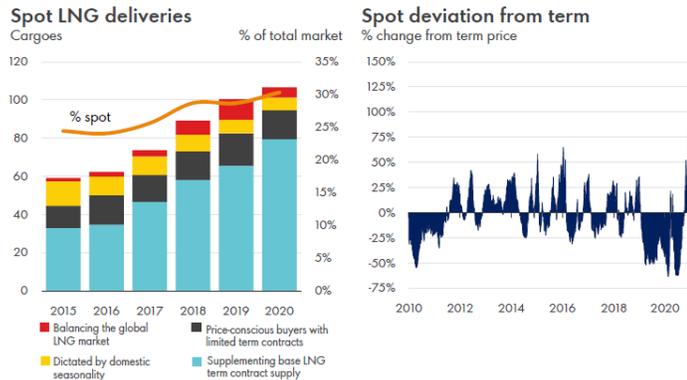
Source: Nexant (2021) World Gas Model; Department of Industry, Science, Energy and Resources (2021)

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.

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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 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

<ul style="list-style-type: none"> Indigenous crude oil and condensate production during June 2023 was 2.43 MMT. OIL registered a production of 0.27 MMT, ONGC registered a production of 1.59 MMT whereas PSC registered production of 0.56 MMT during June 2023.
<ul style="list-style-type: none"> Total Crude oil processed during June 2023 was 21.5 MMT. Where PSU/JV Refiners processed 14.9 MMT and PVT Refiners Processed 6.6 MMT of Crude Oil. Total Indigenous Crude Oil processed was 2.2 MMT and total Imported Crude oil processed was 19.3 by all Indian Refineries (PSU+JV+PVT).
<ul style="list-style-type: none"> Crude oil imports increased by 0.6% and decreased by 1.1% during June 2023 and April-June 2023 respectively as compared to the corresponding period of the previous year. As compared to net import bill for Oil & Gas for June 2022 of \$13.0 billion, the net import bill for Oil & Gas for June 2023 was \$9.5 billion. Out of which, crude oil imports constitutes \$10.0 billion, LNG imports \$1.4 billion and the exports were \$3.5 billion during June 2023.
<ul style="list-style-type: none"> The price of Brent Crude averaged \$74.70/bbl during June 2023 as against \$75.55/bbl during May 2023 and \$123.70/bbl during June 2022. The Indian basket crude price averaged \$74.93/bbl during June 2023 as against \$74.98/bbl during May 2023 and \$116.01 /bbl during June 2022.
<ul style="list-style-type: none"> Production of petroleum products was 23.1 MMT during June 2023 which is 4.6% higher than June 2022, where 22.8 MMT was from Refinery production & 0.3 MMT was from Fractionator. There was 2.0 % growth in Production of petroleum products in Apr June FY 2023 – 24 as compared to same period of FY 2022 – 23. Out of total POL production, in June 2023, HSD has 42.3 %, MS has 16.4 %, Naphtha has 6.4 %, ATF has 6.0 %, Pet Coke has 5.4, % LPG has 4.7 % which are of major products and rest are shared by Bitumen, FO/LSHS, LDO, Lubes & others.
<ul style="list-style-type: none"> POL products imports increased by 13.0% and decreased by 2.5% during June 2023 and April-June 2023 respectively as compared to the corresponding period of the previous year. Decrease in POL products imports during April-June 2023 were mainly due to decrease in imports of liquified petroleum gas (LPG), high-speed diesel (HSD) and lubes/LOBS.

<ul style="list-style-type: none"> Exports of POL products recovered to 91.4% and 88.5% during June 2023 and April-June 2023 respectively as compared to the corresponding period of the previous year. Decrease in POL products exports during April-June 2023 were mainly due to decrease in exports of high-speed diesel (HSD) and naphtha.
<ul style="list-style-type: none"> The consumption of petroleum products during April-June 2023 with a volume of 58.1 MMT reported a growth of 4.9% compared to the volume of 55.4 MMT during the same period of the previous year. This growth was led by 6.8% growth in MS, 8.1% in HSD & 13.4% in ATF & 17.7% in Naptha consumption besides LPG, FO/LSHS, Bitumen and LDO during the period. The consumption of petroleum products during June 2023 recorded a growth of 4.3% with a volume of 19.3 MMT compared to the same period of the previous year.
<ul style="list-style-type: none"> Ethanol blending with Petrol was 12% during June 2023 and cumulative ethanol blending during December 2022- June 2023 was 11.74%.
<ul style="list-style-type: none"> Total Natural Gas Consumption (including internal consumption) for the month of June 2023 was 5066 MMSCM which was 1.2% higher than the corresponding month of the previous year. The cumulative consumption of 15943 MMSCM for the current financial year till June 2023 was higher by 2.1% compared with the corresponding period of the previous year.
<ul style="list-style-type: none"> Gross production of natural gas for the month of June 2023 (P) was 2910 MMSCM which was higher by 3.4% compared with the corresponding month of the previous year. The cumulative gross production of natural gas of 8564 MMSCM for the current financial year till June 2023 was higher by 0.1% compared with the corresponding period of the previous year.
<ul style="list-style-type: none"> LNG import for the month of June 2023 (P) was 2221 MMSCM which was 1.6% lower than the corresponding month of the previous year. The cumulative import of 7590 (P) MMSCM for the current financial year till June 2023 was higher by 4.4% compared with the corresponding period of the previous year.

1. Selected indicators of the Indian economy									
Economic indicators		Unit/ Base	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	
1	Population (basis RGI projections)	Billion	1.323	1.337	1.351	1.365	1.377	1.388	
2	GDP at constant (2011-12 Prices)	Growth %	6.5 2nd RE	4.0 1st RE	-6.6 1st RE	9.1 1st RE	7.2 PE	6.5 BE	
3	Agricultural Production (Food grains)	MMT	285.2	297.5	310.7	315.7 4th AE	323.6 2nd AE	-	
		Growth %	0.1	4.3	4.5	1.6	2.5	-	
4	Gross Fiscal Deficit (as percent of GDP)	%	3.4	4.6	9.5 RE	6.7 RE	6.4 RE	5.9 E	
Economic indicators		Unit/ Base	2021-22	2022-23	June		April-June		
						2022-23	2023-24 (P)	2022-23	2023-24 (P)
5	Index of Industrial Production (Base: 2011-12)	Growth %	11.4	5.5#	19.7*	5.2* QE	12.9#	4.8#	
6	Imports^	\$ Billion	611.9	714.2	64.4	53.1	183.5	160.3	
7	Exports^	\$ Billion	419.7	447.5	42.3	33.0	121.0	102.7	
8	Trade Balance	\$ Billion	-192.2	-266.8	-22.1	-20.1	-62.6	-57.6	
9	Foreign Exchange Reserves @	\$ Billion	617.6	578.4	601.8	595.1	-	-	

Population projection by RGI is taken as on 1st July for the year. IIP is for the month of *May'23 and #April-May'23; @2021, 2021-22 - as on March 26, 2022, Mar 2022 as on Mar 25, 2022, Mar 2023-as on Mar 31, 2023, June 2022 as on June 24, 2022 and June 2023 as on June 30, 2023; ^Imports & Exports are for Merchandise for the month of June 23; E: Estimates; PE: Provisional Estimates; AE-Advanced Estimates; RE-Revised Estimates; QE-Quick Estimates.

Source: Registrar General India, Ministry of Commerce & Industry, Ministry of Statistics and Programme Implementation, Ministry of Agriculture & Farmer's Welfare, Ministry of Finance, Reserve Bank of India

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

Details		Unit/ Base	2021-22 (P)	2022-23 (P)	June		April-June	
					2022-23 (P)	2023-24 (P)	2022-23 (P)	2023-24 (P)
1	Crude oil production in India [#]	MMT	29.7	29.2	2.4	2.4	7.5	7.3
2	Consumption of petroleum products*	MMT	201.7	223.0	18.5	19.3	55.4	58.1
3	Production of petroleum products	MMT	254.3	266.5	22.1	23.1	68.1	69.4
4	Gross natural gas production	MMSCM	34,024	34,450	2,813	2,910	8,554	8,564
5	Natural gas consumption	MMSCM	64,159	59,969	5,005	5,066	15,614	15,943
6	Imports & exports:							
	Crude oil imports	MMT	212.4	232.7	19.4	19.5	60.7	60.1
		\$ Billion	120.7	157.6	15.8	10.0	48.1	31.4
	Petroleum products (POL) imports*	MMT	39.0	44.5	3.1	3.5	10.6	10.3
		\$ Billion	23.7	26.8	2.3	1.7	7.6	5.0
	Gross petroleum imports (Crude + POL)	MMT	251.4	277.3	22.6	23.1	71.3	70.4
		\$ Billion	144.3	184.4	18.1	11.6	55.6	36.4
	Petroleum products (POL) export	MMT	62.8	61.0	5.5	5.0	16.6	14.7
		\$ Billion	44.4	57.3	6.6	3.5	18.9	10.4
	LNG imports*	MMSCM	31,028	26,304	2,258	2,221	7,273	7,590
		\$ Billion	13.5	17.1	1.5	1.4	4.7	3.8
	Net oil & gas imports	\$ Billion	113.4	144.2	13.0	9.5	41.5	29.7
7	Petroleum imports as percentage of India's gross imports (in value terms)	%	23.6	25.8	28.1	21.9	30.3	22.7
8	Petroleum exports as percentage of India's gross exports (in value terms)	%	10.6	12.8	15.6	10.6	15.6	10.1
9	Import dependency of crude oil (on POL consumption basis)	%	85.5	87.4	86.6	87.9	86.5	88.3

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

3. Indigenous crude oil production (Million Metric Tonnes)								
Details	2021-22	2022-23 (P)	June			April-June		
			2022-23 (P)	2023-24 Target*	2023-24 (P)	2022-23 (P)	2023-24 Target*	2023-24 (P)
ONGC	18.5	18.4	1.5	1.6	1.5	4.7	4.8	4.6
Oil India Limited (OIL)	3.0	3.2	0.3	0.3	0.3	0.8	0.8	0.8
Private / Joint Ventures (JVs)	7.0	6.2	0.5	0.6	0.5	1.7	1.7	1.5
Total Crude Oil	28.4	27.8	2.3	2.5	2.3	7.1	7.4	6.9
ONGC condensate	0.9	1.0	0.08	0.0	0.1	0.3	0.0	0.3
PSC condensate	0.3	0.31	0.02	0.0	0.08	0.06	0.0	0.18
Total condensate	1.2	1.4	0.10	0.0	0.2	0.3	0.0	0.5
Total (Crude + Condensate) (MMT)	29.7	29.2	2.4	2.5	2.4	7.5	7.4	7.3
Total (Crude + Condensate) (Million Bbl/Day)	0.60	0.59	0.60	0.60	0.59	0.60	0.60	0.59

*Provisional targets inclusive of condensate.

4. Domestic and overseas oil & gas production (by Indian Companies)							
Details	2021-22	2022-23 (P)	June		April-June		
			2022-23 (P)	2023-24 (P)	2022-23 (P)	2023-24 (P)	
Total domestic production (MMTOE)	63.7	63.6	5.3	5.3	16.0	15.9	
Overseas production (MMTOE)	21.8	19.5	1.6	1.6	4.9	5.0	

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)	June		April-June		
			2022-23 (P)	2023-24 (P)	2022-23 (P)	2023-24 (P)	
1 High Sulphur crude	185.0	197.9	16.7	16.8	51.2	51.5	
2 Low Sulphur crude	56.7	57.4	4.9	4.7	14.6	14.2	
Total crude processed (MMT)	241.7	255.2	21.6	21.5	65.8	65.7	
Total crude processed (Million Bbl/Day)	4.85	5.13	5.27	5.26	5.30	5.29	
Percentage share of HS crude in total crude oil processing	76.6%	77.5%	77.4%	78.0%	77.7%	78.4%	

6. Quantity and value of crude oil imports			
Year	Quantity (MMT)	\$ Million	Rs. Crore
2021-22 (P)	212.4	1,20,675	9,01,262
2022-23 (P)	232.7	1,57,597	12,60,910
April-June 2023-24(P)	60.1	31,393	2,57,913

7. Self-sufficiency in petroleum products (Million Metric Tonnes)							
Particulars		2021-22	2022-23 (P)	June		April-June	
				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	7.1	6.4
2	Products from indigenous crude (93.3% of crude oil processed)	25.2	24.7	2.2	2.1	6.6	6.0
3	Products from fractionators (Including LPG and Gas)	4.1	3.5	0.3	0.3	0.9	0.9
4	Total production from indigenous crude & condensate (2 + 3)	29.3	28.2	2.5	2.3	7.5	6.8
5	Total domestic consumption	201.7	223.0	18.5	19.3	55.4	58.1
% Self-sufficiency (4 / 5)		14.5%	12.6%	13.4%	12.1%	13.5%	11.7%

8. Refineries: Installed capacity and crude oil processing (MMTPA / MMT)										
Sl. no.	Refinery	Installed capacity (01.04.2023) MMTPA	Crude oil processing (MMT)							
			2021-22	2022-23 (P)	June			April-June		
					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	0.5	0.5	1.7	1.6	1.6
2	Koyali (1965)	13.7	13.5	15.6	1.3	0.9	1.3	4.0	3.1	3.7
3	Haldia (1975)	8.0	7.3	8.5	0.7	0.7	0.7	2.1	2.1	2.1
4	Mathura (1982)	8.0	9.1	9.6	0.9	0.8	0.8	2.5	2.5	2.5
5	Panipat (1998)	15.0	14.8	13.8	1.3	1.2	1.3	3.7	3.7	3.8
6	Guwahati (1962)	1.0	0.7	1.1	0.09	0.1	0.1	0.28	0.3	0.3
7	Digboi (1901)	0.65	0.7	0.7	0.06	0.06	0.06	0.2	0.2	0.2
8	Bongaigaon(1979)	2.70	2.6	2.8	0.2	0.2	0.3	0.6	0.7	0.8
9	Paradip (2016)	15.0	13.2	13.6	1.3	1.3	1.3	4.0	3.7	3.8
	IOCL-TOTAL	70.1	67.7	72.4	6.3	5.7	6.3	18.9	17.9	18.8
10	Manali (1969)	10.5	9.0	11.3	1.0	0.9	0.8	2.9	2.7	2.7
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	0.8	2.9	2.7	2.7
12	Mumbai (1955)	12.0	14.4	14.5	0.9	1.2	1.4	3.4	3.8	4.0
13	Kochi (1966)	15.5	15.4	16.0	1.4	1.3	1.5	4.1	4.0	4.3
14	Bina (2011)	7.8	7.4	7.8	0.6	0.0	0.6	2.0	1.3	1.8
	BPCL-TOTAL	35.3	37.2	38.4	2.9	2.5	3.4	9.6	9.1	10.1
15	Numaligarh (1999)	3.0	2.6	3.1	0.2	0.3	0.0	0.8	0.3	0.1

Sl. no.	Refinery	Installed capacity (01.04.2023) MMTPA	Crude oil processing (MMT)							
			2021-22	2022-23	June			April-June		
					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	0.005	0.006	0.020	0.014	0.019
17	MRPL-Mangalore (1996)	15.0	14.9	17.1	1.4	1.4	1.5	4.3	4.2	4.4
	ONGC-TOTAL	15.1	14.9	17.2	1.4	1.5	1.5	4.3	4.3	4.4
18	Mumbai (1954)	9.5	5.6	9.8	0.9	0.8	0.8	2.4	2.4	2.4
19	Visakh (1957)	11.0	8.4	9.3	0.8	0.9	1.0	2.4	2.7	3.0
20	HMEL-Bathinda (2012)	11.3	13.0	12.7	1.1	1.0	1.1	3.2	2.9	3.2
	HPCL- TOTAL	31.8	27.0	31.8	2.7	2.7	2.9	8.0	8.1	8.6
21	RIL-Jamnagar (DTA) (1999)	33.0	34.8	34.4	3.0	3.0	2.8	9.1	9.1	8.5
22	RIL-Jamnagar (SEZ) (2008)	35.2	28.3	27.9	2.4	2.4	2.3	7.1	7.1	7.5
23	NEL-Vadinar (2006)	20.0	20.2	18.7	1.7	1.7	1.6	5.1	5.1	5.0
All India (MMT)		253.9	241.7	255.2	21.6	20.6	21.5	65.8	63.7	65.7
All India (Million Bbl/Day)		5.02	4.85	5.13	5.27	5.03	5.26	5.30	5.13	5.29

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 01.07.2023)										
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	35.2	9.4	139.6

*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)		June 2022		June 2023 (P)		Apr-June 2022		Apr-June 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	2.2	3.3	6.5	3.3	6.7
MS	40.2	30.8	42.8	35.0	3.7	3.0	3.8	3.2	11.0	8.8	11.2	9.4
NAPHTHA	20.0	13.2	17.0	12.2	1.5	0.9	1.5	1.0	4.6	2.7	4.5	3.2
ATF	10.3	5.0	15.0	7.4	1.2	0.6	1.4	0.6	3.3	1.7	4.2	2.0
SKO	1.9	1.5	0.9	0.5	0.1	0.0	0.1	0.1	0.3	0.2	0.2	0.1
HSD	107.2	76.7	113.8	85.9	9.6	7.7	9.8	7.9	29.5	22.2	29.3	23.9
LDO	0.8	1.0	0.6	0.7	0.05	0.06	0.06	0.06	0.1	0.2	0.1	0.2
LUBES	1.2	4.5	1.3	3.7	0.1	0.3	0.1	0.3	0.3	0.9	0.4	0.9
FO/LSHS	8.9	6.3	10.4	7.0	0.7	0.6	0.7	0.5	2.5	1.6	2.6	1.7
BITUMEN	5.1	7.8	4.9	8.0	0.4	0.7	0.5	0.7	1.5	2.2	1.5	2.4
PET COKE	15.5	14.3	15.4	18.3	1.3	1.3	1.2	1.6	3.9	4.5	3.8	4.4
OTHERS	30.9	12.3	31.5	15.8	2.4	1.2	2.9	1.1	7.7	3.8	8.3	3.2
ALL INDIA	254.3	201.7	266.5	223.0	22.1	18.5	23.1	19.3	68.1	55.4	69.4	58.1
Growth (%)	-3.1%	-5.4%	4.8%	10.6%	15.1%	18.1%	4.6%	4.3%	13.5%	18.8%	2.0%	4.9%

Note: Prod - Production; Cons - Consumption

15. LPG consumption (Thousand Metric Tonne)								
LPG category	2021-22	2022-23	June			April-June		
			2022-23	2023-24 (P)	Growth (%)	2022-23	2023-24 (P)	Growth (%)
1. PSU Sales :								
LPG-Packed Domestic	25,501.6	25,381.5	2,010.4	1,973.6	-1.8%	5,930.4	5,991.6	1.0%
LPG-Packed Non-Domestic	2,238.8	2,606.0	177.2	218.0	23.0%	501.6	633.5	26.3%
LPG-Bulk	390.9	408.9	28.2	33.4	18.1%	81.7	85.8	5.0%
Auto LPG	122.0	106.7	9.6	7.9	-18.0%	27.9	23.1	-17.5%
Sub-Total (PSU Sales)	28,253.3	28,503.1	2,225.5	2,232.9	0.3%	6,541.6	6,734.0	2.9%
2. Direct Private Imports*	0.1	0.1	0.00	0.01	-	0.02	0.05	143.9%
Total (1+2)	28,253.4	28,503.2	2,225.5	2,232.9	0.3%	6,541.7	6,734.0	2.9%

*May -June'23 DGCS data is prorated

16. LPG marketing at a glance														
Particulars	Unit	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	1.07.23 (P)
LPG Active Domestic Customers	(Lakh)				1486	1663	1988	2243	2654	2787	2895	3053	3140	3150
	Growth					11.9%	19.6%	12.8%	18.3%	5.0%	3.9%	5.5%	2.9%	1.8%
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%	2.6%
LPG Distributors	(No.)	11489	12610	13896	15930	17916	18786	20146	23737	24670	25083	25269	25386	25398
	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	496
	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%	-13.1%
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%	2.5%

Source: PSU OMCs (IOCL, BPCL and HPCL)

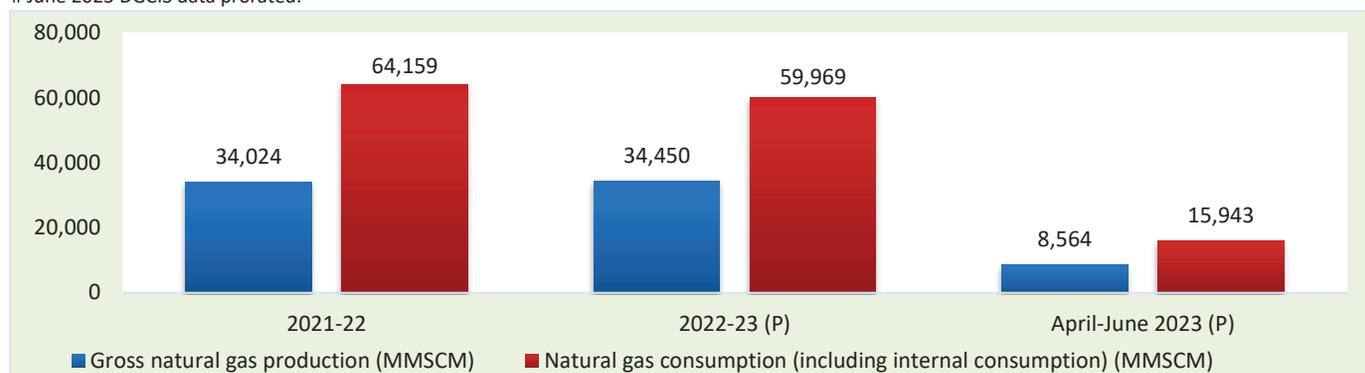
1. Growth rates as on 01.07.2023 are with respect to figs as on 01.07.2022. Growth rates as on 1 April of any year are with respect to figs as on 1 April of previous year.

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)	June			April-June		
			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	2,813	2,886	2,910	8,554	8,745	8,564
- ONGC	20,629	19,969	1,637	1,663	1,588	5,087	5,141	4,878
- Oil India Limited (OIL)	2,893	3,041	247	259	245	743	745	733
- Private / Joint Ventures (JVs)	10,502	11,440	929	964	1,077	2,724	2,859	2,952
(b) Net production (excluding flare gas and loss)	33,131	33,664	2,747		2,845	8,341		8,354
(c) LNG import [#]	31,028	26,304	2,258		2,221	7,273		7,590
(d) Total consumption including internal consumption (b+c)	64,159	59,969	5,005		5,066	15,614		15,943
(e) Total consumption (in BCM)	64.2	60.0	5.0		5.1	15.6		15.9
(f) Import dependency based on consumption (%), {c/d*100}	48.4	43.9	45.1		43.8	46.6		47.6

June 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-June 2023 (P)	161.11
Production of CBM gas	June 2023 (P)	53.51
		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 01.07.2023) (Provisional)							
Particulars	Units	IOCL	HPCL	BPCL	GAIL	IGL	Total
No. of CBG plants commissioned/ Sale initiated	No. of plants	22	6	2	9	3	42
Start of CBG sale from retail outlet(s)	Nos.	50	30	45	1	2	128
Sale of CBG in 2022-23	Tons	5,822	77	6	5322 [#]		11,227
Sale of CBG in 2023-24 (up to June, 2023)	Tons	1746	8	20	2804 [#]		4,578
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	21,921
Under construction	Length	5,095	100		1,149						1,077	1,666	2,915
	Capacity	-	3.0		-						-	-	-
Total length		20,197	2,816	1,484	1,574	107	304	73	42	24	2,356	2,031	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, IGIL, 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 01.07.2023	% Capacity utilisation (April-May 2023)
Dahej	Petronet LNG Ltd (PLL)	17.5 MMTPA	97.7
Hazira	Shell Energy India Pvt. Ltd.	5.2 MMTPA	21.2
Dabhol	Konkan LNG Limited	*5 MMTPA	64.6
Kochi	Petronet LNG Ltd (PLL)	5 MMTPA	20.4
Ennore	Indian Oil LNG Pvt Ltd	5 MMTPA	15.1
Mundra	GSPC LNG Limited	5 MMTPA	11.6
Dhamra	Adani Total Private Limited	5 MMTPA	24.9
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 31.05.2023(P)				
State/UT (State/UTs are clubbed based on the GAs authorised by PNGRB)	CNG Stations	PNG connections		
		Domestic	Commercial	Industrial
Andhra Pradesh	162	2,56,351	434	36
Andhra Pradesh, Karnataka & Tamil Nadu	38	177	0	5
Assam	5	49,887	1,348	445
Bihar	97	1,06,173	81	4
Bihar & Jharkhand	3	7,398	1	0
Bihar & Uttar Pradesh	14	0	0	0
Chandigarh (UT), Haryana, Punjab & Himachal Pradesh	25	25,822	123	25
Chhattisgarh	9	0	0	0
Dadra & Nagar Haveli (UT)	7	11,304	62	59
Daman & Diu (UT)	5	5,134	50	44
Daman and Diu & Gujarat	15	2,306	9	0
Goa	12	10,995	16	32
Gujarat	997	30,15,193	24,939	5,724
Haryana	345	3,22,589	858	1,792
Haryana & Himachal Pradesh	10	0	0	0
Haryana & Punjab	25	209	0	0
Himachal Pradesh	8	6,096	4	0
Jharkhand	78	1,12,708	5	1
Karnataka	303	3,89,857	535	314
Kerala	107	47,217	22	16
Kerala & Puducherry	9	419	0	0
Madhya Pradesh	233	2,11,303	357	453
Madhya Pradesh and Chhattisgarh	7	0	0	0
Madhya Pradesh and Rajasthan	32	373	0	0
Madhya Pradesh and Uttar Pradesh	16	0	0	2
Maharashtra	758	28,95,645	4,640	904
Maharashtra & Gujarat	60	1,50,004	6	21
Maharashtra and Madhya Pradesh	9	0	0	0
National Capital Territory of Delhi (UT)	480	14,49,427	3,595	1,815

State/UT (State/UTs are clubbed based on the GAs authorised by PNGRB)	CNG Stations	PNG connections		
		Domestic	Commercial	Industrial
Odisha	67	90,606	5	0
Puducherry	2	0	0	0
Puducherry & Tamil Nadu	8	219	1	0
Punjab	206	70,793	415	262
Punjab & Rajasthan	12	0	0	0
Rajasthan	253	2,27,764	115	1,546
Tamil Nadu	198	1,530	3	10
Telangana	154	1,93,490	80	104
Telangana and Karnataka	3	0	0	0
Tripura	18	59,646	506	62
Uttar Pradesh	808	13,94,857	2,322	2,808
Uttar Pradesh & Rajasthan	40	18,958	39	344
Uttar Pradesh and Uttarakhand	26	9,334	0	0
Uttarakhand	31	69,442	67	86
West Bengal	72	376	0	0
Total	5,767	1,12,13,602	40,638	16,914

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 - 31 May 2023	8.27	6.50		
1 June 2023 - 30 June 2023	7.58	6.50		
1 July 2023 - 31 July 2023	7.48	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 (14.07.2023)
Mumbai	79.00	49.00	MGL website (14.07.2023)

Indian Natural Gas Spot Price for Physical Delivery				
IGX Price Index Month	Avg. Price		Volume (MMSCM)	Source
	INR/MMBtu	\$/MMBtu		
June 2022	879	10.69	33.12	As per IGX website: www.igxindia.com

*Prices are weighted average prices | \$1=INR 82.23 | 1 MMBtu=25.2 SCM (Data Excluding Ceiling Price Gas)

Share

Interior Department Takes Steps to Modernize Oil and Gas Leasing on Public Lands, Ensure Fair Return to Taxpayers

Proposed rule would improve responsible stewardship of America's lands, better protect cultural and natural resources, and implement changes directed by Congress

7/20/2023

Date: Thursday, July 20, 2023
Contact: Interior_Press@ios.doi.gov

WASHINGTON — The Department of the Interior today announced new steps to revise the Bureau of Land Management's oil and gas leasing regulations, which would ensure a balanced approach to development, provide a fair return to taxpayers and ensure that drilling does not conflict with protection of important wildlife habitat or cultural sites.

The proposed rule would revise outdated fiscal terms of the onshore federal oil and gas leasing program – including for bonding requirements, royalty rates, and minimum bids – which would increase returns to the public and disincentive speculators or less responsible actors.

“The Interior Department has taken several steps over the last two years to ensure the federal oil and gas program provides a fair return to taxpayers, adequately accounts for environmental harms, and discourages speculation by oil and gas companies. This new proposed rule will help fully codify those goals and lead to more responsible leasing and development processes,” said **Principal Deputy Assistant Secretary for Land and Minerals Management Laura Daniel-Davis**. “The Department is committed to creating a more transparent, inclusive and just approach to leasing and permitting that serves the public interest while protecting natural and cultural resources on our public lands.”

“This proposal to update BLM's oil and gas program aims to ensure fairness to the taxpayer and balanced, responsible development as we continue to transition to a clean energy economy,” said **BLM Director Tracy Stone-Manning**. “It includes common sense and needed fiscal revisions to BLM's program, many directed by Congress.”

Modernizing the fiscal terms of the leasing program is central to this proposed rule. Federal onshore oil and gas royalty rates are historically consistently lower than on state-issued leases and federal offshore leases; in fact, onshore royalty rates hadn't been raised in over 100 years prior to the Biden-Harris Administration taking office. Likewise, bonding levels have not been raised for 60 years, while minimum bids and rents remained the same for over 30 years.

The proposed rule would specifically codify provisions made by Congress in the Inflation Reduction Act and the Bipartisan Infrastructure Law, as well as recommendations from the

Department of the Interior's *Report on the Federal Oil and Gas Leasing Program*, issued in November 2021. The proposed rule is also consistent with Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*.

Key elements of the proposed rule include:

- **Bonding requirements:** The rule proposes to increase the minimum lease bond amount to \$150,000 and the minimum statewide bond to \$500,000, and it proposes to eliminate nationwide and unit bonds. The existing lease bond amount of \$10,000 -- established in 1960 -- no longer provides an adequate incentive for companies to meet their reclamation obligations, nor does it cover the potential costs to reclaim a well should this obligation not be met. The current, outdated bond requirement increases the risk that taxpayers will end up covering the cost of reclaiming wells in the event the operator refuses to do so or declares bankruptcy. The Interior Department has made available more \$1 billion in the past two years from Bipartisan Infrastructure Law funding to clean up orphaned oil and gas wells on federal, state and private lands. This proposed rule aims to prevent that burden from falling on the taxpayer in future years.
- **Protecting Wildlife and Cultural Resources:** The rule would help steer oil and gas development away from important wildlife habitat or cultural sites, and instead toward lands with existing infrastructure or high production potential.
- **Royalty rates:** Proposed changes to royalty rates reflect provisions of the Inflation Reduction Act. Royalty rates for leases issued for 10 years after the effective date of the Inflation Reduction Act are 16.67 percent. After August 16, 2032, the rate of 16.67 percent will become the minimum royalty rate.
- **Minimum bids:** The rule would codify a provision of the Inflation Reduction Act that increased the national minimum bid from \$2 per acre to \$10 per acre, or fraction thereof, and after 10 years regularly adjusts that amount for inflation. The minimum acceptable bid is important because it establishes the starting bid at the BLM's oil and gas lease auctions.
- **Base, or minimum, rental rate:** Pursuant to the Inflation Reduction Act, for leases issued in the 10 years after its enactment, the proposal includes a rental of \$3 per acre, or fraction thereof, per year during the first 2-year period beginning upon lease issuance, \$5 per acre per year, or fraction thereof, for the following 6 years, and then \$15 per acre, or fraction thereof, per year thereafter. After August 16, 2032, those rental rates will become minimums and are subject to increase.
- **Expressions of Interest:** The Inflation Reduction Act established a new fee for expressions of interest. The proposed rule includes that fee, which is \$5 per acre, or fraction thereof.

###

PEMEX clarifies leak control in Ek Balam fields

18/07/2023 | 27

- This event was reported to the Agency for Security, Energy and Environment ASEA on July 6.
- The leak is fully repaired
- This event has nothing to do with the events that occurred in Nohoch-A on July 5.

Petróleos Mexicanos (PEMEX) reports that, in relation to the various notes published in some media, in which they show an alleged spill of great magnitude, the following is specified:

- The pipeline network of the Ek Balam fields concluded its useful life of 30 years, so that, in a preventive way, the change for a new network is carried out. With these actions, the possibility of oil leaks will be definitively eliminated.
- The two leakage points in the duct were small fissures 7 cm long by 1 mm wide and a pore 1.2 cm in diameter. Given the small size of the cracks, the volume of hydrocarbons that escaped was minimal.
- This spill was reported immediately to the Agency of Security, Energy and Environment (ASEA) and the Secretariat of the Navy (SEMAR) and was repaired, so they are controlled in their entirety.
- Most of the spilled volume recovered immediately and the iridescence dispersed.
- The area of the oil slick of 400 km² published in some media, is an estimate of bad faith, that for it to be true, more than a million and a half barrels of oil would have had to have been spilled.
- The truth is that the volume reported by the specialists of Petróleos Mexicanos was 58 m³ (365 barrels of oil), which affected an estimated area of 0.06 km² where the thickness of the oil film is estimated at one millimeter.

Petróleos Mexicanos calls on these media that misinform public opinion to behave ethically and attached to the truth.

Production figures June 2023

<https://www.npd.no/en/news/Production-figures/2023/production-figures-june-2023/>



Illustration photo: Shutterstock.

21/07/2023 Preliminary production figures for June 2023 show an average daily production of 1 990 000 barrels of oil, NGL and condensate.

Total gas sales were 7.8 billion Sm³ (GSm³), which is 0.7 (GSm³) less than the previous month.

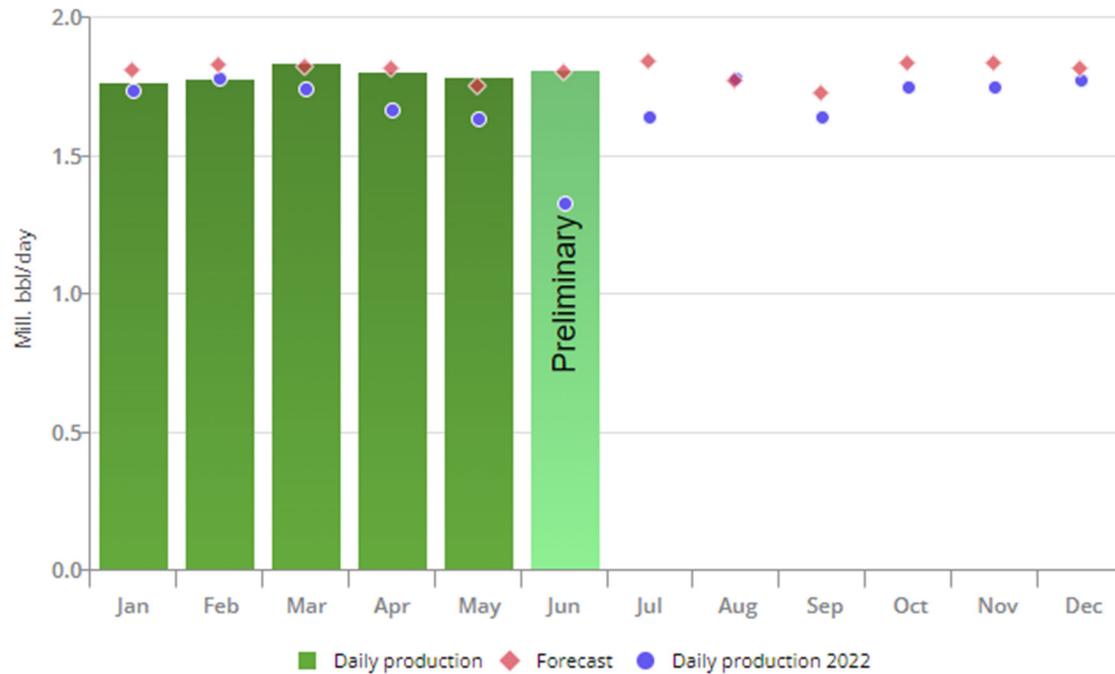
Average daily liquids production in June was: 1 810 000 barrels of oil, 173 000 barrels of NGL and 8 000 barrels of condensate.

Oil production in June is 0.6 percent more than the NPD's forecast and 0.5 percent lower than the forecast so far this year.

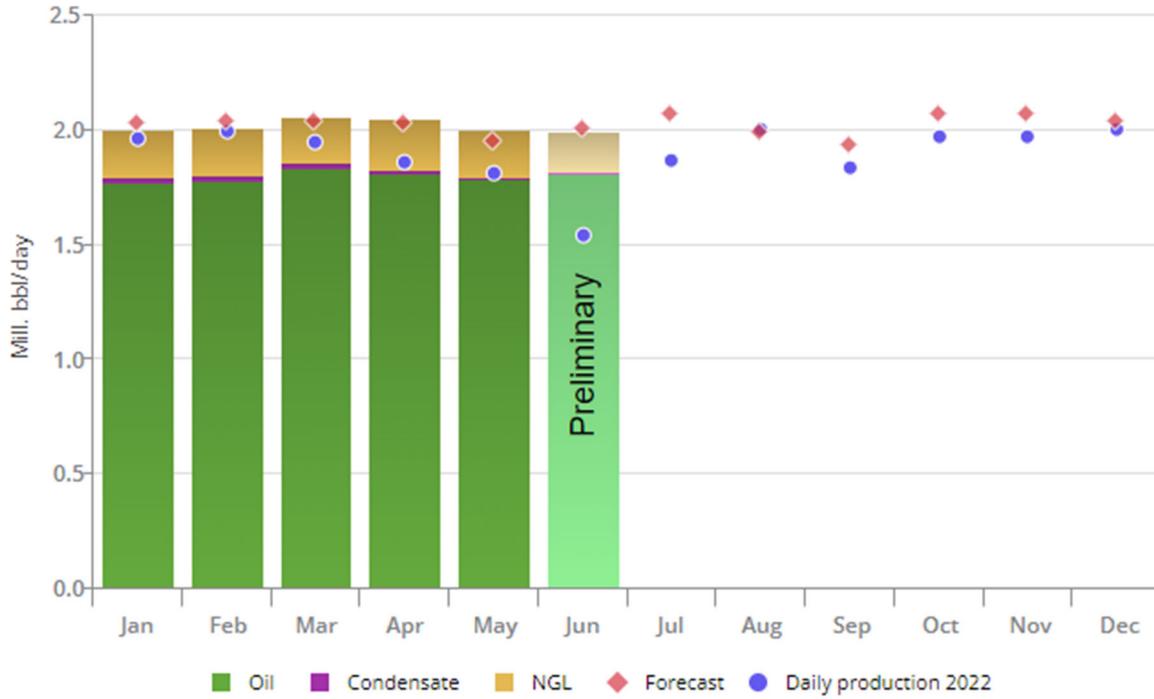
Production figures June 2023

		Oil mill bbl/day	Sum liquid mill bbl/day	Gas MSm ³ /day	Total MSm ³ o.e./day
Production	June 2023	1.810	1.990	259.1	0.575
Forecast for	June 2023	1.800	2.002	299	0.617
Deviation from forecast		0.010	-0.012	-40	-0.042
Deviation from forecast in %		0.6 %	-0.6 %	-13.4 %	-6.8 %
Production	May 2023	1.783	2.002	274.2	0.592
Deviation from	May 2023	0.027	-0.012	-15.1	-0.017
Deviation in % from	May 2023	1.5 %	-0.6 %	-5.5 %	-2.9 %
Production	June 2022	1.329	1.540	332	0.577
Deviation from	June 2022	0.481	0.450	-73	-0.002
Deviation in % from	June 2022	36.2 %	29.2 %	-22 %	-0.3 %

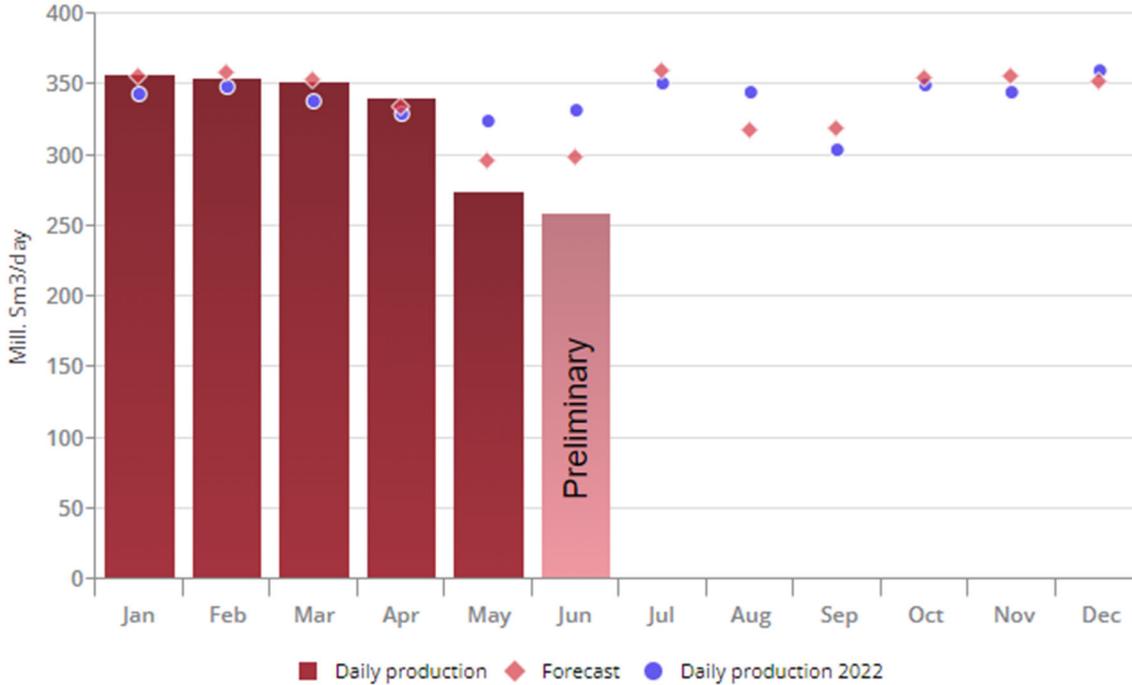
Oil production June 2023



Liquid production June 2023



Gas production June 2023



The total petroleum production so far in 2023 is about 116.4 million Sm³ oil equivalents (MSm³ o.e.), broken down as follows: about 51.7 MSm³ o.e. of oil, about 6.4 MSm³ o.e. of NGL and condensate and about 58.4 MSm³ o.e. of gas for sale.

The total volume is 2.3 MSm³ o.e. higher than in 2022.

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SANDS CHINA LTD.

金沙中國有限公司

(Incorporated in the Cayman Islands with limited liability)

(Stock Code: 1928 and Note Stock Codes: 5141, 5142, 5727, 5733, 40246, 40247, 40584, 40585, 40852, 40853, 40854, 5413, 5414, 5415)

INSIDE INFORMATION

RESULTS OF OUR CONTROLLING SHAREHOLDER, LAS VEGAS SANDS CORP., FOR THE FISCAL SECOND QUARTER ENDED JUNE 30, 2023

This announcement is issued by Sands China Ltd. (“SCL” or our “**Company**” or “**Sands China**”) pursuant to Part XIVA of the Securities and Futures Ordinance and Rule 13.09(2)(a) of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited. Capitalized terms used but not defined herein shall have the meanings ascribed to them in our 2022 Annual Report.

Our Company’s controlling shareholder, Las Vegas Sands Corp. (“LVS”), is a company listed on the New York Stock Exchange (the “**NYSE**”) in the United States. As at the date of this announcement, LVS beneficially owns approximately 70% of the issued share capital of our Company.

LVS files quarterly and annual reports, including quarterly and annual financial information and certain operating statistics under Form 8-K, Form 10-Q and Form 10-K, respectively, with the United States Securities and Exchange Commission (the “**SEC**”), in accordance with the ongoing disclosure obligations applicable to a publicly traded NYSE-listed company. Such filings include segment financial information about the Macao operations of LVS, which Macao operations are owned by our Company, and the filings are available in the public domain.

LVS has, on or about July 20, 2023 (4 a.m. Hong Kong time), announced its financial results for the fiscal second quarter ended June 30, 2023 (the “**Quarterly Financial Results**”), held its second quarter 2023 Earnings Conference Call (the “**Earnings Call**”) and posted a second quarter Earnings Call presentation (the “**Presentation**”) on its website. If you wish to review the Quarterly Financial Results prepared by LVS, which were filed with the SEC, please visit https://www.sec.gov/Archives/edgar/data/1300514/000130051423000079/lvs_ex991x06302023.htm or https://s28.q4cdn.com/640198178/files/doc_financials/2023/q2/LVS-2Q-2023-Earnings-Release.pdf. If you wish to review the Presentation, please visit https://s28.q4cdn.com/640198178/files/doc_financials/2023/q2/LVS-2Q-2023-Presentation-Deck.pdf.

The financial results of LVS and its consolidated subsidiaries, including those contained in the Quarterly Financial Results, the Earnings Call and the Presentation, have been prepared in accordance with the generally accepted accounting principles of the United States (“US GAAP”), which are different from the International Financial Reporting Standards (“IFRS”) that we are subject to when preparing and presenting our financial results and related financial information. Holders of and potential investors in our Company’s securities should consult their own professional advisers for an understanding of the differences between IFRS and US GAAP.

To ensure that all holders of and potential investors in our Company’s securities have equal and timely access to the information pertaining to our Company, set forth below are extracts and key highlights of the financial results and related financial information published by LVS in the Quarterly Financial Results and the Earnings Call that relate to our Company and our operations in Macao:

QUARTERLY FINANCIAL RESULTS EXTRACTS

Second Quarter Overview

Mr. Robert G. Goldstein, chairman and chief executive officer of LVS, said, “We were pleased to see the robust recovery in travel and tourism spending underway in both Macao and Singapore progress during the quarter. We remain enthusiastic about the opportunity to welcome more guests back to our properties throughout the remainder of 2023 and in the years ahead.

In Macao, we were pleased to see the ongoing recovery now underway in all gaming and non-gaming segments progress during the quarter. We remain deeply enthusiastic about the opportunity to continue our investments to enhance Macao’s tourism appeal to travelers from throughout the region, including to foreign visitors to Macao. Our decades-long commitment to making investments that enhance the business and leisure tourism appeal of Macao and support its development as a world center of business and leisure tourism positions us exceedingly well to deliver strong growth as visitation to the market increases and the recovery in travel and tourism spending proceeds.

Looking ahead, our resolute commitment to making industry-leading investments in our team members, our communities and our market-leading integrated resort property portfolio positions us exceptionally well to deliver strong growth in the years ahead. Our financial strength supports our ongoing investment and capital expenditure programs in both Macao and Singapore.”

Sands China Ltd. Consolidated Financial Results

On a US GAAP basis, total net revenues for SCL increased to US\$1.62 billion for the second quarter of 2023, compared to US\$368 million in the second quarter of 2022. Net income for SCL was US\$187 million for the second quarter of 2023, compared to a net loss of US\$422 million in the second quarter of 2022.

SCL’s adjusted property EBITDA was US\$541 million for the second quarter of 2023, compared to an adjusted property EBITDA loss of US\$110 million for the second quarter of 2022.

Other Factors Affecting Earnings

Interest expense⁽¹⁾, net of amounts capitalized, was US\$210 million for the second quarter of 2023, compared to US\$162 million in the prior year quarter. Our weighted average borrowing cost in the second quarter of 2023 was 5.4% compared to 4.3% during the second quarter of 2022.

Capital Expenditures

Capital expenditures⁽¹⁾ during the second quarter totaled US\$196 million, including construction, development and maintenance activities of US\$42 million in Macao.

(1) Relates to LVS and its subsidiaries, including the SCL group.

**Supplemental Data
(Unaudited)**

The Venetian Macao <i>(US\$ in millions)</i>	Three Months Ended		
	June 30,		
	2023	2022	Change
Revenues:			
Casino	\$ 523	\$ 91	\$ 432
Rooms	48	12	36
Food and Beverage	17	3	14
Mall	53	41	12
Convention, Retail and Other	12	3	9
Net Revenues	\$ 653	\$ 150	\$ 503
Adjusted Property EBITDA	\$ 252	\$ (21)	\$ 273
EBITDA Margin %	38.6%		
Gaming Statistics <i>(US\$ in millions)</i>			
Rolling Chip Volume	\$ 1,093	\$ 264	\$ 829
Rolling Chip Win % ⁽¹⁾	3.73%	4.76%	(1.03)pts
Non-Rolling Chip Drop	\$ 2,174	\$ 332	\$ 1,842
Non-Rolling Chip Win %	23.8%	26.2%	(2.4)pts
Slot Handle	\$ 1,329	\$ 254	\$ 1,075
Slot Hold %	4.3%	4.9%	(0.6)pts
Hotel Statistics <i>(US\$)</i>			
Occupancy %	94.6%	36.8%	57.8pts
Average Daily Rate (ADR)	\$ 209	\$ 137	\$ 72
Revenue per Available Room (RevPAR)	\$ 198	\$ 50	\$ 148

Note: Due to social distancing measures and travel restrictions, the property operated at a reduced capacity, with some operations temporarily closed at various times during 2022. Rooms utilized to house team members during 2022 due to travel restrictions were excluded from the calculation of hotel statistics above.

- (1) This compares to our expected Rolling Chip win percentage of 3.15% to 3.45% (calculated before discounts, commissions, deferring revenue associated with the company's loyalty programs and allocating casino revenues related to goods and services provided to patrons on a complimentary basis).

The Londoner Macao <i>(US\$ in millions)</i>	Three Months Ended		
	June 30,		
	2023	2022	Change
Revenues:			
Casino	\$ 281	\$ 42	\$ 239
Rooms	80	14	66
Food and Beverage	20	7	13
Mall	16	12	4
Convention, Retail and Other	5	4	1
Net Revenues	\$ 402	\$ 79	\$ 323
Adjusted Property EBITDA	\$ 103	\$ (54)	\$ 157
EBITDA Margin %	25.6%		
Gaming Statistics <i>(US\$ in millions)</i>			
Rolling Chip Volume	\$ 1,999	\$ 222	\$ 1,777
Rolling Chip Win % ⁽¹⁾	2.67%	4.35%	(1.68)pts
Non-Rolling Chip Drop	\$ 1,354	\$ 175	\$ 1,179
Non-Rolling Chip Win %	20.1%	23.2%	(3.1)pts
Slot Handle	\$ 1,299	\$ 163	\$ 1,136
Slot Hold %	3.9%	4.0%	(0.1)pts
Hotel Statistics <i>(US\$)</i>			
Occupancy %	81.8%	24.9%	56.9pts
Average Daily Rate (ADR)	\$ 197	\$ 137	\$ 60
Revenue per Available Room (RevPAR)	\$ 161	\$ 34	\$ 127

Note: Due to social distancing measures and travel restrictions, the property operated at a reduced capacity, with some operations temporarily closed at various times during 2022. Rooms utilized for government quarantine purposes and to house team members due to travel restrictions during 2022 were excluded from the calculation of hotel statistics above.

- (1) This compares to our expected Rolling Chip win percentage of 3.15% to 3.45% (calculated before discounts, commissions, deferring revenue associated with the company's loyalty programs and allocating casino revenues related to goods and services provided to patrons on a complimentary basis).

The Parisian Macao <i>(US\$ in millions)</i>	Three Months Ended		
	June 30,		
	2023	2022	Change
Revenues:			
Casino	\$ 183	\$ 24	\$ 159
Rooms	35	7	28
Food and Beverage	11	3	8
Mall	8	7	1
Convention, Retail and Other	2	1	1
Net Revenues	\$ 239	\$ 42	\$ 197
Adjusted Property EBITDA	\$ 74	\$ (29)	\$ 103
EBITDA Margin %	31.0%		
Gaming Statistics <i>(US\$ in millions)</i>			
Rolling Chip Volume	\$ 612	\$ 48	\$ 564
Rolling Chip Win % ⁽¹⁾	7.18%	14.20%	(7.02)pts
Non-Rolling Chip Drop	\$ 776	\$ 91	\$ 685
Non-Rolling Chip Win %	19.6%	22.4%	(2.8)pts
Slot Handle	\$ 682	\$ 64	\$ 618
Slot Hold %	3.8%	4.7%	(0.9)pts
Hotel Statistics <i>(US\$)</i>			
Occupancy %	98.0%	37.0%	61.0pts
Average Daily Rate (ADR)	\$ 156	\$ 100	\$ 56
Revenue per Available Room (RevPAR)	\$ 153	\$ 37	\$ 116

Note: Due to social distancing measures and travel restrictions, the property operated at a reduced capacity, with some operations temporarily closed at various times during 2022. Rooms utilized for government quarantine purposes and to house team members due to travel restrictions during 2022 were excluded from the calculation of hotel statistics above.

- (1) This compares to our expected Rolling Chip win percentage of 3.15% to 3.45% (calculated before discounts, commissions, deferring revenue associated with the company's loyalty programs and allocating casino revenues related to goods and services provided to patrons on a complimentary basis).

The Plaza Macao <i>(US\$ in millions)</i>	Three Months Ended		
	June 30,		
	2023	2022	Change
Revenues:			
Casino	\$ 150	\$ 38	\$ 112
Rooms	25	6	19
Food and Beverage	8	1	7
Mall	39	33	6
Convention, Retail and Other	1	1	—
Net Revenues	\$ 223	\$ 79	\$ 144
Adjusted Property EBITDA	\$ 91	\$ 17	\$ 74
EBITDA Margin %	40.8%	21.5%	19.3pts
Gaming Statistics <i>(US\$ in millions)</i>			
Rolling Chip Volume	\$ 1,178	\$ 489	\$ 689
Rolling Chip Win % ⁽¹⁾	3.63%	4.90%	(1.27)pts
Non-Rolling Chip Drop	\$ 567	\$ 101	\$ 466
Non-Rolling Chip Win %	27.6%	26.4%	1.2pts
Slot Handle	\$ 46	\$ 3	\$ 43
Slot Hold %	5.8%	5.9%	(0.1)pts
Hotel Statistics <i>(US\$)</i>			
Occupancy %	84.8%	23.3%	61.5pts
Average Daily Rate (ADR)	\$ 479	\$ 412	\$ 67
Revenue per Available Room (RevPAR)	\$ 407	\$ 96	\$ 311

Note: Due to social distancing measures and travel restrictions, the property operated at a reduced capacity, with some operations temporarily closed at various times during 2022. Rooms utilized to house team members due to travel restrictions during 2022 were excluded from the calculation of hotel statistics above.

- (1) This compares to our expected Rolling Chip win percentage of 3.15% to 3.45% (calculated before discounts, commissions, deferring revenue associated with the company's loyalty programs and allocating casino revenues related to goods and services provided to patrons on a complimentary basis).

Sands Macao <i>(US\$ in millions)</i>	Three Months Ended		
	June 30,		
	2023	2022	Change
Revenues:			
Casino	\$ 76	\$ 14	\$ 62
Rooms	4	2	2
Food and Beverage	3	1	2
Convention, Retail and Other	1	—	1
Net Revenues	\$ 84	\$ 17	\$ 67
Adjusted Property EBITDA	\$ 15	\$ (22)	\$ 37
EBITDA Margin %	17.9%		

Gaming Statistics

(US\$ in millions)

Rolling Chip Volume	\$ 36	\$ 66	\$ (30)
Rolling Chip Win % ⁽¹⁾	2.40%	6.86%	(4.46)pts
Non-Rolling Chip Drop	\$ 406	\$ 57	\$ 349
Non-Rolling Chip Win %	17.5%	17.6%	(0.1)pts
Slot Handle	\$ 497	\$ 120	\$ 377
Slot Hold %	3.0%	2.7%	0.3pts

Hotel Statistics

(US\$)

Occupancy %	94.6%	56.6%	38.0pts
Average Daily Rate (ADR)	\$ 169	\$ 127	\$ 42
Revenue per Available Room (RevPAR)	\$ 160	\$ 72	\$ 88

Note: Due to social distancing measures and travel restrictions, the property operated at a reduced capacity, with some operations temporarily closed at various times during 2022.

- (1) This compares to our expected Rolling Chip win percentage of 3.15% to 3.45% (calculated before discounts, commissions, deferring revenue associated with the company's loyalty programs and allocating casino revenues related to goods and services provided to patrons on a complimentary basis).

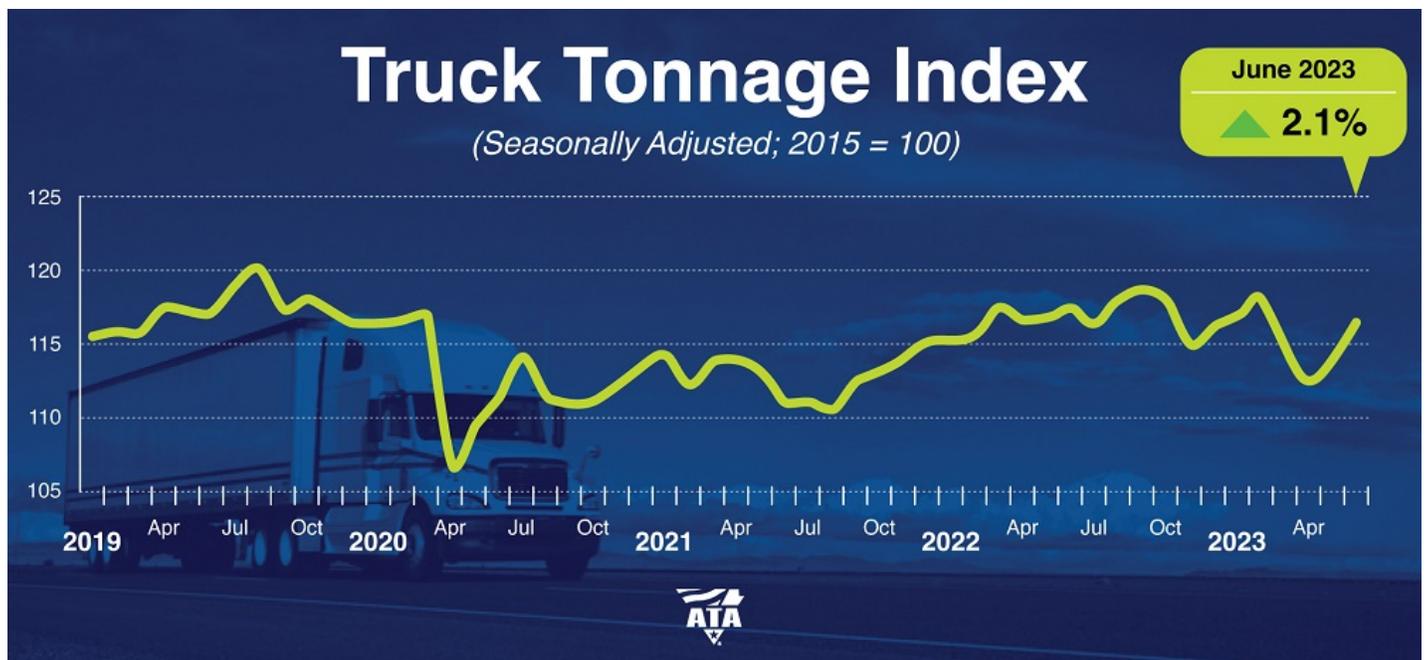
Press Release

ATA Truck Tonnage Index Increased 2.1% in June

Jul 18, 2023

Index 0.8% Below June 2022

Washington — American Trucking Associations' advanced seasonally adjusted (SA) For-Hire Truck Tonnage Index rose 2.1% in June after increasing 1.2% in May. In June, the index equaled 116.5 (2015=100) compared with 114.1 in May.



“While the tonnage index increased in both May and June, it remains in recession territory,” said **ATA Chief Economist Bob Costello**. “The index continues to fall from a year earlier and is off 1.9% from its recent peak in September 2022. A multitude of factors have caused a recession in freight,

including stagnant consumer spending on goods, lower home construction, falling factory output, and shippers consolidating freight into fewer shipments compared with the frenzy during the goods buying spree at the height of the pandemic. However, the magnitude of the year-over-year declines is improving, perhaps pointing to a bottom in the freight market.”

May’s increase was revised lower from our June 20 press release.

Compared with June 2022, the SA index decreased 0.8%, which was the fourth straight year-over-year decrease. In May, the index was down 2.4% 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 120.8 in June, 1.8% above the May level (118.7). 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 72.6% of tonnage carried by all modes of domestic freight transportation, including manufactured and retail goods. Trucks hauled 11.46 billion tons of freight in 2022. Motor carriers collected \$940.8 billion, or 80.7% 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.

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[ATA American Trucking Trends 2023 \(/news-insights/ata-american-trucking-trends-2023\)](/news-insights/ata-american-trucking-trends-2023)

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Jul 19, 2023 | Press Release

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Jun 29, 2023 | Press Release

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service capacity. And with higher earnings and improved working capital, our sequential cash flow from operation grew considerably, and we generated free cash flow of nearly \$1 billion during the quarter. I want to thank the entire SLB team for their hard work and exceptional performance delivering value for our customers and our shareholders throughout the quarter.

Now, let me take a moment to touch on the macro environment. As we have projected for the past few quarters, the International and Offshore markets continue to exhibit strong growth as North America has moderated. This is playing to the strengths of our business as international revenue represents nearly 80% of our global portfolio, and offshore comprises nearly half of that. As the growth rate shifts further towards international, these market conditions are driving the breadth, resilience, and durability of this upcycle and creating new opportunities for our business.

Let me describe where this is taking place. In the international markets, the investment momentum of the past few years is accelerating. This is supported by resilient long cycle developments in Guyana, Brazil, Norway, and Turkey. Production capacity expansion in the Middle East, notably in Saudi Arabia, UAE, and Qatar, the return of exploration appraisal across Africa and the Eastern Mediterranean, and the recognition of gas as a critical fuel source for energy security and the energy transition.

In the Middle East, this is resulting in record levels of upstream investment. From 2023 to 2025, Saudi Arabia is expected to allocate nearly \$100 billion to upstream oil and gas capital expenditure expenditure, a 60% increase compared to the previous three years, as they invest to attain a maximum sustained production capacity of 13 million miles per day by 2027. Several other countries in the region have also announced mature increases in capital expenditure that extend beyond 2025. Furthermore, we continue to witness a broad resurgence in offshore driven by energy security and regionalization.

Operators all over the world are making large scale commitments to ascend discovery, accelerate development times, and increase the productivity of their assets. This is resulting in increased infill and tieback activity in metro basins, new development projects both in oil and gas, and support for new exploration. With this backdrop, we anticipate more than \$500 billion in global FID between 2022 and 2025, with more than \$200 billion billion attributable to deepwater. This reflects an increase of nearly 90% when compared to 2016-2019.

These FID investments are global, taking place in more than 30 countries, and we are seeing the results with new projects in offshore basins across the world. This is reflected in the many contract awards highlighted in the earnings press release, notably in Mexico, Brazil, and Turkey. These contracts, in addition to many others, are building a strong foundation of activity outlook decoupled from short-term commodity price volatility. Moving forward, we expect further growth to be led by accelerating activity in well construction, new opportunities for reservoir performance in exploration appraisal, expansion for production system in subsea, and digital will enhance it all.

return \$2 billion to our shareholders this year between dividends and stock buybacks. I will now turn turn the conference call back to Olivier.

Olivier Le Peuch {BIO 16885975 <GO>}

Thank you, Stephane. Ladies and gentlemen, I believe we are ready to open the floor to your questions.

Questions And Answers

Operator

Question And Answer

Thank you. (Operator Instructions) Our first question will come from the line of James West with Evercore ISI Please go ahead.

Q - James C West {BIO 19758684 <GO>}

Hey, good morning, Olivier, Stephane.

A - Unidentified Speaker

Good morning, James.

Q - James C West {BIO 19758684 <GO>}

Olivier, you and I and Stephane have spent a lot of time together in the last 18 months. If we go back to Lausanne and then to the Ann Arbor in New York City and recent events, we've become increasingly, I think, all three of us, bullish on the cycle and the cycle's duration, especially.

I wonder if you could comment on the duration aspect you see now as you travel around the world? Do you meet with your customers? What are they saying about their drilling programs over the next several years? You made some pretty bullish comments around Saudi, but more broadly, with your major customers, what are their expectations and how are they thinking about duration of their upstream spinning cycle?

A - Unidentified Speaker

A very good question, James. I think you may have realized that recently we characterized the cycle as breath, resilience, and durability. Let me comment a bit further on durability. There are two or three elements to this.

I think, obviously, we did comment on the return of offshore where the first to flag it and to call for the return of offshore. I think we have seen this international offshore resurgence resurgence materializing in the last 12 months and accelerating, and in the second half actually, the offshore rig count will be higher than the land rig count increase. So this momentum is driven by the economics of offshore assets, where the FID now, the

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vast majority of the FID are below \$50, hence a favorably position for FID Also the geologic and the low carbon nature of most of the assets, accessibility to this resource and is both oil and gas. So offshore is having an assurance that is translating into very significant pipeline of FID and we see it across not only the IOCs and independent that are capturing this opportunity, but also the NOC that have placed a bet on offshore as you can see from the east or the North Sea.

So we see this happening at scale. we see also the emergence of a second leg of FID and future offshore expansion driven by exploration appraisal. Exploration appraisal is happening in many countries. There are many, many rounds of licensing rounds happening.

A lot of exploration and appraisal is happening to find this next reserve and develop. So offshore is there to stay and not only in 24 or 25, but beyond as we can see and with the second leg materializing. Beyond that obviously Middle East has made a significant commitment of capacity expansion both in oil of 4 million barrel or so and in gas for regional consumption displacing oil for energy or for generating some blue ammonia or blue halogen products, as well as further expanding their export in Qatar particularly. So the Middle East capacity expansion is leading to, as we have been quoting, a record level of investment from this year onward, and is not set to again stop in 2024, as the vast majority of this capital expansion are towards the second half of the decade 2027 or 2030 for some of the targets.

So what we have seen lately, and the feedback through the visits we have had, is that the duration of the cycle as we were characterizing a year ago is actually extending and is, to be believed, prolonging to the right, and with a combination of offshore resurgence being very solid, and Middle East being a capital expansion beyond the next three years.

Q - James C West {BIO 19758684 <GO>}

Okay, that makes a lot of sense. And then the maybe a follow-up, as we think about, or as you think about, I guess, revenue quality as we go through through what looks to be and appears to be, and I think we agree on, a long-duration cycle, you can upgrade to revenue quality either by choosing offshore over onshore or customers by customer. How are you thinking about that quality of the revenue base that you're putting in place now, and what are the main kind of drivers of that? I'm assuming that you're looking for the highest return and highest margin, but what are the key metrics or key assumptions you have there?

A - Unidentified Speaker

No, absolutely.

I think we have been initiating the returns-focused strategy a few years back, and I think we are getting the characteristics of the cycle that is favoring and accelerating our strategy as we get the opportunity to not only get a five-hour mix, that includes a bit that include a bit more offshore Middle East exploration appraisal, but also higher technology adoption, including digital, including FID technology, or including transition technology, all combining to give a premium to the higher origin equality. But I will not forget also the

capital discipline that we have initiated as part of this strategy that is pushing us to high-grade to the higher returns, higher margins contract as you move forward, and make sure that we get the best return for the capital we deployed, and also to put a clear threshold on capital investment and capital stewardship going forward. So the combination, as I said, of the Fababra mix, the technology adoption at scale with some secular trends in digital, and the capital discipline that we have used to execute our strategy are allowing us to create the revenue quality improvement and the high grading on every portfolio and every business plan we have to drive a margin expansion. And we have seen margin expansion increasing, and we will continue to pursue this as we move forward.

Q - James C West {BIO 19758684 <GO>}

Thanks so much, Olivier.

A - Olivier Le Peuch {BIO 16885975 <GO>}

Thank you, James.

Operator

Our next question is from David Anderson with Barclays. Please go ahead.

Q - J David Anderson {BIO 6875231 <GO>}

Great, thank you. Good morning, Olivier. How are you?

A - Olivier Le Peuch {BIO 16885975 <GO>}

Good Morning, Dave.

Q - J David Anderson {BIO 6875231 <GO>}

So I was curious on the Middle East-Asia showed really impressive sequential growth during the quarter.

I was wondering if you could talk a bit about what drove that. Was that just a reflection of the steady ramp-up of projects in Saudi and other Middle East markets? And also, you mentioned a directional growing contract in the release. Was that a discrete contract? And are you starting to see higher prices on those types of contracts now?

A - Olivier Le Peuch {BIO 16885975 <GO>}

No, I think to stay very broad term, I think it's Middle East and Asia and several geo-units, as we call them, that have been benefiting from very significant growth, sequential and year-on-year. As we commented, many of them are in the 30% basket, more than 30% basket growth year-on-year in that region, that area across.

But indeed, in the GCC and the Middle East, particularly, we are benefiting, and we say from three things, we are benefiting from the capacity expansion program that have been initiated, that have turned into an inflection into reactivity and spend activity, that benefit from considering our market exposure. We have been renewing several contracts, and

capability. capability. And that's, again, we are speaking about growing at above 50% for that sub-segment of our digital offering.

And last, and maybe the one that has the most growth potential, that is untapped across the industry, is digital operation. That's everywhere from well construction to producing assets. And that's why we deploy either some element of our cloud offering in drilling automation, or in surveillance of assets, or we deploy at the edge, on the asset, at the pump, some device, and we call it the Agora Edge solution, which have embedded AI at the edge that do not need to round-trip to the cloud to optimize these assets. And we use it and consume it in our APS asset to enhance the performance.

So we are seeing the benefit of all these at the same time. They're all going at a different pace, different adoption across the NOC, the independent, all the IOCs, and it will be a long tail of growth that will clearly have a long durability, and will continue to be a factor of secular trend in our industry to extract efficiency, low carbon, productivity, using this trend. So that's what we see. Multiple engine of growth across multiple horizons, and with different technology where we have leadership on most and a footprint that allows us to tap into 1,500 customers for the long run.

Operator

And we will move on to the line of Arun. Go ahead, Mr.Gruber. We will go ahead and move on to the line of Arun Jayaram with JPMorgan Chase. Please go ahead.

Q - Arun Jayaram {BIO 5817622 <GO>}

Yeah, good morning, Olivier. My first question is on offshore. You've highlighted how 85% of global offshore FIDs are now underpinned by oil prices at \$50 or below, which is quite a bit below what we saw in the prior cycle where we thought that you needed, call it mid-60 oil price, to kind of justify offshore developments, particularly deep water. I was wondering if you could give some thoughts on what is driving, call it the lower breakevens than we saw in the prior cycle?

A - Olivier Le Peuch {BIO 16885975 <GO>}

I would think that there are several aspects to that.

One, obviously, is the progress the industry at large has made in efficiency, integration, technology, performance at large. That is getting the curve shifting to the left, underlining the cycle compressing on subsea, and the overall development cycle to be more at derisk to digital. So technology, integration performance at large has helped the operator and the service industry to deliver faster and to deliver at a lower total cost the development of those assets. The second element I would think is that exploration has been creating a portfolio of assets that can then be high graded and then the quality of the resource, the high quality of the geological play and lower carbon and better place that have a better production and recovery potential have also emerged and have been more favorably primed and or we say prioritized by our customers.

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So these customers have choice and they focus on the best and the most advantageous assets and the most advantageous advantageous geological basins. We have seen it from Brazil to Guyana, and we are seeing it in the Middle East for some of the gas assets as well. So the third, I think, dimension that is, I think, accelerating, in my opinion, is what is called infrastructure-led development or infrastructure-led exploration and development, which make the returns on incremental oil, incremental gas from existing hubs, from existing platform, lower cost than in the past because the capability to infill, tieback, and expand from an existing platform, getting a better return on existing infrastructure. Hence we have seen a significant improvement and a significant increase in investment into this infill and tieback, and IEDX, as it is called, infrastructure-led development, infrastructure-led exploration.

And that's, these are, this is another trend that is lowering the average cost of FID for increment of oil pool or additional gas. So you combine all of this and you are getting better economics, and better and sustained and higher durability for the long-term offshore play.

Q - Analyst

Great. Thanks for that.

And just to follow up, Olivier, we've been getting a few by-side questions on the update on your website regarding Russia. So I was wondering if you could just expand on what this means on a go-forward basis for SLB

A - Olivier Le Peuch {BIO 16885975 <GO>}

Well, simply said, I think Russia's revenue represented approximately 5% of our consolidated revenue in the second quarter. And the decision that we have made last Friday to halt remaining shipment to Russia from all SLB facilities will not impact our financial guarantees. So this decision extends what you have seen as our previous ban on shipment from the location that we had in the United States, UK, EU, Canada into Russia, and we will continue to ensure that our remaining presence in Russia meets and exceeds all international sanctions.

Q - Analyst

Great. Thanks a lot.

A - Olivier Le Peuch {BIO 16885975 <GO>}

Thank you.

Operator

And I apologize.

We will go back to the line of Scott Gruber with Citi Group. Please go ahead.

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I think the general sentiment is that, first and foremost, energy security and capacity expansion still dominates the decision. And the economics are seen as very favorable. And the outlook of the industry at large is seen as resilient. And you have seen it for many many major reaffirming their 2030 production volume and adjusting their strategy to make sure they maximize the opportunity to either accelerate the gas transition or sustain their oil production.

And this will mean investment. And we see that in all the engagement we have. And then the NOCs, be it in the Americas, in Africa, Middle East or Asia, are pursuing there two things, either their pollution enhancement to make sure they continue to lift their production performance, and then addressing energy security through their gas development typically. We see this everywhere, particularly in Asia.

So the customers are fairly focused on developing their gas assets, expanding and reverting some of the trends of declining oil production, and to make sure to make sure they maximize the cycle, their participation to the cycle and the participation to the international pool, supply pool that is happening. So it's broad, and as I commented during our time together, I think, I commented that we are seeing also many newcomers that are expanding into deepwater, into exploration rounds that are across the globe in new territories or new countries, and this will attract more investment. This will attract, if the geology are right, future FID So, it's in general driven by energy security, pool and international supply and IOC's commitment to sustain their pollution towards the end of the decade.

Q - Analyst

Thank you.

Operator

And next, we go to a question from Luke Lemoine. Please go ahead.

Q - Luke Lemoine {BIO 15190258 <GO>}

Hey, good morning.

A - Unidentified Speaker

Good morning.

Q - Luke Lemoine {BIO 15190258 <GO>}

Olivier, impressive award with a five-year contract with PETRONAS for Delphi deployment across the organization. Seeing if you can maybe talk about the opportunity for additional contracts with other NOCs or majors for enterprise-wide Delphi and kind of the level of interest there.

A - Olivier Le Peuch {BIO 16885975 <GO>}

Bloomberg Transcript



भारत 2023 INDIA

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ONE EARTH • ONE FAMILY • ONE FUTURE

**G20 Energy Transitions Ministers' Meeting
Outcome Document and Chair's Summary
Goa, India
22 July, 2023**



G20 Energy Transitions Ministers' Meeting
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22 July 2023

Outcome Document and Chair's Summary

All G20 Ministers responsible for Energy agreed to paragraphs 1-20, paragraph 28-29, and Annex- I "G20 High Level Voluntary Principles on Hydrogen". Paragraphs 21-27 are the Chair's Summary issued under the responsibility of the Chair.

1. We, the G20 Energy Ministers, met under India's G20 Presidency, with the theme '**One Earth, One Family, One Future**' in Goa, India, on 22 July 2023, with the aim to share, collaborate and build on the sense of responsibility and solidarity amongst the G20 members in accelerating the clean, sustainable, just, affordable and inclusive energy transitions, following various pathways, as a means of enabling secure, sustainable, equitable, shared and inclusive growth.

2. We firmly believe that energy security, energy access, market stability, and energy affordability need to be advanced simultaneously while advancing energy transitions, in pursuit of economic growth and prosperity, and ensuring access to modern energy for all, leaving no one behind. We also recognize the urgent need for advancing energy transitions, through various pathways, for contributing towards achieving our sustainable development goals as well as global net zero green-house gas emissions/carbon neutrality by or around mid-century. Mindful of our leadership role, we reaffirm our steadfast commitments, in pursuit of the objective of UNFCCC, to tackle climate change by strengthening the full and effective implementation of the Paris Agreement and its temperature goal, reflecting equity and the principle of common but differentiated responsibilities and respective capabilities, in light of different national circumstances. We also take into account the best available science, circular approaches, socioeconomic, economic, technological, market developments and promoting the most efficient solutions.



Energy Security and Diversified Supply Chains

3. We stress the importance of ensuring that the growing global energy demand is matched by sustainable and affordable energy supplies. We aim to advance technological collaboration and cooperation amongst G20 members, other international partners and multilateral institutions to strengthen energy systems with a view to ensuring energy security and stabilizing energy markets. In this context, we emphasize on the importance of maintaining uninterrupted flows of energy from various sources, suppliers and routes exploring paths to enhanced energy security and markets stability, including through inclusive investments to meet the growing energy demand, in line with our sustainable development and climate goals, while promoting open, competitive, non-discriminatory, and free international energy markets. We attach importance to promotion of dialogue between consumers and producers as well as global cooperation in the business sector, and the need for adequate energy investments towards sustainable, affordable, reliable, resilient, and cleaner energy systems.

4. We acknowledge that certain minerals, materials and technologies are critical for energy transitions and there is a need to maintain reliable, responsible and sustainable supply chains of such critical minerals and materials, as well as semiconductors and related technologies complying with the principles of market economy and international trade rules while respecting the sovereign rights of countries. In this regard, we support voluntary and mutually agreed technology diffusion, skill development, beneficiation at source and increased flow of finance to address the lack of capital, human or technical resources; to produce them sustainably and with a view to enhance local value creation through beneficiation. We support research and development for increasing efficiencies, increasing scale of beneficiation at source, promoting circularity, and enabling sustainable alternatives to maintain, supply chain balances of such minerals and materials. We reiterate the need to reduce the potential negative impacts on people and the environment and intend to leverage multilateral cooperation as well as cooperation between the G20 members. In this regard, we take note of the



Presidency documents: “Voluntary High-Level Principles for Collaboration on Critical Minerals for Energy Transitions” (Annex A) and the report “Addressing Vulnerabilities in the Supply Chain of Critical Minerals”.

5. We also recognize the role of grid interconnections, resilient energy infrastructure and regional/cross-border power systems integration, where applicable, in enhancing energy security, fostering economic growth, and facilitating universal energy access for all, in affordable, reliable and sustainable manner. In particular, we recognize that expanded and modernized electricity networks will be essential to scale up the deployment of zero and low emission technologies including renewables. This entails enhanced voluntary international cooperation in coordinated planning, mutually agreed information sharing, joint research and development, technical assistance, technology development and harmonization of regulatory frameworks for design, planning and system operations. In this regard, we take note of Presidency’s initiative to connect different regional grids through interconnections to transfer renewable energy power. We call for increased public and private investments, noting the important role of International Finance Institutions including Multilateral Development Banks (MDBs) in supporting developing countries to exploit the full benefits of regional/cross-border interconnections, where deemed appropriate.

Universal Energy Access

6. We highlight that access to affordable, reliable, sustainable and modern energy for all is a moral imperative and a basic human need. We intend to expand on the achievements of previous G20 Presidencies and prioritize and take actions to pursue our shared objectives of attaining SDG7 targets through enhancing international cooperation and investment in technologies and accelerating progress on clean cooking, electricity access and eradicating energy poverty. We commit to provide support for all sections of society to ensure that no one is left behind.



Just, Affordable, and Inclusive Energy Transition Pathways

7. Recognizing the need to pursue clean, sustainable, just, affordable and inclusive energy transitions, we acknowledge the need for economic diversification including by promoting various approaches and investments in new industries, technologies and businesses, workforce transformation through reskilling and up-skilling to create avenues of employment and support the diversification of economies to maximize positive and minimize negative socio-economic impacts of energy transitions. We aim to enhance collaborations and partnerships to promote zero and, low emission technologies, economic activities, creation of new jobs and social dialogue to address the needs of workers from effected sectors, Indigenous Peoples and local communities, women, youth, children, migrants and persons with disabilities, persons living in poverty and other vulnerable situations. We will also support and encourage a stronger focus on women empowerment and gender equality in energy transitions at all levels.

Energy Efficiency and Responsible Consumption

8. We acknowledge the role of energy efficiency and energy savings, as the “first fuel” and the importance of national energy efficiency and energy savings policies in not only driving the energy transitions, but also contributing to sustainable job creation, reducing energy cost for households, and ensuring energy security. We strive to strengthen global efforts on energy efficiency through international engagements such as the G20 Energy Efficiency Leading Programme (EELP), Energy Efficiency Hub, Clean Energy Ministerial (CEM), among others, for sharing best practices, voluntary and mutually agreed knowledge sharing and technology transfer/co-development, promoting circular approaches, and will focus on evolving an effective roadmap on a voluntary basis, for achieving the SDG 7.3 target of doubling the global rate of improvement in energy efficiency within this decade taking into account, national circumstances. We aim to accelerate the implementation of various energy efficiency and energy savings policies and measures such as adoption of super-efficient appliances, optimizing demand for cooling and heating, and scaling up of commercially available energy



efficiency technologies in line with national circumstances. In this regard, we note the “Voluntary Action Plan on Doubling the Rate of Energy Efficiency Improvement by 2030” (Annex B) prepared by the Indian Presidency.

9. We also recognize that individual actions and sustainable behavioral choices can play a major role in energy conservation. We intend to build upon the efforts by the past Presidencies to emphasize that energy efficiency and affordability gains go hand in hand with efforts relating to responsible consumption that would incentivize and empower sustainable consumer choices. We acknowledge that greater awareness and capacity building for all categories of consumers and coordinated measures are needed to incentivize sustainable consumption patterns. In this endeavour, we welcome the Presidency’s initiative on Lifestyles for Sustainable Development.

10. We Recognizing that mitigating GHG emissions from energy intensive industry sector is critical to achieving global net zero/carbon neutrality by or around mid-century in line with national circumstances, we reiterate the need to make concerted efforts to innovate, develop, and deploy available transformative technologies, identifying cost-effective solutions to manage and reduce emissions intensity in line with national circumstances Furthermore, we stress the importance of effective and efficient policy frameworks and approaches including the development of demand side energy policies and leveraging public and private financing to promote both technological and non-technological solutions. We encourage non-discriminatory technology collaboration on voluntary basis and on mutually agreed terms for hastening energy transition pathways.

ADDRESSING TECHNOLOGY GAPS FOR ENERGY TRANSITIONS

11. We realize the role of continuous breakthroughs, adoption and scaling up of already available low and zero emission technologies including those that reduce, abate and remove GHG emissions, and rapid development and commercialization of promising new energy technology solutions for accelerating energy transitions in a sustainable and inclusive manner and



support the non-discriminatory collaboration and mutually agreed voluntary transfer of necessary technologies for enabling such transitions.

12. We reiterate the significance of accelerating the pace and scale of commercial deployment of mature clean energy technologies including solar, wind, hydropower including pumped storage, geothermal, bioenergy, heat pumps, CCUS and, nuclear energy for those countries that opt to use it. We also acknowledge the need for acceleration of development and deployment of other emerging and new technologies such as electrolyzers, bioenergy with carbon capture and storage (BECCS), direct air capture (DAC), high efficiency fuel cells, ACC battery storage, and sustainable advanced biofuels, as well as, small modular reactors (SMRs) for those countries that opt to use it, in accelerating the energy transitions, as per national priorities and circumstances.

13. Affordability and accessibility of existing, emerging and new technologies is a key issue especially for developing economies and, therefore, we recognize the need for supportive regional, multilateral, bilateral and public-private frameworks to strengthen the development, deployment and the voluntary and mutually agreed sharing of these technologies in a non-discriminatory manner.

14. We recognize the significant role of initiatives that support efforts to develop, demonstrate and deploy clean and sustainable energy technologies and solutions and other efforts for innovation. We aim to strengthen technology development, respective national regulatory frameworks, innovation, research capacities, scaling up investments and bridge technological gaps for emerging and developing economies in a non-discriminatory and more cooperative, affordable, and secure manner. We will pursue, on a voluntary basis, opportunities to strengthen cooperation and collaborative efforts with relevant international organizations and other fora including: the Clean Energy Ministerial (CEM), Mission Innovation (MI), RD20 among others, to advance R&D, deployment and dissemination of clean and sustainable energy technologies. In this regard, we take note of the convening of the joint plenary of 14th CEM and 8th MI Ministerial organized



on the sidelines of the Presidency, which we believe will strengthen and contribute significantly to advance the cooperation amongst G20 members to accelerate the realization of common goals towards energy transitions.

15. The countries that opt to use civil nuclear energy reaffirm its role in providing clean energy contributing to GHG emissions reduction, achieving SDG 7 goal and energy security, ensuring safety and resilient infrastructure and contributing to baseload power and grid flexibility along with non-electrical applications such as industrial heating and hydrogen production. These countries plan to collaborate, on voluntary and, mutually agreed terms, in research, innovation, development & deployment of civil nuclear technologies including advanced and Small Modular Reactors (SMRs), which are being readied for deployment and building resilient nuclear supply chains, including nuclear fuel, through public and private partnership, where appropriate and in accordance with national legislations and upholding IAEA's high standards of nuclear safety, security and safeguards. These countries intend to promote responsible nuclear decommissioning and radioactive waste and spent fuel management and mobilizing investments, and share knowledge and best practices, through strengthening international cooperation to promote nuclear safety globally. These countries will engage actively in cultivating a skilled and diverse workforce for the future, exchanging knowledge and best practices for advancement of energy transitions through civil nuclear technologies including advanced and Small Modular Reactors (SMRs).

Fuels for Future

16. We recognize the importance of exploring, diversifying, adopting, and advancing sustainable biofuels and hydrogen produced from zero and low emission technologies, and its derivatives such as ammonia, for contributing towards the energy transitions, enhancing energy security, and addressing GHG emissions. We underscore the importance of supporting national policies that stimulate further advancements and deployments of various technologies, ensure sustainable feedstock sourcing, enhance productivity, and accelerate market development. We acknowledge the need to strengthen



collaborative research, facilitate voluntary and mutually agreed technology transfer/co-development and financing needs for advancing the adoption of sustainable fuels for future, encouraging knowledge sharing on sustainable practices and in this regard, note the work of multilateral initiatives.

17. We aim to support acceleration of production, utilization, as well as development of transparent and resilient global markets for hydrogen produced from zero and low emission technologies and its derivatives such as ammonia by developing voluntary and mutually agreed harmonizing standards as well as mutually recognized, and interoperable certification schemes. To realize this, we affirm the “G20 High Level Voluntary Principles on Hydrogen” (Annex I) to build a sustainable and equitable global hydrogen ecosystem that benefits all nations. We recognize that cooperation among G20 members would be crucial to accelerate technology development and large-scale deployment of hydrogen and its derivatives such as ammonia, while reducing costs. In this regard, we note, the Presidency’s initiative to establish, the Green Hydrogen Innovation Centre steered by ISA.

18. We recognize the potential opportunity of working together for further deployment and development of sustainable biofuels as one of the options, for advancing the energy transitions. We support international cooperation on sustainable biofuels and bioenergy, as well as on innovative technologies for sector coupling. We further support the role of bioenergy and biofuels among the 4Rs framework (Reduce, Reuse, Recycle and Remove) in realizing the energy transitions. We take note of the Presidency’s initiative to establish a ‘Global Biofuels Alliance’. We intend to work to facilitate, inter alia, cooperation, on a voluntary basis, in intensifying the use of sustainable biofuels through strengthening collaboration between producers, consumers & interested countries, bolstering biofuels markets and encouraging the development of standards in the sector, emphasizing adherence to sustainability principles, strengthening markets, facilitating sustainable global biofuels trade, development of concrete policy lesson-sharing and establishing provisions of technical support in collaboration with international biofuels organizations.



Access to Low-Cost Financing for Energy Transitions

19. We stress upon expediting the voluntary transfer on mutually agreed terms /and/or/co-development and adoption of clean, sustainable and low carbon/emission energy technologies, which are often capital-intensive and necessitate low-cost financing from various sources. G20 will work towards facilitating access to low-cost finance for existing as well as new and emerging clean and sustainable energy technologies for supporting the energy transitions. We note the report on “Low-cost Financing for the Energy Transition” prepared under the Indian Presidency and its estimation that the world needs an annual investment of over USD 4 trillion, with a high share of renewable energy in the primary energy mix. We reiterate that access to low-cost financing, particularly for developing countries, is pivotal for accelerating the efforts towards energy transitions while ensuring energy access, energy security, affordability and market stability.

20. To ensure accelerated energy transitions, we recognize the need for international finance institutions and multilateral development banks to enhance and develop new mechanisms and products to promote access to low-cost financing in line with their mandates and governance framework as well as to scale up the mobilization of private finance for this purpose. We recognize the importance of increasing finance from a variety of sources including public and private, bilateral and multilateral arrangements. We aim to share best practices, risk mitigation strategies, and foster international cooperation for low-cost financing solutions. In this context, we note the “Voluntary Action Plan for Lowering the cost of Finance for Energy Transitions” prepared by the Indian Presidency (Annex C).



Chair's Summary

21. G20 has a leadership role to work collaboratively and to take actions to accelerate energy transitions while ensuring energy security as well as contributing to meeting our sustainable development goals and climate Commitments. As we pursue Sustainable Development Goal 7, the world is currently faced with multidimensional challenges characterized by the related vulnerabilities including in energy security, high volatility, use of energy as a coercive tool, disruptions in energy markets and their associated impacts, economic slowdown and continuing socio-economic challenges following the COVID-19 pandemic which has underscored the urgent need to strengthen market stability, reliability, and resilience of energy systems as well as critical energy infrastructure.

22. There is a crucial need of finding solutions, pathways and approaches, to enhance energy security, achieve market stability, and ensure universal energy access. The need to prevent disruptions, and avoid excessive volatility in energy markets to avert any potential risks to our economic and energy outlook, was stressed. The need was recognized to promote open, transparent, stable, competitive, and non-discriminatory international energy markets; ensure transparent, resilient, undisrupted, sustainable, inclusive, and diversified supply chains; and advance a wide variety of options, technologies and leveraging synergies as we pursue actions to accelerate the energy transitions. The need to strengthen national, regional and cross-border critical energy infrastructure was also emphasized.

23. The role of renewables in the energy mix, as a solution contributing to universal energy access, and the need to enhance cooperation, collaborations, financing, capacity building, technical assistance, partnerships, and technology sharing on voluntary and mutually agreed terms, taking into account different national circumstances, are critical. In this context, the Indian Presidency reports - “Decentralized Renewable Energy for SDG7: Compendium of Global Good Practices” and “The Roadmap for Promoting Solar Energy for Universal Energy Access,” which outline useful solutions to



accelerate energy access for relevant regions by sharing best practices, advancing enabling frameworks, enhancing capacity building, and promoting technological innovation, were noted. The adoption of decentralized renewable energy to empower citizens as prosumers to promote renewable energy community, create new economic opportunities and accelerate energy transitions, was also noted. The role of renewable energy technologies in the energy mix, where access through the grid is not commercially viable or available, and support the expansion of renewable energy in interested countries, that may require assistance from international institutions, was recognized. The Presidency’s “Voluntary Action Plan for Promoting Renewable Energy to Accelerate Universal Energy Access” (Annex D) to further renewable energy deployment globally, was noted.

24. It was noted that accelerated deployment of zero and low-emission technologies including renewables play an important role in achieving energy transitions. It was also noted that the current rate of grid-based technologies deployment globally may be insufficient to achieve universal energy access. To that end, and in line with different national circumstances, including natural potential and where strong early efforts have already been delivered, there is a need to scale up the deployment of renewable energy at an accelerated pace, address challenges including power systems flexibility, remove the barriers hindering their deployment, and bring down costs while noting the significance of our voluntary contributions towards efforts to triple the aforementioned energy technologies capacity globally, through existing targets and policies in line with national circumstances, by 2030. Similar ambition with respect to other zero and net zero technologies, including abatement and removal technologies, was voiced. The need to continue to support energy systems stability during the transition to low carbon emission systems, such as through the use of flexible energy sources alongside the development of technological solutions needed for grid stability, was recognized.

25. The energy sector’s contribution to global GHG emissions is significant. Given that fossil fuels currently continue to play a significant role in the global energy mix, eradication of energy poverty, and in meeting the



growing energy demand, the importance of making efforts towards phase down of unabated fossil fuels, in line with different national circumstances was emphasized by some members while others had different views on the matter that abatement and removal technologies will address such concerns. These efforts must be built upon safe, stable, diverse and reliable supplies of various existing, new and emerging clean and renewable energy options, aiding towards low emissions development. In this respect, the significance of rapidly deploying various clean energy sources, including renewable energy, in achieving global net zero/carbon neutrality by or around mid-century in line with different national circumstances, along with adequate support to developing countries, was emphasized.

26. The importance of climate finance and making financial flows consistent with a pathway towards low greenhouse gas emissions and climate-resilience in the context of sustainable development and efforts to eradicate poverty, while enhancing international cooperation, was stressed. Developed countries were urged to fulfill their commitments to deliver on the goal of jointly mobilizing USD 100 billion per year by 2020 and through to 2025 in the context of meaningful mitigation action, with transparency on implementation. In this context, mobilization of international public and private finance to support inclusive and sustainable energy development is key.

27. ^{1,2}The war in Ukraine has further adversely impacted the global economy. There was a discussion on the issue. We reiterated our national positions as expressed in other fora, including the UN Security Council and the UN General Assembly, which, in Resolution No. ES-11/1 dated 2 March 2022, as adopted by majority vote (141 votes for, 5 against, 35 abstentions, 12 absent) deplores in the strongest terms the aggression by the Russian Federation against Ukraine and demands its complete and unconditional

¹ Russia recognizes the status of this document as Chair's Summary in particular due to inclusion of Paragraph 27, in addition to paragraphs 21-26. Russia agrees with rest of the text. Russia has expressed its distinct view on the situation in Ukraine, geopolitical tensions and sanctions during the meeting.

² China stated that G20 is not the right platform to address security issues and opposed the inclusion of the geopolitical related content.



withdrawal from the territory of Ukraine. Most members strongly condemned the war in Ukraine and stressed it is causing immense human suffering and exacerbating existing fragilities in the global economy – constraining growth, increasing inflation, disrupting supply chains, heightening energy and food insecurity, and elevating financial stability risks. There were other views and different assessments of the situation and sanctions. Recognizing that the G20 is not the forum to resolve security issues, we acknowledge that security issues can have significant consequences for the global economy.

28. It is essential to uphold international law and the multilateral system that safeguards peace and stability. This includes defending all the Purposes and Principles enshrined in the Charter of the United Nations and adhering to international humanitarian law, including the protection of civilians and infrastructure in armed conflicts. The use or threat of use of nuclear weapons is inadmissible. The peaceful resolution of conflicts, efforts to address crises, as well as diplomacy and dialogue, are vital. Today's era must not be of war.

29. We express our sincere appreciation to the Indian Presidency for its unwavering dedication, exceptional leadership, and hard work through 2023. We thank all the G20 members, invited guests, and partner IOs for their immense contributions. We further look forward to the continuation of our efforts to work towards our collective ambition of energy transitions in 2024 under the Presidency of Brazil.

Annex I: G20 High Level Voluntary Principles on Hydrogen

Annex A: Voluntary High Level Principles for Collaboration on Critical Minerals for Energy Transitions

Annex B: Voluntary Action Plan on Doubling the Rate of Energy Efficiency Improvement by 2030

Annex C: Voluntary Action Plan for Promoting Renewable Energy to Accelerate Universal Energy Access

Annex D: Voluntary Action Plan for Lowering the cost of Finance for Energy Transitions



Annex I

G20 High Level Voluntary Principles on Hydrogen

We intend to support voluntary principles to enable emission reduction, in all sectors, and work towards addressing sustainability aspects. This will contribute to achieving global net zero GHG emissions/carbon, neutrality goals by accelerating measures towards the production, utilization, and trade of hydrogen produced from zero and low emission technologies and its derivatives such as ammonia. For this purpose, we welcome the following five high-level guiding voluntary principles on Hydrogen:

1. Encourage collaboration on the development of national standards and work towards globally harmonized approach to certification for hydrogen produced from zero and low emission technologies and its derivatives such as ammonia.
2. Promote free and fair trade of hydrogen produced from zero and low emission technologies and its derivatives such as ammonia in line with WTO rules, supported by resilient and diversified supply chains.
3. Accelerate technological innovation, business models, and R&D collaboration to enhance international cooperation.
4. Promote investments, mobilize finance, and develop infrastructure for enhancing the production, utilization, and global trade of hydrogen produced from zero and low emission technologies and its derivatives such as ammonia.
5. Support and enable voluntary information sharing, cooperation, dialogue, knowledge exchange, and capacity building



on hydrogen produced from zero and low emission technologies and its derivatives such as ammonia, with an aim to contribute to net zero GHG emissions/carbon neutral pathways, including through the development of regional and international initiatives and institutions.





H.E. MINISTER AL-KAABI PARTICIPATES IN THE 12TH LNG PRODUCER-CONSUMER CONFERENCE -

DOHA, Qatar • 19 July 2023 – His Excellency Mr. Saad Sherida Al-Kaabi, the Minister of State for Energy Affairs, the President and CEO of QatarEnergy, participated in the 12th LNG Producer-Consumer Conference held in Tokyo, Japan.

In his keynote speech, delivered virtually, His Excellency the Minister stressed the need for a clear roadmap with specific targets to achieve a fair and effective energy transition with a realistic and stable path towards the reduction of the global carbon footprint. “I would like everyone around the world calling for a speedy energy transition to consider that the world needs a fair and effective transition with a realistic and stable path, which wisely balances humans flourishing with environmental protection, it should not continue to only focus on the needs of the rich and well-developed countries but must prioritize the needs of developing countries.” His Excellency added.

His Excellency Minister Al-Kaabi told the participants in this annual conference: “This highlights the need for a realistic and resolute energy transition, starting with a solid integration of natural gas in the energy mix of today and tomorrow. We strongly believe that Gas will be needed as a safer reliable base load in the energy mix for most nations for decades well beyond 2050.”

Highlighting the challenges facing the energy industry, Minister Al-Kaabi said: “Lack of investments in the oil and gas upstream sector remain as an unresolved and unchallenged chronic problem, contributing to greater lack of clarity, volatility, and supply uncertainty. This lack of investment will likely cause increased instability for every region around the world.”

In this context, H.E. the Minister said: “Qatar is providing the world with the cleanest available hydrocarbon source of energy which has met both the economic and environmental aspirations for a better future. By 2029, about 40% of all new global LNG supplies will be provided by QatarEnergy projects. These projects will achieve significant reductions in greenhouse gas emissions through carbon capture and sequestration as well as the use of solar energy. In all, we aim to reduce the overall carbon intensity by about 30% compared to previous generation designs.”

His Excellency Minister Al-Kaabi concluded his remarks by stressing the State of Qatar’s determination to work with its clients and partners to realize the full potential of LNG as a vital contributor to a realistic and responsible energy transition, and to continue to take concrete action across the entire spectrum of the energy industry to address the challenges of climate change.

The LNG Producer-Consumer Conference is a global annual dialogue, launched in 2012, organized by Japan’s Ministry of Economy, Trade and Industry, and the Asia Pacific Energy Research Centre. It provides ministers, heads of international organizations, corporate executives, and other stakeholders with a venue to share the latest trends in the global LNG market and discussing opportunities and challenges with a view to its development.

Ivor Robson: I miss The Open enormously

BY JOHN TURNBULL • 17 JULY, 2023 • 9 MIN READ

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For more than 40 years, Ivor Robson was the man who sent off the world's best players in their bid to become the 'Champion Golfer of the Year'.

With his soft, soothing tones and calming (dare it be said, debonair) presence, he introduced almost 20,000 golfers to the galleries, from Arnold Palmer and Jack Nicklaus to Roger Wessels and Ryoken Kawagishi.

He hung up the mic at St Andrews in 2015 and so, ahead of [The 151st Open](#) at Royal Liverpool, we tracked him down to see how he's enjoying retirement and to reflect on an incredible career as the Open's official starter...

Ivor, how are you?

I've retired and am enjoying life. I still follow the golf, but I don't go to tournaments. I had a good run, 41 Opens, it was a great honour to be the official starter for the greatest championship in the world.

Do you still watch The Open?

I don't go anymore; I mean, what am I going to do? I won't be seen standing around the first tee anymore, but I still watch it all the time.

Was it hard stepping away?

Yes, but it was time to go. I was diagnosed with diabetes, type two. So, I wasn't allowed to do the PGA at Wentworth, but I got sorted out, and I'm okay now with a good diet. I wasn't eating properly, and was eating the wrong things late at night.

• [The Open: When 'Terrible Tom' tamed Troon](#)

How did you manage not eating and drinking for hours?

I did it every week, so it wasn't just The Open. I never took alcohol, and you got used to not having breakfast or lunch because you're concentrating all the time. By the time you get players a card, pin placement, the local rules, and tell them who is up first and second, the next group is coming on to play. You had to keep your concentration, and you don't realise the time until it was about the last game. It was mentally exhausting but good.

What do you do after the last tee time?

I went straight to my room and got room service, I wasn't going into the bar, I've never been in a bar in my life. I'm not a member, so I had no right to be in there that's how I always viewed it. I kept myself to myself, albeit as part of a team and my role was a starter.



What were the most challenging venues?

The likes of St Andrews, lovely course, but it's a difficult one because you've got the road crossing and players coming up the 18th but coming up the first fairway, so you've got to dovetail them. You say to players, as soon as they've played their second, we go. You have to get them off before they start putting or the next group is coming up. It works fine if you concentrate, but you have to make the decision, the players know what I'm going to do then. If you lose a minute, it takes a long time to get that minute back. Conditions were not always ideal as well. At Turnberry and Muirfield, the rain and wind was horrendous, especially when Greg Norman won at Turnberry.

Favourite Open courses?

They all have different characteristics. Turnberry, for example, some of the big hitters are reaching the green, so I had to say, 'are you going for the green', instead of making the previous green mark and moving away, let them putt out. So, if you're going for the green, I'll let you go third. St Andrews is unique you know, but it was hard to operate with the road crossing. Royal Lytham was another one because it's a par 3, so I said you can't have the microphone because I can't see the second tee. If a player is in the middle of their backswing and I start announcing the next game, I can't see it.

Did the job involve a lot more than just announcing?

Nobody told me how to do it, I had to work it out for myself when I started in 1975. I thought, 'What do I do here?' Just keep it simple, where are they from, the name of the player and let them go. You don't need a biography, the only time you had something different to announce was the defending champion? Years ago, when I went on the Tuesday, I would go out on the Wednesday morning with my starter sheet and walk down to the landing area on the first to see what the rough was like. If it was deep and you needed someone to hit a provisional, you can't have them searching for a ball on the first hole, so it's all this planning and observation you had to do.

[• 7 trophies up for grabs at Royal Liverpool](#)

How much preparation went into calling tee times, and were there names you had to rehearse?

I was lucky to do events all over the world and so if there were any players' names that looked tricky, I kept it on a card in my blazer pocket to remember how the player likes his name announced. I was doing it every week, so I knew a lot of the players very well and their mannerisms. Some wouldn't come to the tee until the last minute, and I used to say 'I'm on your side, don't make it difficult', if you're not on the tee when the game is called, you're deemed to be late.

What was your relationship like with players?

Absolutely brilliant. I've lost a lot of my friends recently, John Bland, Gordon Brand Jr, a lot of these guys were great lads, and we had a lot of laughs. The caddies were wonderful, too. I had a wonderful time.

Did you feel starstruck at any point announcing the big names?

No, I treated everyone the same. I felt if you do that, you won't get any problems, I had the same procedure of welcoming them to the tee. I liked Tiger Woods and got on well with him, and you can't forget Seve Ballesteros.



What was Tiger like on the tee?

He was absolutely spot on, a gentleman. It wasn't Tiger, it was the entourage that was a nightmare. If Tiger was up first, as soon as he teed off, the camera crew would be up and moving, and the second player has no chance, but Tiger was fine. He didn't arrive on the tee too early, plenty of time to get organised, but he was fine. Seve always called me 'mi amigo'. He was an immense character – what an ambassador for the game. When we needed someone, along came this young, dashing Spaniard who was a breath of fresh air.

Were those interactions what made the job so satisfying?

Yeah, I think so. You knew something big was happening when the crowd started mingling around the first tee. You could tell who was coming up next, and Tom Watson, Jack Nicklaus, all these guys were gentlemen, absolutely super people. It was interesting at my last Open because Peter Dawson said I had to go to the champion's dinner, I was the first man invited that wasn't a past champion. I got a Claret Jug with all the names on, and what do you know, I've been fortunate I've announced the last 40 Open champions.

Where is your Claret Jug?

I have it in my room, carefully put in my house and inscribed on it is 'outstanding performance for The Open Championship'. I was shocked and didn't know what to say, getting a Claret Jug is beautiful.

How different was doing the Ryder Cup?

It was completely different, when you do The Open, you arrive there, and there are a few people in the stand, but it gradually builds up as the day goes on, but in the Ryder Cup it's mayhem – there are thousands of people around the first tee chanting and it's quite frightening. I was never comfortable with that but I had a job to do and I was concentrating on it.

[• Where & when to watch The Open on TV in the UK](#)

How did you find that experience?

It wasn't one I particularly enjoyed, I liked doing the Open because the crowds build up over a period of time. At the Ryder Cup, it was mayhem with all the chanting and shouting, which was quite funny in a way, but certainly nerve-wracking.

Did you ever get used to that?

No, never. I used to dread it.

What was the emotion for your last Open?

I got a little bit nervous just knowing it was my last, but you have to remember what you are there for and keep your composure. You can't let it get ahead of you, or you'll make a mess, and I didn't, it was a great honour. I was representing the R&A, Rolex, and the European Tour, so you had a bit of responsibility on your shoulders, and I was conscious of that. I never had a rain suit on or anything, I didn't think it was right. I had the official blazer and tie on, and that was it.

Did you ever think you'd become one of golf's most recognised voices?

No, absolutely not. I never had a plan. I got involved with my first Open at Carnoustie, and I went up a few weeks later to see Keith McKenzie, the secretary of the R&A, and he asked if he could retain my services for the foreseeable future. So I did every one after that, and it was incredible, I never thought it would turn out like it did.

Did the trademark 'on the tee' call need practice, or was it natural?

It just came out when I did it, and I thought I'll stick with that, it's easy, keep it simple. Rolex sent me all over the world, and I was able to meet all these different players, but I used the same trademark for all players.

Do you miss being a starter?

I miss it a lot, especially The Open, I miss that enormously.

Will we ever hear you announce again?

Before lockdown, I did a charity event which I really enjoyed, out in Buckinghamshire for the rugby legends. I got an email asking about a golf day at Royal Troon next year, so I'll do that one again, but I'm moving away from it now.

—

SAF Dan Tsubouchi @Energy_Tidbits · 9m Hmmm!

was @michaelgove's interview a preview the UK is going to back away from expensive #NetZero policies?

worth reading Telegraph interview. [telegraph.co.uk/politics/2023/...](https://www.telegraph.co.uk/politics/2023/...)

Momentum seems to be building for shift to energy security, availability & affordability.

#NatGas will be... Show more

SAF Dan Tsubouchi @Energy_Tidbits · 18h
Too late to avoid energy volatility for 2020s?
"One of the dangers is that if people think that you are treating the cause of the environment as a religious crusade, in which you're dividing the world into goodies and baddies, then you alienate the support that you need for... Show more

1 303

SAF Dan Tsubouchi @Energy_Tidbits · 12h look at the #G20 as a preview of #COP28 UAE

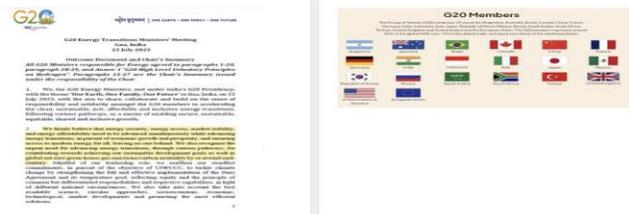
"We stress the importance of ensuring that the growing global energy demand is matched by sustainable and affordable energy supplies"

pg 13, couldn't get a commitment on unabated coal

& much more.

#NatGas will be needed for longer... Show more

SAF Dan Tsubouchi @Energy_Tidbits · 13h
Ouch!
#G20 communique today far from what G7 leaders wanted.
Energy security, access & affordability just as important as advancing energy transitions.
Get to #NetZero GHG emissions/carbon neutrality by or around midcentury.
#Oil #NatGas will be needed for longer
#OOTT



1 4 6 4,201

SAF

Dan Tsubouchi @Energy_Tidbits · 13h

Ouch!

#G20 communique today far from what G7 leaders wanted.

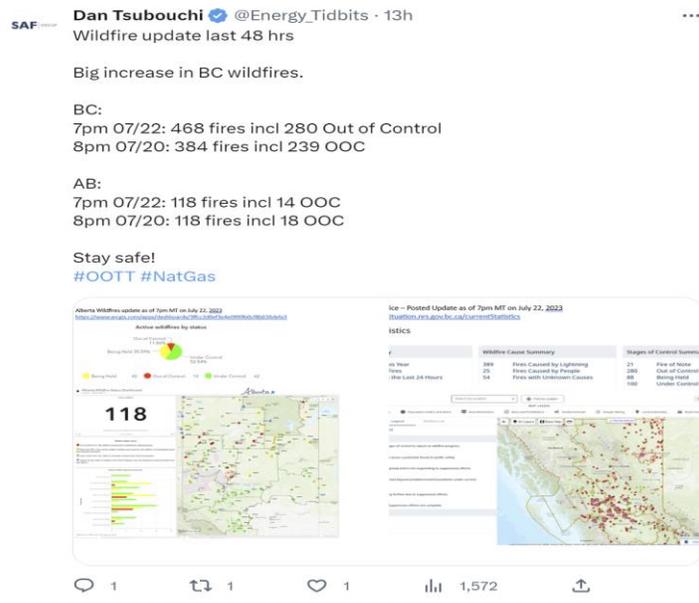
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#OOTT



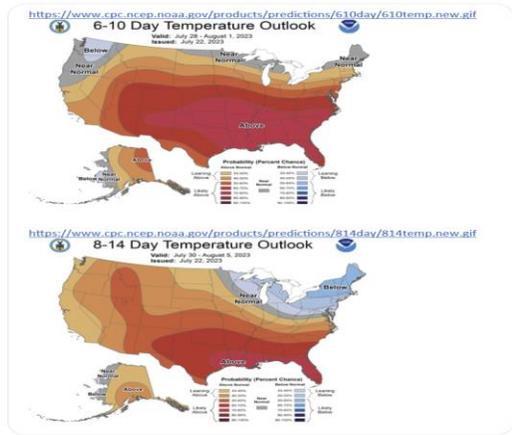
2 5 22 7,074



Dan Tsubouchi @Energy_Tidbits · 15h
Continued temperature support for US #NatGas.

Today's @NOAA 6-10 & 8-14 day temperature outlook covering July 28-Aug 5: continued above normal temps expected for most of the US.

#OOTT



1 2 11 1,785

Dan Tsubouchi @Energy_Tidbits · 18h
Too late to avoid energy volatility for 2020s?

"One of the dangers ... is that if people think that you are treating the cause of the environment as a religious crusade, in which you're dividing the world into goodies and baddies, then you alienate the support that you need for... Show more

1 3 9 2,084

Dan Tsubouchi @Energy_Tidbits · 19h
>10 bcf/d LNG FIDs in next 18 mths.

SBKR CEO @simonelli: 7.0 bcf/d #LNG FIDs so far in 2023. Expects another 1.6 bcf/d FIDs in 2023 and a further 8.6 bcf/d FIDs in 2024.

Surely #LNGCanada brownfield 1.8 bcf/d Phase 2 will be part of this >10 bcf/d in next 18 mths

#OOTT #NatGas

https://investor.bakerhughes.com/static/files/97334657_7a3b-4c41-8b05-b82ec41bf722

Baker Hughes
Second Quarter 2023 - Earnings Conference Call Prepared Remarks
Lorenzo Simonelli, Baker Hughes - Chairman & CEO

Turning to slide 5, growing economic uncertainty continues to drive commodity price volatility globally. However, despite lower oil prices over the first half of the year, we maintain a constructive outlook for global upstream spending in 2023. Market softness in North America is expected to be more than offset by strength in international and offshore markets.

As we have said previously, we expect this spending cycle to be more durable and less sensitive to commodity price swings relative to prior cycles. This is due to strong balance sheets across the industry, disciplined capital spending that is based on low asset break-even and a focus on returns versus growth. We are seeing this in North America where, despite the decline in WTI prices, IOCs and large independent E&P companies have yet to deviate from development plans.

It is also evident in international and offshore markets, where we continue to see steady activity increases from NOCs and IOCs and production discipline from large producers.

Outside of the upstream markets, we remain optimistic on the LNG outlook, with solid demand growth this year led by Europe and Asia. In fact, despite a 50% decline in LNG prices over the first half of the year, contracted long-term offtake agreements of over 45 MTPA are slightly above contracting levels over the same period in 2022.

The continued strength in long-term LNG contracts has been a key driver of the momentum in industry FIDs, which have now totaled 53 MTPA in 2023 to date. This includes the recent FIDs for Phase 1 of Next Decade's 17.8 MTPA Rio Grande project and QatarEnergy's 18 MTPA North Field South project.

Based on the continued development of the LNG project pipeline, we still expect the market to exceed 60 MTPA of FIDs this year and should see a similar level of activity in 2024. We continue to see the potential for this LNG export to exceed for several years with a pipeline of new international opportunities expected to begin coming on stream in 2025 and beyond.

As we have stated consistently, we fully expect natural gas and LNG to play a key role in the energy transition as a baseload fuel to help balance against intermittent renewable energy sources. We believe the expanding pipeline of LNG opportunities is tied to the growing recognition of this reality and that the transition will take more time and must be financially viable.

14 15 3,247

Dan Tsubouchi @Energy_Tidbits · 21h
 Stronger than expected #Oil#NatGas supply from offshore in long term?
 #Schlumberger may not specifically say it, but their Q2 call comments point to it.

international "investment momentum of past few years is accelerating"
 "witness a broad resurgence in offshore"...Show more

INITIAL DRAFT

reverse capacity. And with higher earnings and improved working capital, we increased cash flow from operations given commodity, and we generated free cash flow of nearly \$1 billion during the quarter, up from \$400 million in Q2 2022. We have a strong track record of shareholder returns, including value for our common stock and our shareholders.

Now, let me take a moment to touch on the recent announcement. As we have presented for the past few years, the International and Offshore segments represent significant growth opportunities for Schlumberger. We are focused on driving growth in these segments, and we are particularly excited about the potential of the International segment. We are seeing strong momentum in this segment, and we are particularly excited about the potential of the International segment. We are seeing strong momentum in this segment, and we are particularly excited about the potential of the International segment.

INITIAL DRAFT

the services industry in Middle East and to deliver a 5-year total cost of development of those assets. The second element would be that exploration has been creating a portfolio of assets that can be brought on stream in the next few years. The third element would be that exploration has been creating a portfolio of assets that can be brought on stream in the next few years. The third element would be that exploration has been creating a portfolio of assets that can be brought on stream in the next few years.

INITIAL DRAFT

And the outlook of the industry is bright. And we are seeing a lot of activity in the industry. And we are seeing a lot of activity in the industry. And we are seeing a lot of activity in the industry. And we are seeing a lot of activity in the industry.

Dan Tsubouchi @Energy_Tidbits · Jul 21
 Positive but less bullish long term #Oil #NatGas outlook from #Schlumberger.
 1st sentence of outlook.
 ...

1 1 5 2,637

Dan Tsubouchi @Energy_Tidbits · Jul 22
 #Vortexa crude #Oil floating storage at 07/21 est 98.65 mmb, -7.77 WoW vs revised up by +14.61 07/14 of 106.42 mmb.

Watch will be on floating storage in Jul/Aug to see if Saud voluntary cut/Russia reported complying brings back to consistently <100 mmb.

Thx @Vortexa... Show more



3 6 1,443

SAF **Dan Tsubouchi** @Energy_Tidbits · Jul 22
Tip for tourists. Leave the elk alone. Unfortunately, the tourists at the top of the hill started whistling and stuff to get their attention for their photo op. the gang turned around back down the hill and have walked down in the distance to leave.

SAF **Dan Tsubouchi** @Energy_Tidbits · Jul 22
Great start to Saturday to see the #Canmore elk gang enjoying the beautiful mountain morning. The 2023 calves are still really small. There is a peak of two of the famous Three Sisters Mountains at the start of the clip.



1 8 2,005

SAF **Dan Tsubouchi** @Energy_Tidbits · Jul 22
Great start to Saturday to see the #Canmore elk gang enjoying the beautiful mountain morning. The 2023 calves are still really small. There is a peak of two of the famous Three Sisters Mountains at the start of the clip.



1 1 14 3,711

SAF

Dan Tsubouchi @Energy_Tidbits · Jul 21

Positive but less bullish long term #Oil#NatGas outlook from #Schlumberger.

1st sentence of outlook.

Q2: "We continue to see positive upstream investment momentum in the international and offshore markets"

Q1: "Looking at the macro, we maintain our very constructive...Show more"

Quarter 2023 Results

Strong Margin Expansion and Cash Flow

Key financial highlights for the quarter include:

- Operating margin of 27%, including North America, E&P, and International, up from 25% in the prior quarter.
- Adjusted EBITDA of \$1.2 billion, up from \$1.1 billion in the prior quarter.
- Adjusted EBITDA margin of 31%, up from 30% in the prior quarter.
- Adjusted EBITDA per share of \$1.20, up from \$1.15 in the prior quarter.
- Adjusted EBITDA per share of \$1.20, up from \$1.15 in the prior quarter.

Confidence in the Long-Term Outlook

Our confidence in our long-term outlook is based on several key factors:

- Strong demand for our services in the international and offshore markets.
- Continued investment in our technology and innovation.
- Our strong financial performance and cash flow.
- Our commitment to our customers and our industry.

After 2023 Results

Looking ahead to 2024, we expect continued growth in our international and offshore markets. We remain confident in our long-term outlook and our ability to deliver strong results for our shareholders.

4 13 6,374

SAF

Dan Tsubouchi @Energy_Tidbits · Jul 21

ICYMI, another shoutout from @tomkeene.

But not his normal hockey to @FerroTV, rather on @Nickelback and #Calgary's @loverboyband's classic "Working for the Weekend".

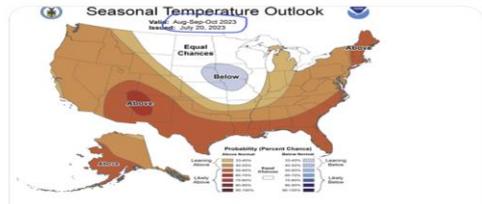


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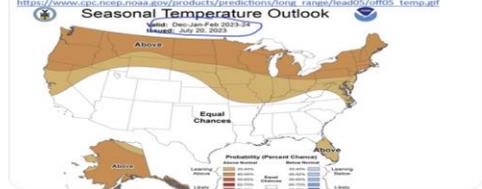
SAF Dan Tsubouchi @Energy_Tidbits · Jul 20 Updated @NOAA seasonal outlook.

Warmer than normal ASO should help summer #NatGas demand, BUT warmer than normal DJS would be a bigger hurt to winter #NatGas demand.

No surprise with El Nino forecast to continue. #OOTT



https://www.cbr.noaa.gov/products/productions/long_range/lead05/otf05_temps_of



2 5 12 4,901

SAF Dan Tsubouchi @Energy_Tidbits · Jul 20 Expecting flat, maybe some decline in US #NatGas production says #LibertyEnergy CEO.

#NatGas frac pickup "could be late this yr, that could be early next yr"

"now activity is going to dial back to, gas production flat. We may even see some decline in gas production"

Thx...Show more

INITIAL DRAFT

A - Chris Wright (BIO 5777543 <GO>)
 Good question, good question.

Q - Analyst
 Thanks.

Operator
 Our next question today will come from Dan Kutz of Morgan Stanley.
 Please go ahead.

Q - Dan Kutz (BIO 20860734 <GO>)
 Hey, thanks. Good morning. So, I just wanted to ask on the gas activity side, you guys have made some comments in prepared remarks that you think that we'll probably see gas activity start to pick up in 2024 ahead of all of the LNG liquefaction capacity that's coming online later that year and into 2025.
 Given that you guys normally do have a pretty close pulse and view on the kind of industry macro, how you guys - do you have any views or any thoughts you could share on where you think gas activity needs to get to, assuming that we're kind of fully ramped and on all the LNG liquefaction capacity that is on the pipeline - if we were to frame a versus kind of where gas activity started this year, I think it was 18% higher, maybe 20 or 25 right, presumably that's a dozen or so frac fields. Do you have any views on whether or not we need to get back to that level, above that level, below that level, or any thoughts you could share on how you think gas activity might trend next year? Thank you.

A - Chris Wright (BIO 5777543 <GO>)
 Yes, I mean, look, my guess is at some point next year, and it might be later next year, it might be maybe middle next year is a good guess - we'd probably get back to the gas activity level we were at six or nine months ago. We may have to go higher than that.

There's a pretty significant growth in both LNG exports coming on and pipeline exports to Mexico, and part of that pipeline export to Mexico ultimately is going to feed another LNG export terminal out of Mexico. So, there's some pretty positive demand outlook things coming there. But it's not like we're going to see a doubling of gas activity from where we were a year ago, even from where we are now. There's a lot of just awesome gas drilling locations in the US, and now activity is going to dial back to gas production flat.

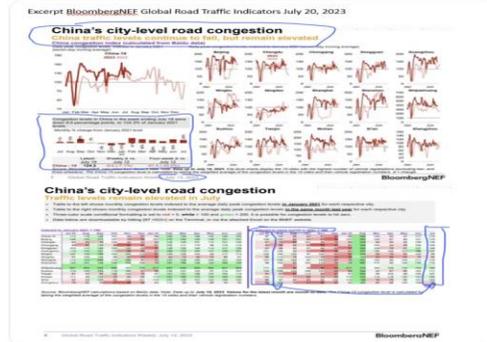
We may even see some decline in gas production. But at some point next year that'll have to transition. And of course, it'll be gradual. Gas starts to get above \$3.80, \$4, you're going to see activity creep back into the marketplace.

2 7 21 9,549

SAF Dan Tsubouchi @Energy_Tidbits · Jul 20
China Baidu city-level road congestion -9.6% WoW to 124.3% of Jan/2021 levels.

But less city congestion likely linked to July start of summer holiday season given 07/17 tweet 4th consecutive WoW increase in domestic flights.

And Top 15 cities congestion July/ 2023 are up... Show more



SAF

Dan Tsubouchi @Energy_Tidbits · Jul 19

#QatarEnergy CEO's advice to those calling for "speedy #EnergyTransition" is "world needs a fair and effective transition with a realistic and stable path, which wisely balances humans flourishing with environmental protection. It should not continue to only focus on the needs...Show more

<https://www.qatarenergy.qa/en/MediaCenter/Pages/newsdetails.aspx?Itemid=3766>



H.E. MINISTER AL-KAABI PARTICIPATES IN THE 12TH LNG PRODUCER-CONSUMER CONFERENCE

DOHA, Qatar • 19 July 2023 – His Excellency Mr. Saad Sherif Al-Kaabi, the Minister of State for Energy Affairs, the President and CEO of QatarEnergy, participated in the 12th LNG Producer-Consumer Conference held in Tokyo, Japan. In his keynote speech, delivered virtually, His Excellency the Minister stressed the need for a clear roadmap with specific targets to achieve a fair and effective energy transition with a realistic and stable path towards the reduction of the global carbon footprint. "It would be erroneous around the world calling for a speedy energy transition to consider that the world needs a fair and effective transition with a realistic and stable path, which wisely balances humans flourishing with environmental protection. It should not continue to only focus on the needs of the rich and well-developed countries but must prioritize the needs of developing countries." His Excellency added.

His Excellency Minister Al-Kaabi told the participants in this annual conference: "This highlights the need for a realistic and resolute energy transition, starting with a solid integration of natural gas in the energy mix of today and tomorrow. We strongly believe that Gas will be needed as a safer reliable base load in the energy mix for most regions for decades well beyond 2050."

Highlighting the challenges facing the energy industry, Minister Al-Kaabi said: "Lack of investments in the oil and gas upstream sector remain as an unresolved and unchallenged chronic problem, contributing to greater lack of energy security, and supply uncertainty. This lack of investment will likely cause increased instability for every region around the world."

In this context, H.E. the Minister said: "Qatar is providing the world with the cleanest available hydrocarbon source of energy which has met both the economic and environmental aspirations for a better future. By 2029, about 40% of all new global LNG supplies will be provided by QatarEnergy projects. These projects will achieve significant reductions in greenhouse gas emissions through carbon capture and sequestration as well as the use of solar energy. In all, we aim to reduce the overall carbon intensity by about 30% compared to previous generation designs."

His Excellency Minister Al-Kaabi concluded his remarks by stressing the State of Qatar's determination to work with its clients and partners to realize the full potential of LNG as a vital contributor to a realistic and responsible energy transition, and to continue to take concrete action across the entire spectrum of the energy industry to address the challenges of climate change.

The LNG Producer-Consumer Conference is a global annual dialogue, launched in 2012, organized by Japan's Ministry of Economy, Trade and Industry, and the Asia Pacific Energy Research Centre. It provides ministers, heads of international organizations, corporate executives, and other stakeholders with a venue to share the latest trends in the global LNG market and discussing opportunities and challenges with a view to its development.

1

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13

2,540



SAF

Dan Tsubouchi @Energy_Tidbits · Jul 19

ICYMI.

US General Milley on reality of UKR counteroffensive.

"Because that's the difference between war on paper and real war. These are real people in real machines that are out there really clearing real minefields and they're really dying."

"It is far from a failure, in my...Show more



2

1,333



SAF

Dan Tsubouchi @Energy_Tidbits · Jul 19

For those, like me, who weren't near their laptops at 8:30am MT, @EIAgov released its #Oil #Gasoline #Distillates inventory as of July 14. Table below compares EIA data vs @businessexpectations and vs @APIenergy yesterday. #OOTT

Oil/Products Inventory July 14: EIA, Bloomberg Survey Expectations, API			
(million barrels)	EIA	Expectations	API
Oil	-0.71	-2.50	-0.80
Gasoline	-1.07	-1.50	-2.80
Distillates	-0.01	1.00	-0.10
	-1.79	-3.00	-3.70

Note: Oil is commercial so builds in no change in SPR for the July 14 week
 Note: Included in the oil data, Cushing had a 2.89 mmb draw for July 14 week
 Source EIA, Bloomberg
 Prepared by SAF Group <https://safgroup.ca/news-insights/>

3 6 1,231

SAF

Dan Tsubouchi @Energy_Tidbits · Jul 19

Must read! #Oil Positive.

See @DanialRahmat12 tweet: Iran's floating oil reserves shrinking as did their condensates.

Another great insight, he told us this was happening on May 5 tweet twitter.com/Energy_Tidbits...

Torque to #Oil prices as demand keeps recovering.

#OOTT

Danial Rahmat دانیال رحمت @DanialRahmat12 · Jul 19
 #Iran's floating oil reserve shrinks as #NIOC exports more crude to China and consumes more #gas_condensates domestically.
 #OOTT
 @Energy_Tidbits
 @gulf_intel
 @PetroleumEcon

Iran: observed seaborne oil exports
By month in 2022

Floating storage of Iranian grades
On top, already release of ~100 mmb from floating storage

1 5 17 4,888

Dan Tsubouchi @Energy_Tidbits · Jul 19
 "market softness in North America" #Oil#NatGas activity says Baker Hughes.

BUT not from large E&P & IOCs as @simonelli_j "We are seeing this in North America where, despite the decline in WTI prices, IOCs and large independent E&P companies have yet to deviate from...[Show more](#)

Baker Hughes
 Second Quarter 2023 Earnings Conference Call Prepared Remarks
 Lorenzo Simonelli, Baker Hughes - Chairman & CEO

Turning to slide 8, growing economic uncertainty continues to drive commodity price volatility globally. However, despite lower oil prices over the first half of the year, we maintain a constructive outlook for global upstream spending in 2023. **Market softness in North America is expected to be more than offset by strength in international and offshore markets.** As we have said previously, we expect this spending cycle to be more durable and less sensitive to commodity price swings relative to prior cycles. This is due to strong balance sheets across the industry, heightened capital spending focused on low-cost break-even assets and a focus on returns versus growth. **We are seeing this in North America where, despite the decline in WTI prices, IOCs and large independent E&P companies have yet to deviate from development plans.**

It is also evident in international and offshore markets, where we continue to see steady activity increases from IOCs and IOCs and production discipline from large producers. Outside of the upstream markets, we remain constructive on the LNG outlook, with solid demand growth this year led by Europe and Asia. In fact, despite a 20% decline in LNG prices over the first half of the year, contracted long-term off-take agreements of over 45 MTPA are slightly above contracting levels over the same period in 2022. The continued strength in long-term LNG contracts has been a key driver of the momentum in industry FIDs, which have over **exceeded \$3 MTPA so far** this year. This includes the recent FIDs for Phase 1 of Hail (Canada's 17.5 MTPA Rio Grande project) and Galathea Energy's 16 MTPA North Ford South project.

Based on the continued development of the LNG contract pipeline, we also expect the market to exceed 65 MTPA of FIDs this year and should see a similar level of activity in 2024. We continue to see the potential for this LNG cycle to extend for several years with a potential of new international opportunities depending on project visibility out to 2026 and beyond. As we have stated consistently, we fully expect natural gas and LNG to play a key role in the energy transition as we transitioned to help balance against intermittent renewable energy sources. We believe the expanding pipeline of LNG opportunities is tied to the growing recognition of the reality and that the transition will take more time and must be incrementally made.

3 4 1,854

Dan Tsubouchi @Energy_Tidbits · Jul 19
 Reality check from \$BKR@simonelli_j

fully expect #NatGas & #LNG "to play a key role in the energy transition as a baseload fuel to help balance against intermittent renewable energy sources" "believe the expanding pipeline of LNG opportunities is tied to the growing...[Show more](#)

Baker Hughes
 Second Quarter 2023 Earnings Conference Call Prepared Remarks
 Lorenzo Simonelli, Baker Hughes - Chairman & CEO

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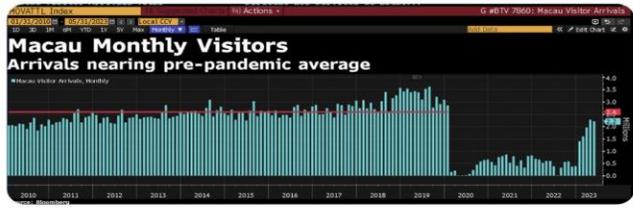
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3 14 3,425

Dan Tsubouchi @Energy_Tidbits · Jul 18
 Another indicator Chinese consumers are traveling domestically - visitors to Macau nearing pre-pandemic levels.

Fits 07/17 tweet Chinese scheduled domestic flights keep steady increase.

Thx @business.
 #OOTT



Dan Tsubouchi @Energy_Tidbits · Jul 17
 #Oil Positive

China Scheduled domestic flights +2.8% WoW to 102,709 flights.

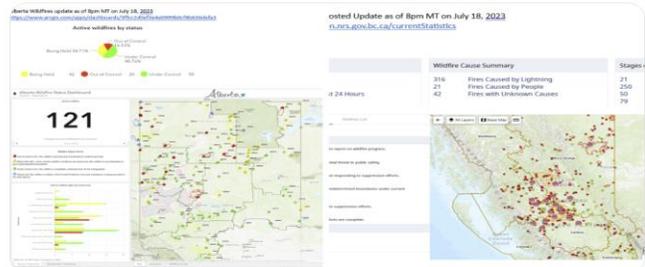
1 6 19 7,513

Dan Tsubouchi @Energy_Tidbits · Jul 18
Wildfire update last 24 hrs

BC:
8pm 07/18: 379 fires incl 250 Out of Control
7am 07/18: 393 fires incl 262 OOC
8pm 07/17: 385 fires incl 263 OOC

AB:
8pm 07/18: 121 fires incl 20 OOC
7am 07/18: 120 fires incl 20 OOC
8pm 07/17: 120 fires incl 21 OOC

Stay safe! #OOTT #NatGas



1,680 views

Dan Tsubouchi @Energy_Tidbits · Jul 18
US #LNG exports May/23 of 11.83 bcfd, +4.4% YoY, -1.4% MoM due to maintenance that should have a larger impact on Jun/23.

May/23 top 5 export markets: Dutch, France, Japan, Argentina, UK

May/22 top 5 export markets: France, Spain, Dutch, Japan, Italy

This DOE LNG data is... [Show more](#)



2,068 views



Dan Tsubouchi @Energy_Tidbits · Jul 18

US shale/tight #Oil & #NatGas production, including the Permian has been stalled for past 5 mths.

See SAF Group table per @EIAgov Drilling Productivity Report data.

#OOTT

EIA Drilling Productivity Report - US Shale/Tight Oil Production Estimates

Thousand bbl	2023												Aug YoY	Aug YoY%	
	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July			
Anadarko	387	373	368	403	384	415	406	414	426	435	440	441	439	52	13%
Appalacha	118	120	126	133	127	144	152	157	145	146	147	147	147	29	24%
Bakken	1,103	1,149	1,143	1,126	988	1,093	1,190	1,170	1,184	1,198	1,211	1,216	1,222	120	11%
Eagle Ford	1,106	1,119	1,120	1,095	1,067	1,114	1,123	1,111	1,133	1,141	1,143	1,136	1,124	19	2%
Huysesville	36	37	36	35	33	35	35	35	35	36	36	36	36	1	2%
Nobara	639	641	651	662	605	624	621	632	648	653	658	662	665	26	4%
Permian	5,399	5,329	5,364	5,600	5,555	5,668	5,685	5,748	5,727	5,785	5,775	5,775	5,784	387	7%
Total	8,786	8,964	9,027	9,054	8,759	9,299	9,208	9,271	9,329	9,374	9,411	9,417	9,399	613	7.0%

Source: EIA, SAF

Natural Gas Production - EIA Drilling Productivity Report

mmcf/d	2023												Aug YoY	Aug YoY%	
	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July			
Anadarko	6,713	6,917	6,907	6,948	6,506	6,971	6,853	6,951	6,870	6,873	6,864	6,810	6,740	33	0.5%
Appalacha	34,757	34,922	34,367	34,988	34,500	34,131	34,943	35,121	35,190	35,246	35,319	35,345	35,329	571	1.6%
Bakken	3,130	3,222	3,198	3,088	2,885	2,885	3,081	3,096	3,143	3,181	3,218	3,247	3,272	142	4.5%
Eagle Ford	7,021	6,983	7,041	7,104	7,088	7,189	7,249	7,451	7,547	7,590	7,608	7,560	7,548	527	7.0%
Huysesville	15,430	15,802	16,179	16,323	16,135	16,610	16,713	16,066	16,458	16,563	16,638	16,649	16,599	1,169	7.6%
Nobara	5,120	5,172	5,210	5,215	5,000	5,080	5,020	5,087	5,050	5,065	5,078	5,089	5,089	-31	-0.6%
Permian	21,665	22,133	22,103	21,940	21,795	22,155	22,370	23,103	23,180	23,198	23,303	23,353	23,389	1,894	8.4%
Total	83,756	85,151	85,084	85,805	83,630	84,781	86,241	86,784	87,424	87,741	88,005	88,072	87,871	4,215	4.5%

Source: EIA, SAF

2 5 29 6,774



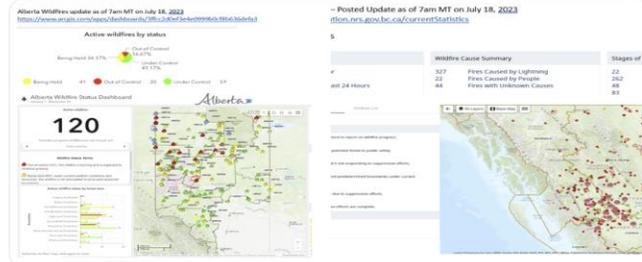
Dan Tsubouchi @Energy_Tidbits · Jul 18

Wildfire update last 24 hrs

BC:
7am 07/18: 393 fires incl 262 Out of Control
8pm 07/17: 385 fires incl 263 OOC
7am 07/17: 375 fires incl 249 OOC

AB:
7am 07/18: 120 fires incl 20 OOC
8pm 07/17: 120 fires incl 21 OOC
7am 07/17: 116 fires incl 20 OOC

Stay safe!
#OOTT #NatGas



2 1,310

Dan Tsubouchi @Energy_Tidbits · Jul 17
Wildfire update last 24 hrs

BC:
8pm 07/17: 385 fires incl 263 Out of Control
7am 07/17: 375 fires incl 249 Out of Control
7pm 07/16: 376 fires incl 255 OOC

AB:
8pm 07/17: 120 fires incl 21 OOC
7am 07/17: 116 fires incl 20 OOC
7pm 07/16: 115 fires incl 19 OOC

Stay safe!... [Show more](#)



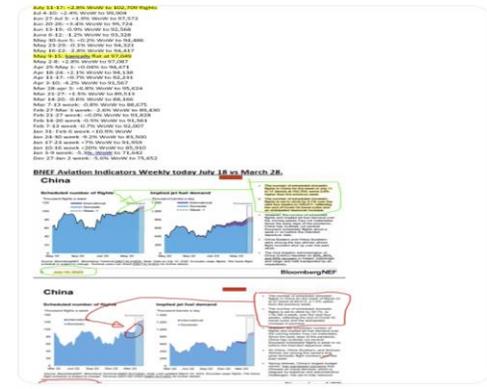
1 2 1,479

Dan Tsubouchi @Energy_Tidbits · Jul 17
#Oil Positive

China Scheduled domestic flights +2.8% WoW to 102,709 flights.
4th consecutive WoW increase.

Chinese consumer didn't get Covid bonus money from govt like in West so spending their own savings/money in summer travel.

Thx @BloombergNEF Claudio Lubis
#OOTT... [Show more](#)



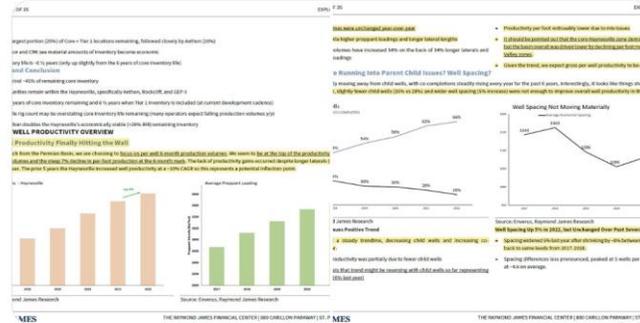
4 7 20 12.5K



Dan Tsubouchi @Energy_Tidbits · Jul 17
Positive for #NatGas in 20s/30s.

#Haynesville up >5 bcf/d since Feb/21 to 16.6 bcf/d, key supply for long-term US #LNG exports,

BUT @RaymondJames John Freeman's Deep Dive "Haynesville well productivity finally hitting the wall" "Given the trend, we expect gross per well... Show more



2 12 34 14.1K



Dan Tsubouchi @Energy_Tidbits · Jul 17
Good blog on #CheniereLNG to add to reference libraries.

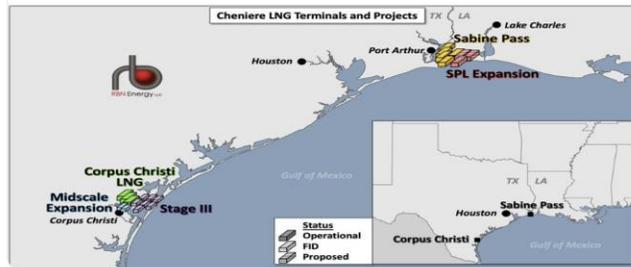
Don't forget Cheniere is the vast majority of US #LNG exports and, by itself, would be #3 LNG exporter only behind Qatar & Australia.

Thx @RBNEnergy @Iss_energy
#OOT #NatGas



@RBNEnergy · Jul 17

U.S. LNG development has seen a resurgence in the post-COVID world, with five projects with a combined 61.1 MMtpa (8.1 Bcf/d) of new export capacity reaching a final investment decision in the past 18 months and one additional project closing in on that milestone. Five of these... Show more



1 2 6 3,146

SAF

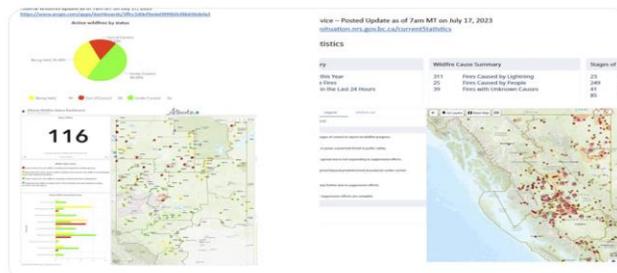
Dan Tsubouchi @Energy_Tidbits · Jul 17

Wildfire update last 24 hrs

BC:
7am 07/17: 375 fires incl 249 Out of Control
7pm 07/16: 376 fires incl 255 OOC
7am 07/16: 374 fires incl 247 OOC

AB:
7am 07/17: 116 fires incl 20 OOC
7pm 07/16: 115 fires incl 19 OOC
7am 07/16: 113 fires incl 15 OOC

Stay safe!
#OOTT #NatGas



1 1 3 3,725

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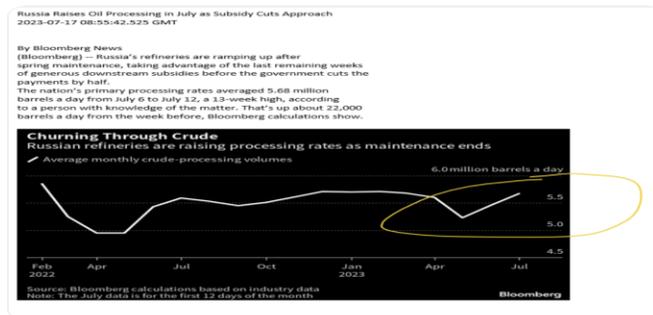
Dan Tsubouchi @Energy_Tidbits · Jul 17

Increasing Russian refinery runs = less Russian #Oil for exports.

Seasonal refinery maintenance ends & refineries ramp up refinery runs in July/Aug.

@ja_herron latest update shows RUS refineries processing ~0.4 mmb/d more than Apr/May.

Fits 📈 05/27 tweet re @JODI trends.
#OOTT



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...

1 9 2,074

SAF Dan Tsubouchi @Energy_Tidbits · Jul 16
Wildfire update last 24 hrs

BC:
7pm 07/16: 376 fires incl 255 Out of Control
7am 07/16: 374 fires incl 247 OOC
7pm 07/15: 372 fires incl 249 OOC

AB:
7pm 07/16: 115 fires incl 119 OOC
7am 07/16: 113 fires incl 15 OOC
7pm 07/15: 112 fires incl 14 OOC

Stay safe! #OOTT #NatGas

Yr	Fires Caused by Lightning	Fires Caused by Person	Fires with Unknow Cause
No Year	310	265	21
Fires	25	25	25
In the Last 24 Hours	41	25	25

2,217 views

SAF Dan Tsubouchi @Energy_Tidbits · Jul 16
SAF Group July 16, 2023 Energy Tidbits memo is posted on SAF Group website. this 61-pg energy research memo expands upon & covers more items than tweeted this week. Available at news/insights section of SAF website #Oil #OOTT #LNG #NatGas #EnergyTransition

SAF GROUP

Energy Tidbits

July 16, 2023

Produced by Dan Tsubouchi

No Peak Oil Demand, IEA Increases 2024 Oil Demand Forecast to 103.2 mmb/d After Reducing 2023 Demand by 0.2 mmb/d

Welcome to new Energy Tidbits memo readers. We are continuing to add new readers to our Energy Tidbits memo, energy blogs and tweets. The focus and concept for the memo was set in 1998 with input from Teds, who were looking for research (both positive and negative memos) that helped them shape their investment thesis to the energy space, and not just focusing on daily trading. Our priority was and still is to not just report on events, but ability to strategize and build out implications framework. The best example is our review of uranium deals, contracts and earnings calls focusing on sector developments that are relevant to the sector. Our target is to write on 48 to 50 weekends per year and to post by noon MT on Sunday. The Sunday noon timing was because PMs said they didn't have research to read on Sundays and Sundays are a day when they start to think about the investing week ahead.

This week's memo highlights:

- Headlines were IEA reduced 2023 oil demand forecast, but more than offset that by higher YoY growth for 2024 to end up with a higher oil demand forecast in 2024. [Click here](#)
- Protests that shut in ~350,000 bbl of Libya production on Thurs ended and production resumed last night. [Click here](#)
- North Dakota has record post-Covid track crews so JJA production should be up, but needs to crank up drilling rigs to build up DUCs to maintain growth in early 2024. [Click here](#)
- BioenergyEFT opens 30% of needed \$196 Trillion to get to Net Zero are uneconomic and need added government incentives. [Click here](#)
- Over half of US offshore wind are facing delays as developers want to renegotiate to get acceptable returns. [Click here](#)
- Please follow us on Twitter at [@Energy_Tidbits](#) for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
- For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK](#)

Dan Tsubouchi
 Chief Energy Strategist
 dtsubouchi@saferes.com

Ryan Oshroff
 CEO
 roshroff@saferes.com

Aaron Burdick
 COO, US
 aburdick@saferes.com

Ryan Sheehan
 Managing Director
 rsheehan@saferes.com

4,712 views

SAF

Dan Tsubouchi  @Energy_Tidbits · Jul 22

...

Tip for tourists. Leave the elk alone. Unfortunately, the tourists at the top of the hill started whistling and stuff to get their attention for their photo op. the gang turned around back down the hill and have walked down in the distance to leave.

SAF **Dan Tsubouchi**  @Energy_Tidbits · Jul 22

Great start to Saturday to see the #Canmore elk gang enjoying the beautiful mountain morning. The 2023 calves are still really small. There is a peak of two of the famous Three Sisters Mountains at the start of the clip.



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