Energy Tidbits

August 22, 2021

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Supplemental Documents

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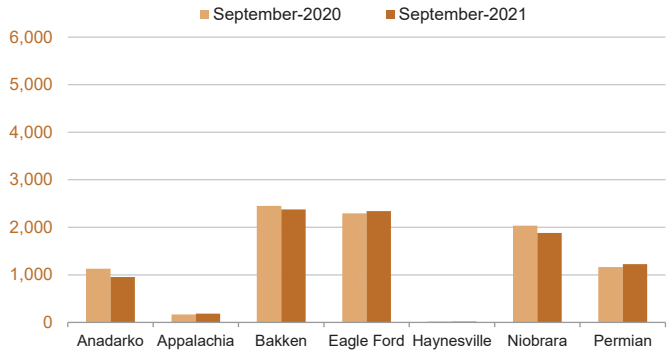
Year-over-year summary

Drilling Productivity Report

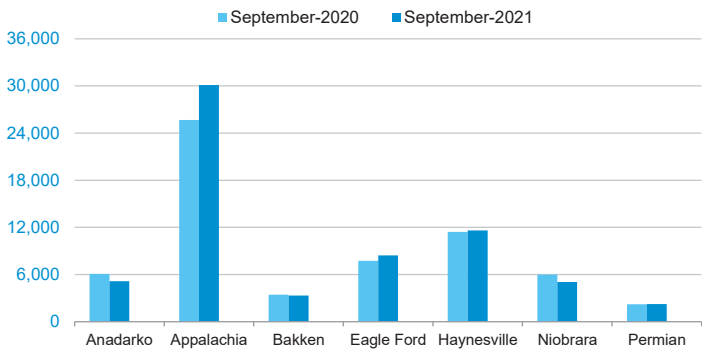
August 2021

drilling data through July
projected production through September

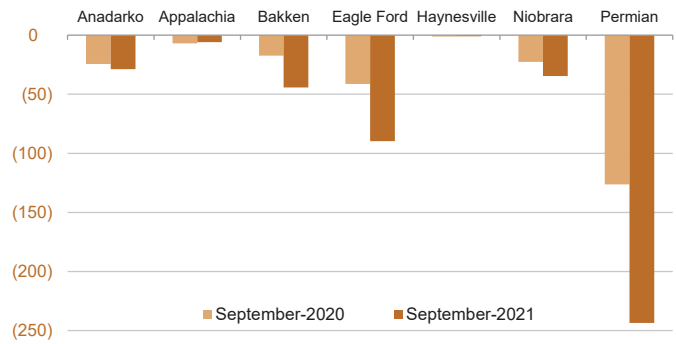
New-well oil production per rig
barrels/day



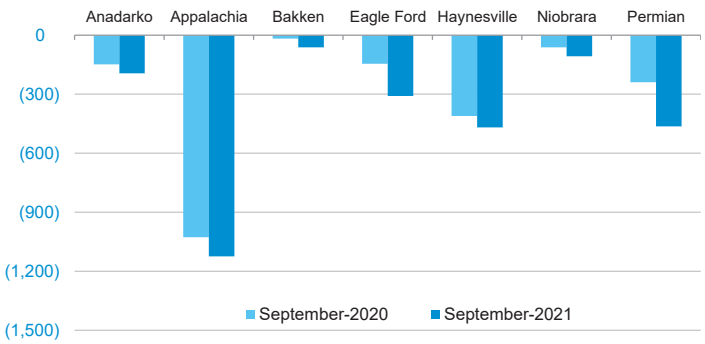
New-well gas production per rig
thousand cubic feet/day



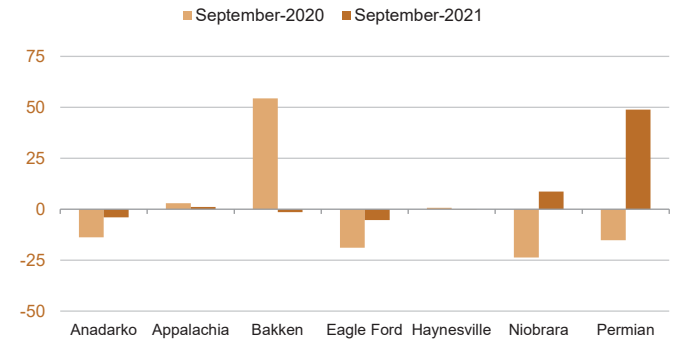
Legacy oil production change
thousand barrels/day



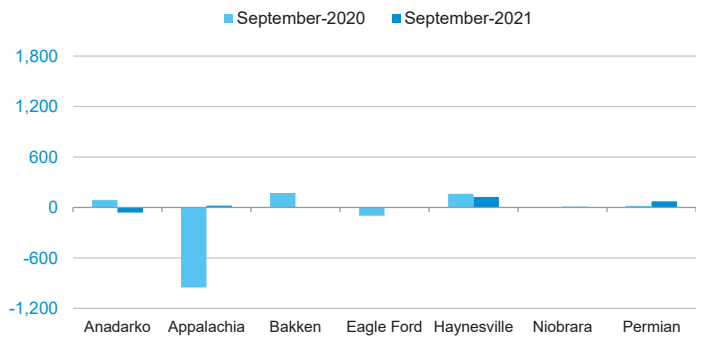
Legacy gas production change
million cubic feet/day



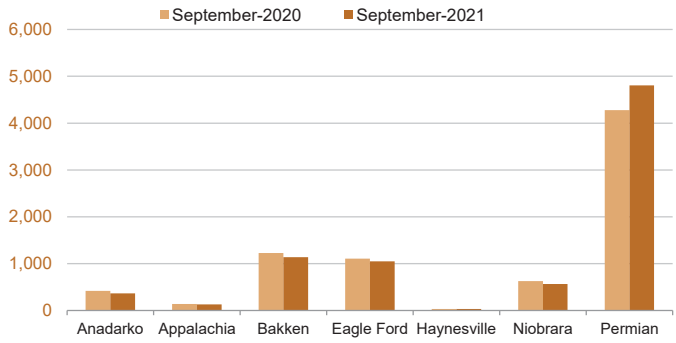
Indicated monthly change in oil production (Sep vs. Aug)
thousand barrels/day



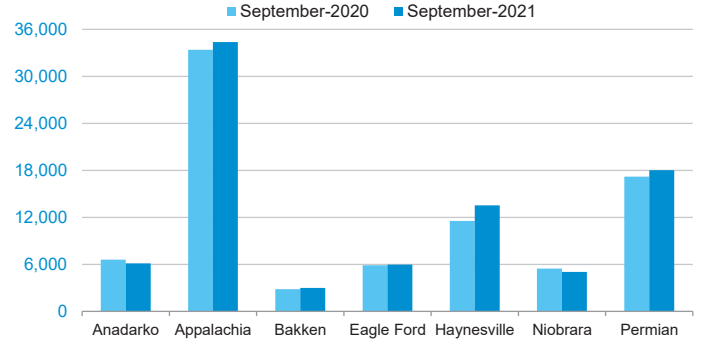
Indicated monthly change in gas production (Sep vs. Aug)
million cubic feet/day



Oil production
thousand barrels/day



Natural gas production
million cubic feet/day



Anadarko Region
Drilling Productivity Report

August 2021
drilling data through July
projected production through September

Oil -19
barrels/day
month over month

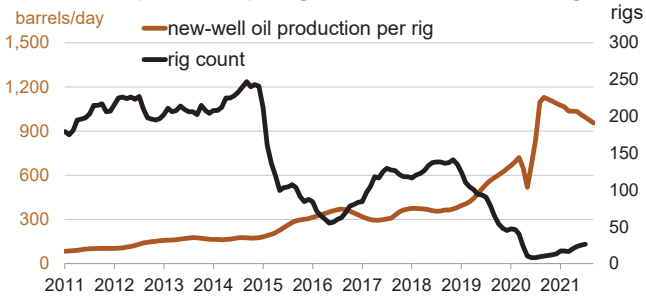
955 *September*
974 *August*
barrels/day

Monthly additions from one average rig

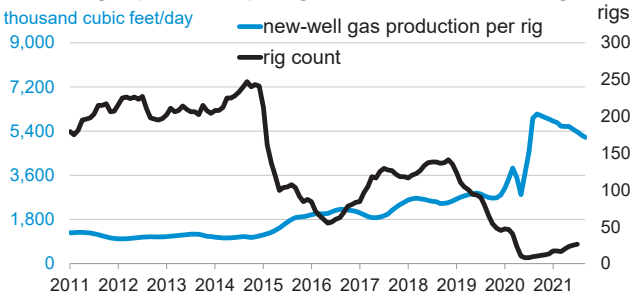
September **5,145**
August **5,250**
thousand cubic feet/day

Gas -105
thousand cubic feet/day
month over month

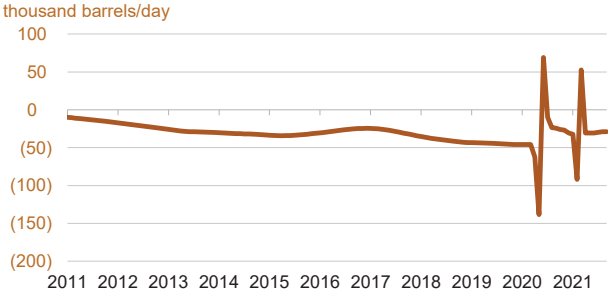
Anadarko Region
New-well oil production per rig



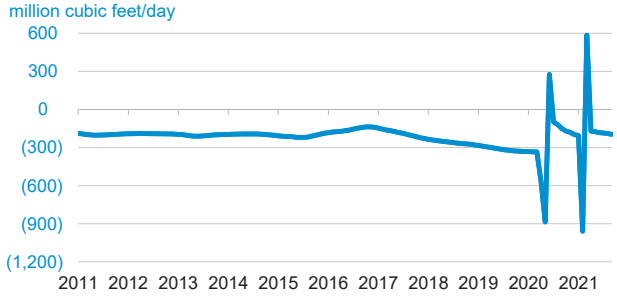
Anadarko Region
New-well gas production per rig



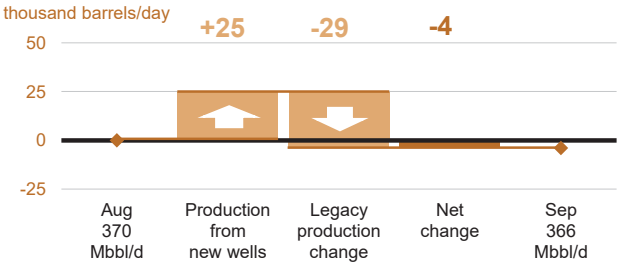
Anadarko Region
Legacy oil production change



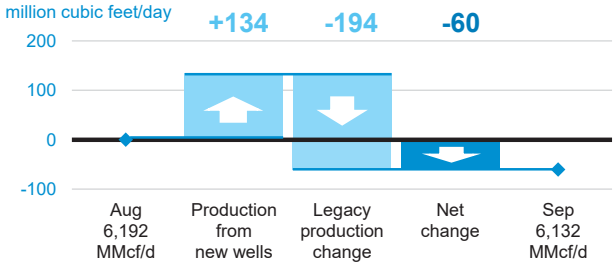
Anadarko Region
Legacy gas production change



Anadarko Region
Indicated change in oil production (Sep vs. Aug)

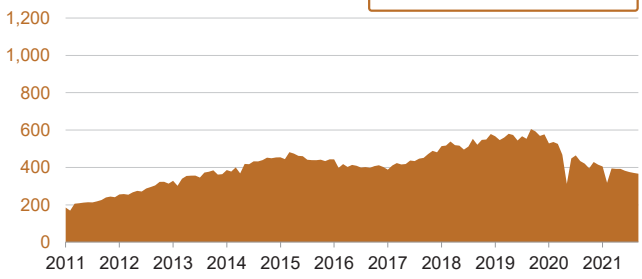


Anadarko Region
Indicated change in natural gas production (Sep vs. Aug)



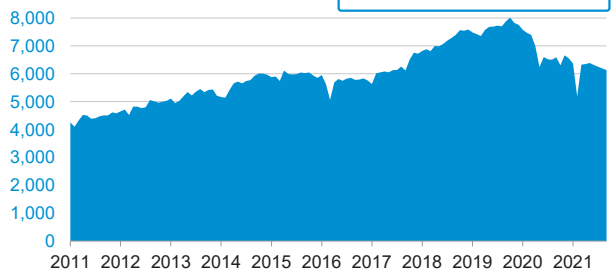
Anadarko Region
Oil production

Oil -4
thousand barrels/day
month over month



Anadarko Region
Natural gas production

Gas -60
million cubic feet/day
month over month



Appalachia Region
Drilling Productivity Report

August 2021

drilling data through July
projected production through September

Oil 0 barrels/day month over month

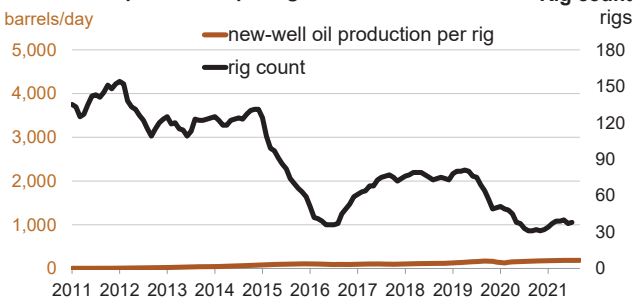
186 *September*
186 *August*
barrels/day

Monthly additions from one average rig

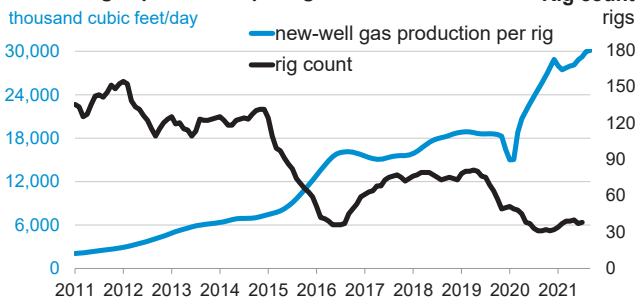
September **30,121**
August **29,971**
thousand cubic feet/day

Gas +150 thousand cubic feet/day month over month

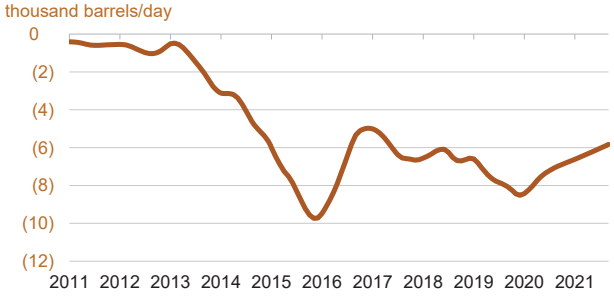
Appalachia Region
New-well oil production per rig



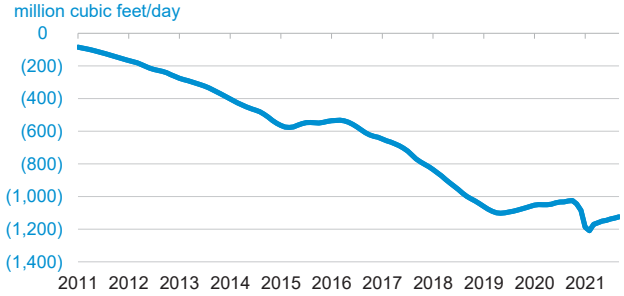
Appalachia Region
New-well gas production per rig



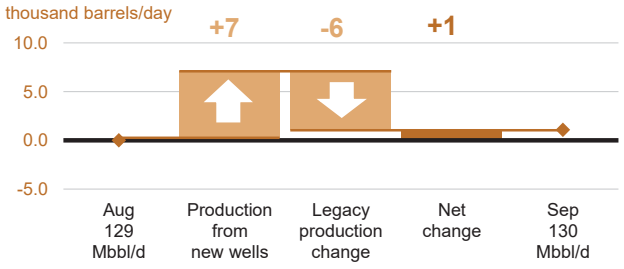
Appalachia Region
Legacy oil production change



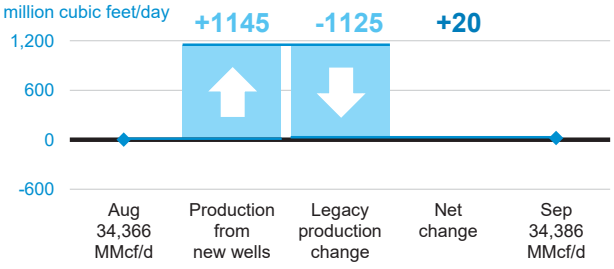
Appalachia Region
Legacy gas production change



Appalachia Region
Indicated change in oil production (Sep vs. Aug)

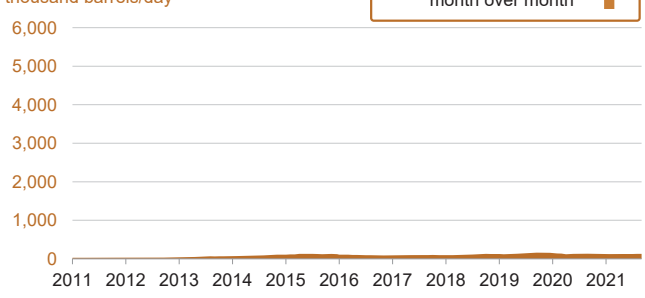


Appalachia Region
Indicated change in natural gas production (Sep vs. Aug)



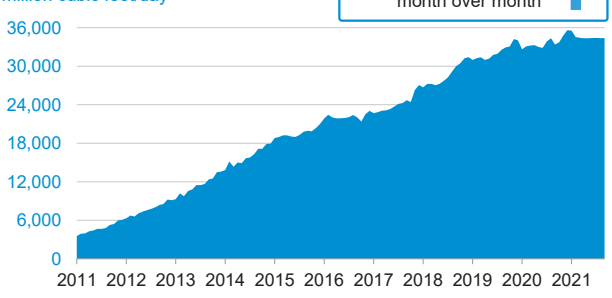
Appalachia Region
Oil production

Oil +1 thousand barrels/day month over month



Appalachia Region
Natural gas production

Gas +20 million cubic feet/day month over month



Bakken Region
Drilling Productivity Report

August 2021
drilling data through July
projected production through September

Oil -10
barrels/day
month over month

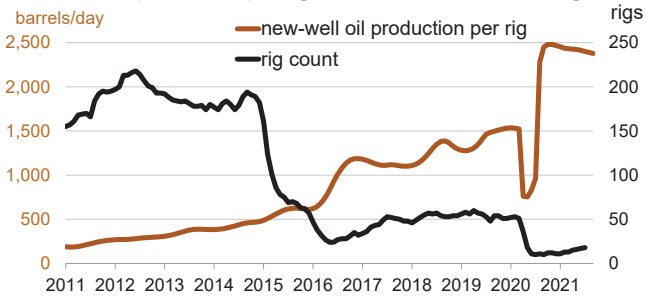
2,378 *September*
2,388 *August*
barrels/day

Monthly additions from one average rig

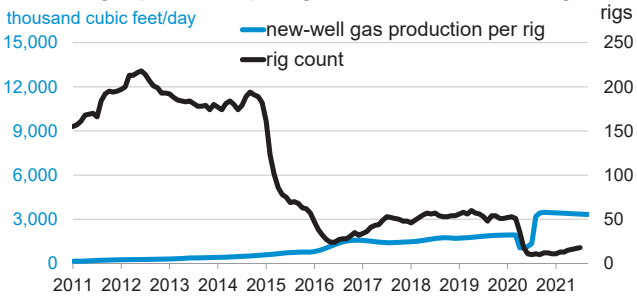
September **3,329**
August **3,344**
thousand cubic feet/day

Gas -15
thousand cubic feet/day
month over month

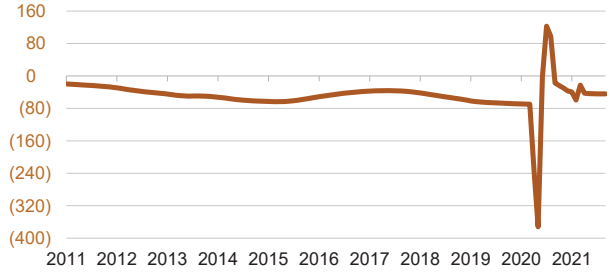
Bakken Region
New-well oil production per rig



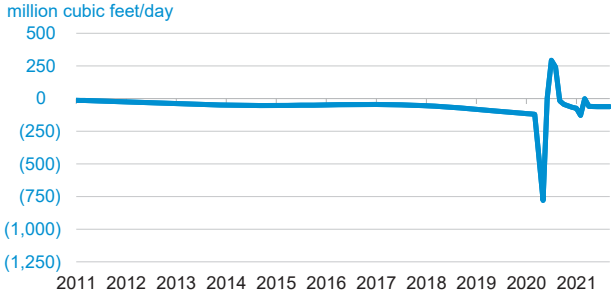
Bakken Region
New-well gas production per rig



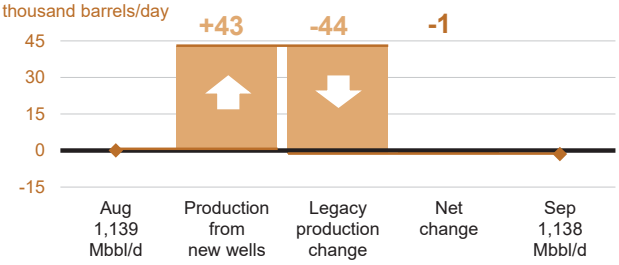
Bakken Region
Legacy oil production change



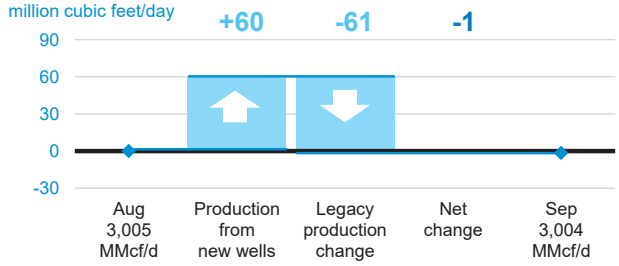
Bakken Region
Legacy gas production change



Bakken Region
Indicated change in oil production (Sep vs. Aug)

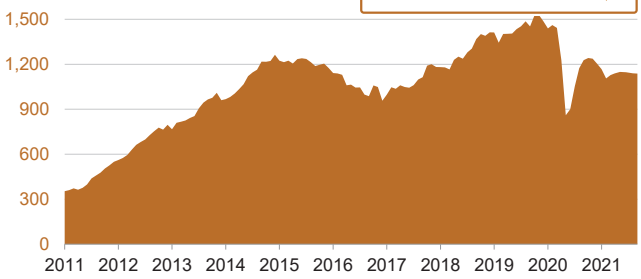


Bakken Region
Indicated change in natural gas production (Sep vs. Aug)



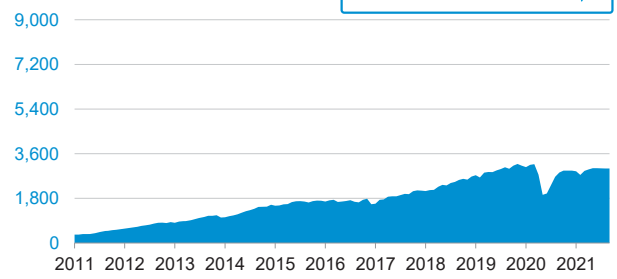
Bakken Region
Oil production

Oil -1
thousand barrels/day
month over month



Bakken Region
Natural gas production

Gas -1
million cubic feet/day
month over month



Eagle Ford Region

Drilling Productivity Report

August 2021

drilling data through July
projected production through September

Oil +1
barrels/day
month over month

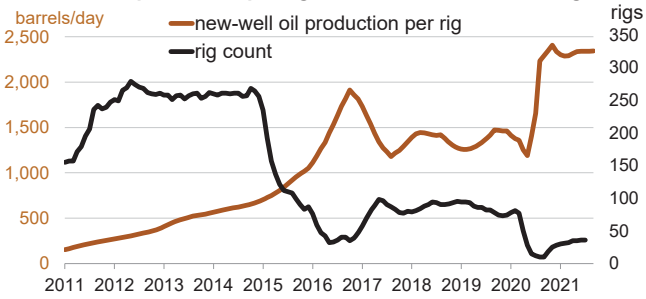
2,343 *September*
2,342 *August*
barrels/day

Monthly additions from one average rig

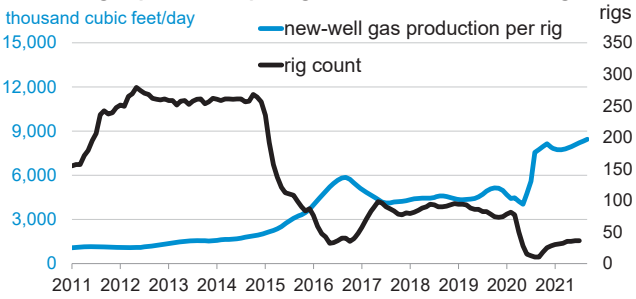
September **8,426**
August **8,302**
thousand cubic feet/day

Gas +124
thousand cubic feet/day
month over month

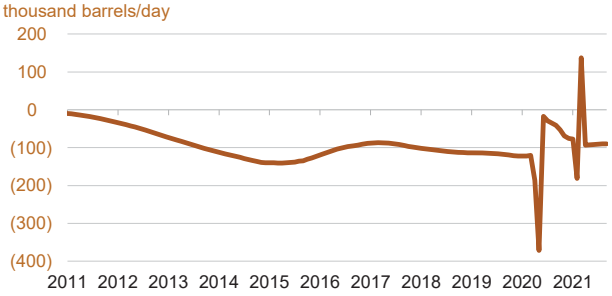
Eagle Ford Region
New-well oil production per rig



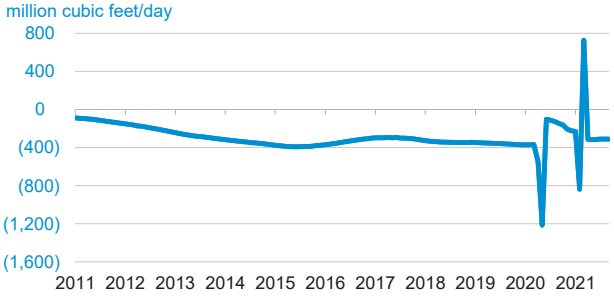
Eagle Ford Region
New-well gas production per rig



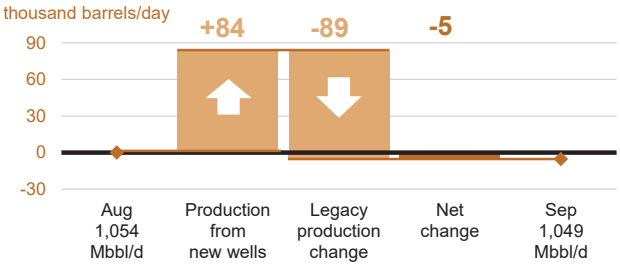
Eagle Ford Region
Legacy oil production change



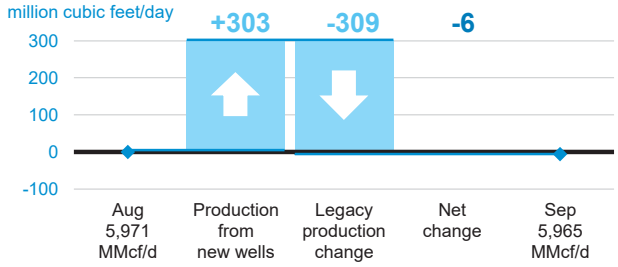
Eagle Ford Region
Legacy gas production change



Eagle Ford Region
Indicated change in oil production (Sep vs. Aug)

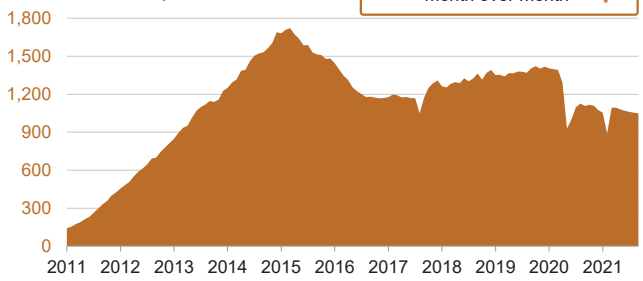


Eagle Ford Region
Indicated change in natural gas production (Sep vs. Aug)



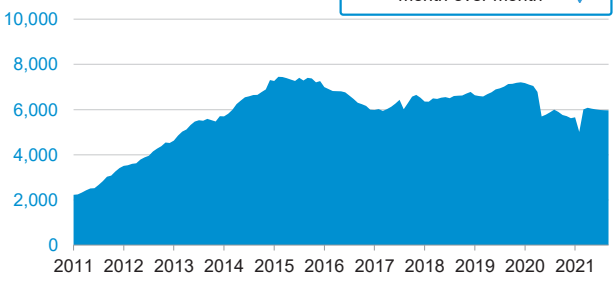
Eagle Ford Region
Oil production

Oil -5
thousand barrels/day
month over month



Eagle Ford Region
Natural gas production

Gas -6
million cubic feet/day
month over month



Haynesville Region

Drilling Productivity Report

August 2021

drilling data through July
projected production through September

Oil 0
barrels/day
month over month

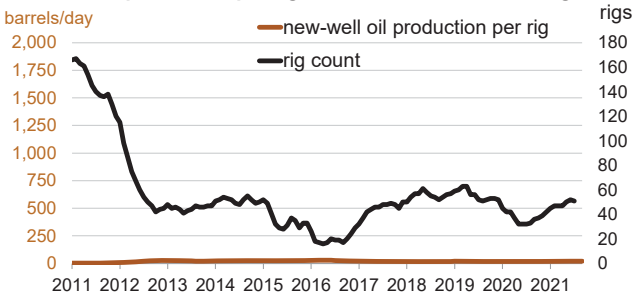
19 *September*
19 *August*
barrels/day

Monthly additions from one average rig

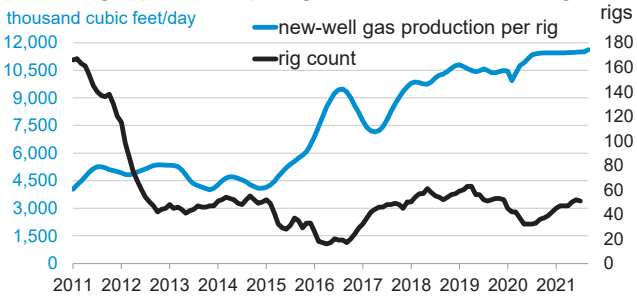
September **11,615**
August **11,500**
thousand cubic feet/day

Gas +115
thousand cubic feet/day
month over month

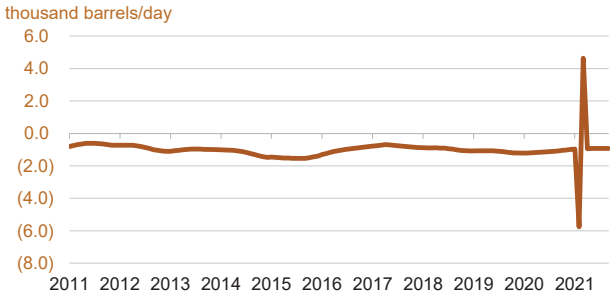
Haynesville Region
New-well oil production per rig



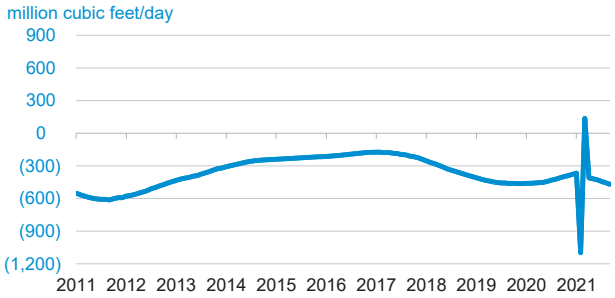
Haynesville Region
New-well gas production per rig



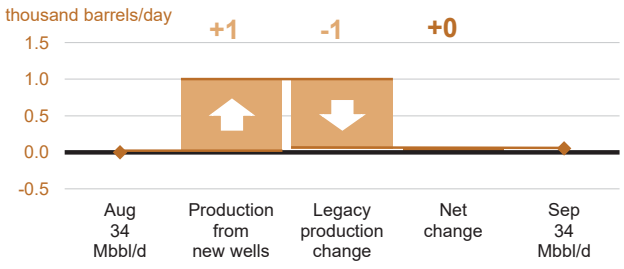
Haynesville Region
Legacy oil production change



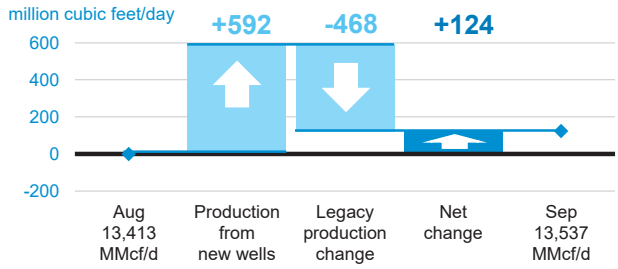
Haynesville Region
Legacy gas production change



Haynesville Region
Indicated change in oil production (Sep vs. Aug)

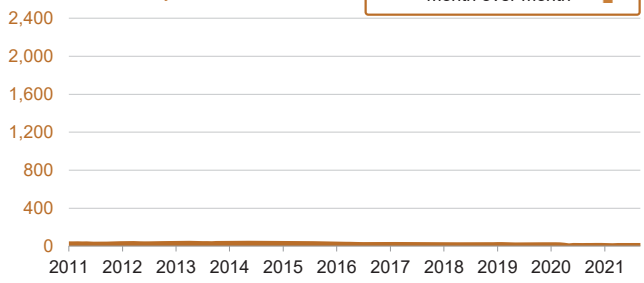


Haynesville Region
Indicated change in natural gas production (Sep vs. Aug)



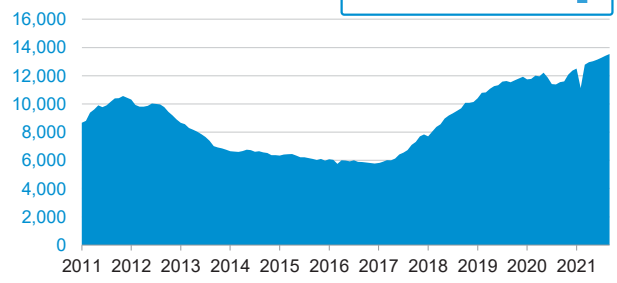
Haynesville Region
Oil production

Oil +0
thousand barrels/day
month over month



Haynesville Region
Natural gas production

Gas +124
million cubic feet/day
month over month



Niobrara Region
Drilling Productivity Report

August 2021
drilling data through July
projected production through September

Oil -17 barrels/day month over month

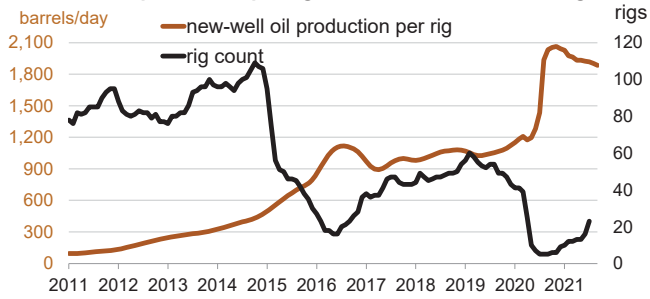
1,884 *September*
1,901 *August*
barrels/day

Monthly additions from one average rig

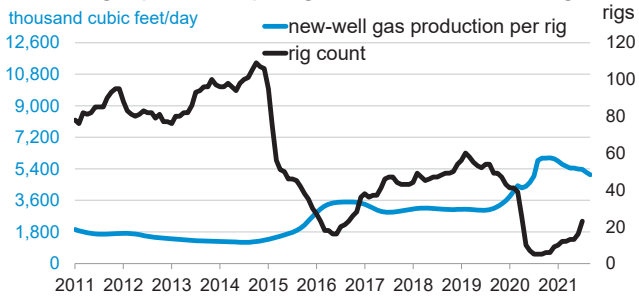
September **5,053**
August **5,209**
thousand cubic feet/day

Gas -156 thousand cubic feet/day month over month

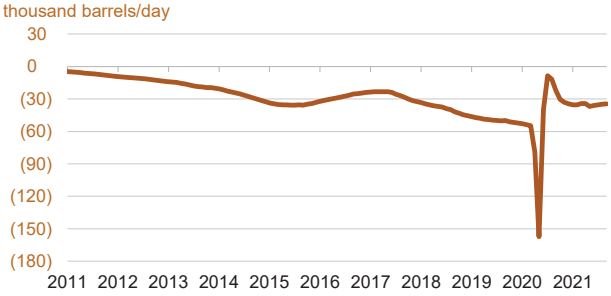
Niobrara Region
New-well oil production per rig



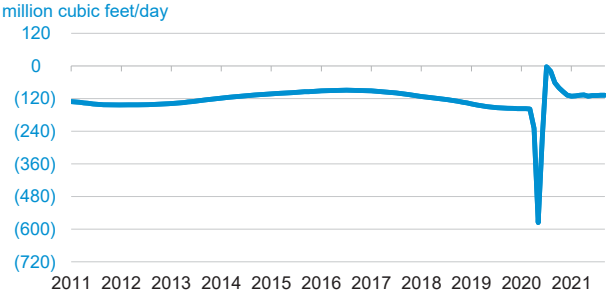
Niobrara Region
New-well gas production per rig



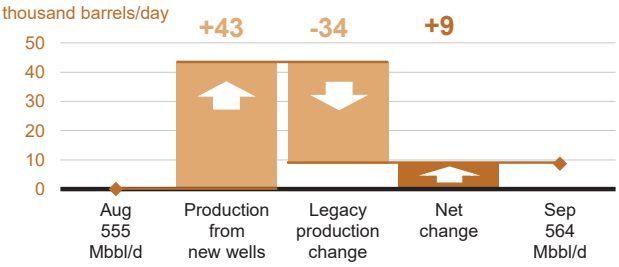
Niobrara Region
Legacy oil production change



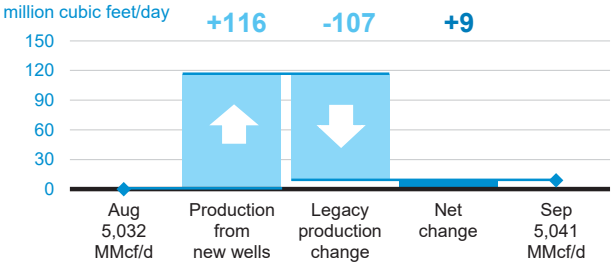
Niobrara Region
Legacy gas production change



Niobrara Region
Indicated change in oil production (Sep vs. Aug)

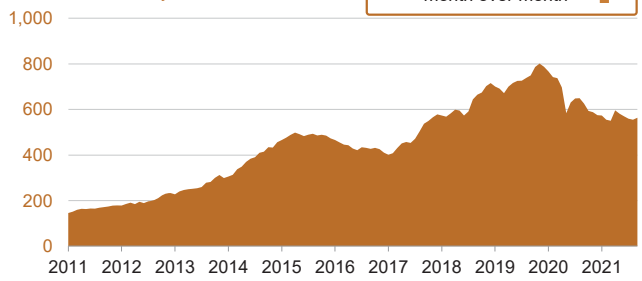


Niobrara Region
Indicated change in natural gas production (Sep vs. Aug)



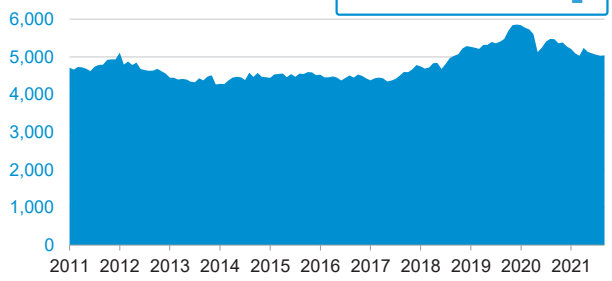
Niobrara Region
Oil production

Oil +9 thousand barrels/day month over month



Niobrara Region
Natural gas production

Gas +9 million cubic feet/day month over month



Permian Region
Drilling Productivity Report

August 2021

drilling data through July
projected production through September

Oil -5 barrels/day month over month

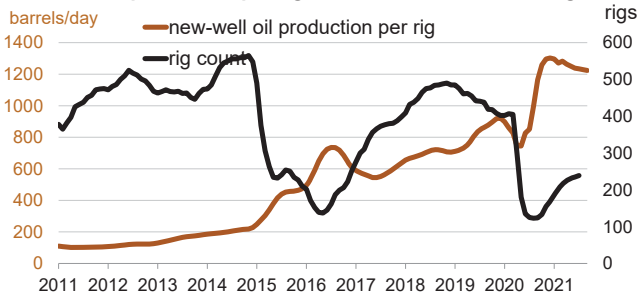
1,224 *September*
1,229 *August*
barrels/day

Monthly additions from one average rig

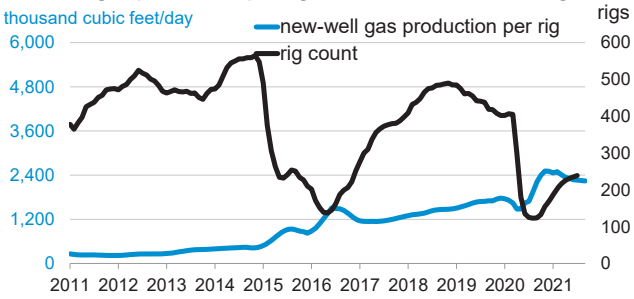
September **2,243**
August **2,254**
thousand cubic feet/day

Gas -11 thousand cubic feet/day month over month

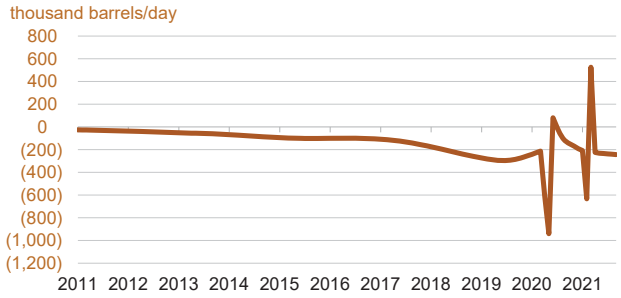
Permian Region
New-well oil production per rig



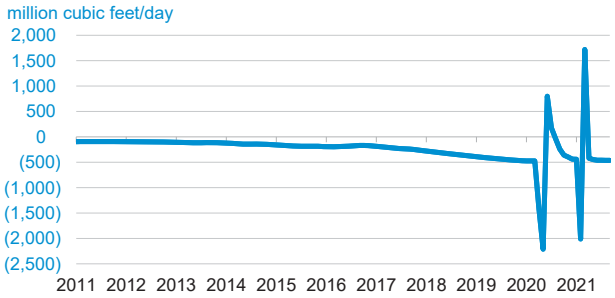
Permian Region
New-well gas production per rig



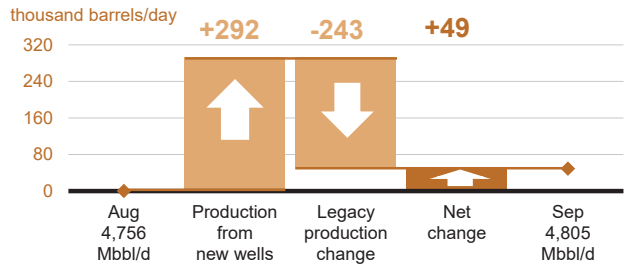
Permian Region
Legacy oil production change



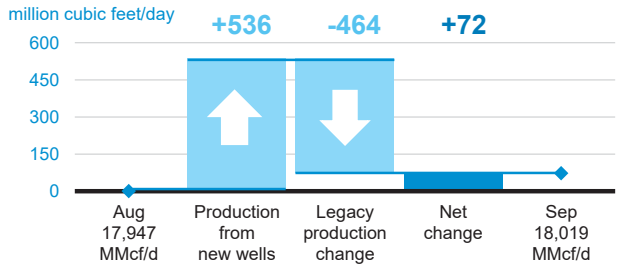
Permian Region
Legacy gas production change



Permian Region
Indicated change in oil production (Sep vs. Aug)

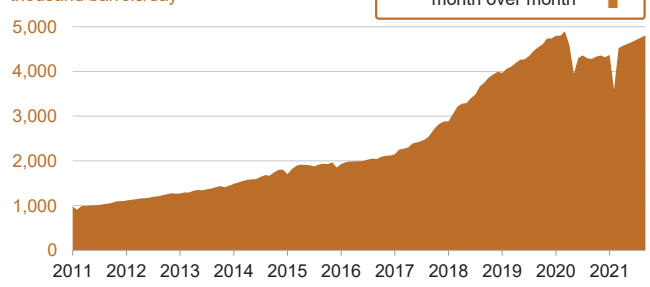


Permian Region
Indicated change in natural gas production (Sep vs. Aug)



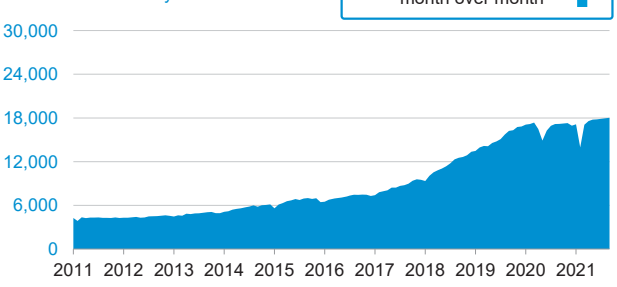
Permian Region
Oil production

Oil +49 thousand barrels/day month over month



Permian Region
Natural gas production

Gas +72 million cubic feet/day month over month



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 oil[1] and natural gas[2] 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's[3] 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

https://rbnenergy.com/back-to-zero-appalachias-dwindling-natural-gas-pipeline-takeaway-capacity

Back To Zero - Appalachia's Dwindling Natural Gas Pipeline Takeaway Capacity

Wednesday, 08/18/2021
Published by: Sheetal Nasta

Northeast natural gas production in 2021 to date has averaged 34 Bcf/d, up 1.4 Bcf/d year-on-year, and the higher gas price environment currently is signaling more upside to production in the years to come. At the same time, downstream feedgas demand from LNG export facilities is at a record high and also headed higher as more liquefaction capacity is set to come online in the coming months. So, despite lower-than-normal inventory levels in the Northeast, outflows from the Appalachian basin have soared to new highs this year, and utilization of outbound pipeline capacity is up to an average 90%, a level we haven't seen since the 2016-17 timeframe. Unlike 2016-17, when there was a slew of major pipeline projects to expand egress, now there are just two or three at most — and two of those are greenfield projects that face an uncertain future. As such, spare exit capacity is getting increasingly sparse, and Appalachian producers are bound to hit the capacity "wall" in the next two years. When will the Northeast run out of exit capacity and how bad could constraints get? Today, we provide highlights from our new Drill Down report, which brings together our latest analysis on Northeast gas takeaway capacity and flows.

In recent months, we have spent many a blog discussing the changing dynamics in the Northeast gas market, including production and pipeline flow trends (see the Flick of the Switch and Headed for Heartbreak blogs) and providing updates on key expansion projects vying to add egress out of the Appalachia basin (see the Slippin' and Slidin' blog on the Mountain Valley Pipeline project and Movin' On Up blog discussing the latest on the PennEast Pipeline). Given that the Northeast gas market is approaching another major inflection point, last month, we also launched a weekly report — the RBN NATGAS Appalachia — to track developments in real time and provide weekly updates on our fundamental and basis outlooks for the region. And today, we're launching our "Back to Zero" Drill Down report for Backstage Pass subscribers, which pulls together and updates our analysis on production, takeaway capacity and outflows from Appalachia, and how these components will evolve and impact regional prices in the coming years as production and downstream demand grow but supply takeaway capacity remains relatively stagnant.

Appalachian natural gas producers are no strangers to pipeline constraints, having dealt with them for the better part of a decade or more. The U.S. Northeast has been a year-round net gas supply region (i.e., a net exporter of gas to other U.S. regions and Canada) for only about six years, and it has been sending gas to other regions for longer than that on a seasonal basis. As such, the Northeast market's ability to balance is highly dependent on its ability to flow any surplus gas — after in-region demand and storage needs are met — to downstream markets in other regions. The region's production growth has faced a number of hurdles in recent years, including shrinking capital budgets, lower rig counts, a prolonged period of low prices and, last year, also pandemic-related demand destruction and the resulting price-driven shut-ins at the wellhead during the shoulder months. Nevertheless, Northeast supply has still managed to climb to new highs.

If we look at average year-to-date volumes (light blue lines in the graph), production has climbed more than 10% in the past two years, from 30.8 Bcf/d in 2019 and 32.6 Bcf/d in 2020 to a new high of 34 Bcf/d in 2021 to date, despite the stiff headwinds that producers faced in that period. In that time, demand has been flat to lower. In 2021 to date, it is averaging 18.6 Bcf/d, compared with 18.4 Bcf/d and 18.8 Bcf/d for the same period in 2020 and 2019. The result is that the supply-demand

gap has continued to widen and push increasing amounts of surplus gas out of the region. In addition to the supply push from the Northeast, Appalachian gas is also being pulled south by downstream demand from growing LNG exports along the Gulf Coast, where LNG feedgas deliveries to the terminals have hit record highs in 2021 (see Better Days), after recovering from COVID-related cargo cancellations last year.

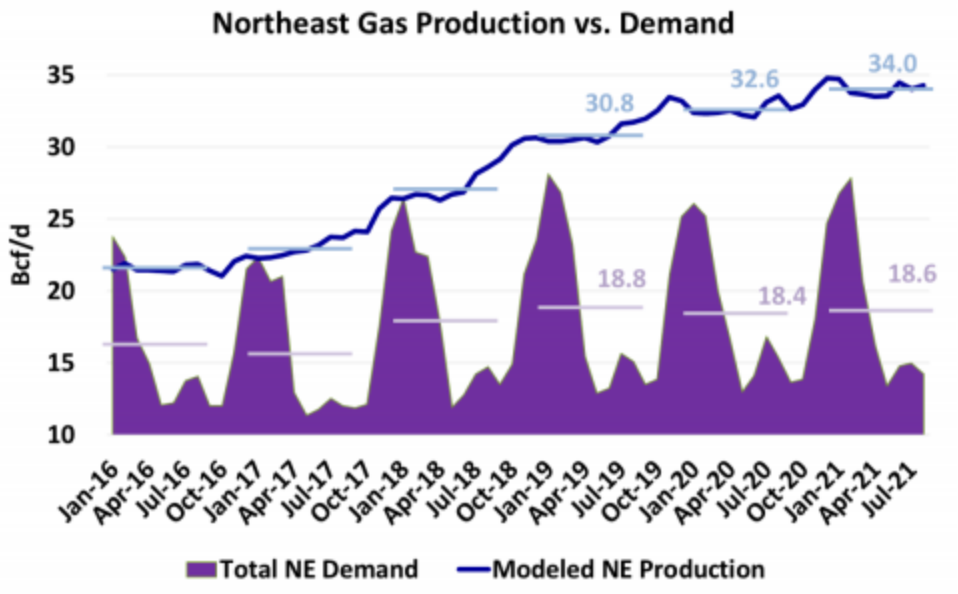


Figure 1. Northeast Supply-Demand Balance. Source: RBN

The supply-push and demand-pull from higher production and LNG exports has led to record Northeast outflows and high utilization of takeaway capacity out of Appalachia in 2021. Appalachia's outbound flows this year to date are averaging nearly 16 Bcf/d, or 87% of the total estimated exit capacity of 18.1 Bcf/d currently. That's almost 1.5 Bcf/d higher than the same period last year. In the injection season (the period between April and October when regional demand is lower and stocks are typically rebuilt), outflow estimates are even more impressive. Outflows peaked in May at a record 16.8 Bcf/d, up 2.4 Bcf/d year-on-year, and averaged 16.3 Bcf/d for the injection season to date, up 1.8 year-on-year.

Flows are higher in part due to incremental capacity additions in late 2020 from the completion of the Empire North project and the partial in-service of Transco's Leidy South Expansion project (See Headed For Heartbreak – Part 2 for the map). Texas Eastern Transmission's 30-inch segment (TETCO-30) was also operating at reduced pressure/capacity for much of 2020 but was restored to full service in December 2020, allowing more volumes to flow out of Northeast. The line's pressure was cut again this year through June and July but has since been restored as well. However, it is not just absolute volumes that are up. Utilization rates are up as well, with outflow volumes suggesting that the utilization of takeaway capacity is now more consistently at or above 90%, levels we have not seen since 2016-17. As Figure 2 illustrates, spare exit capacity from Appalachia (total capacity minus flows) has been on a downward trend since 2019 and is now dwindling.

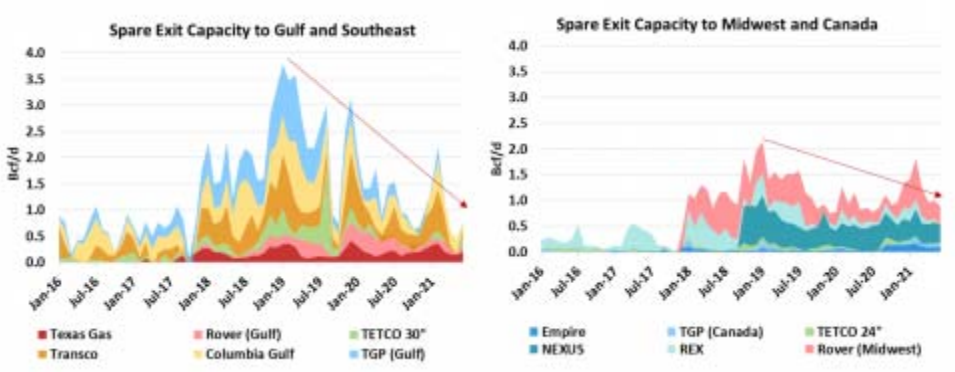


Figure 2. Spare Exit Capacity from Appalachia. Source: RBN

If we tally up the spare takeaway capacity across all four outbound pipeline corridors out of the Appalachia — to the Gulf, Southeast, Midwest and Canada — it aggregates to less than 2 Bcf/d of open capacity in 2021 to date. That's less than half of the nearly 4 Bcf/d of spare exit capacity in 2019 and is approaching the tighter levels seen pre-2018. In other words, Appalachian gas producers are in one sense right back to where they were before all that takeaway capacity was built in the past five years: facing the prospect of increasing takeaway constraints and weakening prices, with the potential for severe congestion and basis meltdowns in the spring and fall when Northeast demand is lowest and regional surplus peaks.

Prices at Eastern Gas South (EGS; formerly Dominion South), the representative Marcellus/Utica supply hub, is already reflecting the tighter egress. As the light purple line in Figure 3 shows, EGS cash basis (the difference between the absolute price at EGS and Henry Hub) was extremely weak through 2016 and 2017, averaging about minus $1/MMBtu and minus $0.80/MMBtu behind Henry in those years, respectively. In both years, basis also plummeted to as much as a $2/MMBtu discount to Henry (dashed red ovals) in the fall when storage was full, demand was low, and takeaway constraints were the worst. Things improved in 2018-19 as a slew of pipeline projects were completed, adding more outbound pipeline capacity and easing constraints (dashed green rectangle). However, as the right side of the graph shows, constraint-driven prices emerged again in 2020. Basis averaged minus $0.60/MMBtu last year and fell to a discount of as much as negative $1.49/MMBtu in November 2020. In 2021, even if we ignore the anomalies of the Deep Freeze in February that led to $1,000/MMBtu prices in parts of the country and steeper discounts in the Northeast (dashed blue oval), basis has continued to weaken and reflect a reversion to the levels seen in the 2016-17 timeframe in most months.

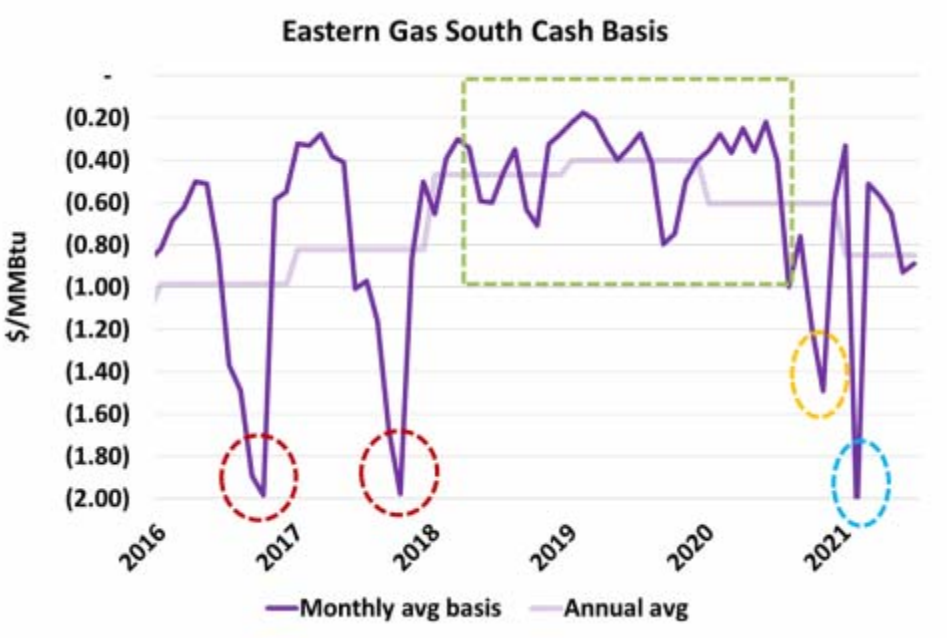


Figure 3. Eastern Gas South Cash Basis. Source: NGI

The big question now is, when will the Northeast run out of exit capacity and how bad could constraints get? Even as basis weakens, higher absolute prices are signaling more upside to production in the years to come. There is more downstream demand from LNG exports on the way in the coming months that will attract more supply to the Gulf Coast. Unlike in 2016-17, however, there are only a few expansion projects currently in development that could help alleviate constraints. Moreover, among those, there is great uncertainty regarding the timing of completion, or whether the projects will be completed at all.

Our newest Drill Down report brings together the latest analysis on Northeast production trends, gas takeaway capacity and flows to identify the challenges faced by regional producers and midstreamers and provide an outlook for how takeaway constraints and basis weakness could unfold in the coming years based on current assumptions. For more on the new Drill Down Report, click here.

"Back to Zero" was written by Mick Jagger, Keith Richards, and Chuck Leavell. The song appears as the second cut on side two of The Rolling Stones' 20th American studio album, *Dirty Work*. Jagger wrote the lyrics to the song, which is about his fear of a nuclear war. Personnel on the record were: Mick Jagger (lead, backing vocals, harmonica), Keith Richards (guitars, backing vocals, piano), Ronnie Wood (guitars, backing vocals), Bill Wyman (bass), Charlie Watts (drums), and Bobby Womack (guitars, backing vocals).

Dirty Work was recorded between April and August 1985 at Pathé Marconi in Paris, along with RPM and Right Track in New York City. Produced by Steve Lilywhite and The Glimmer Twins (Jagger and Richards), the album was released in March 1986. It went to #4 on the Billboard Top 200 Albums chart, and it has been certified Platinum by the Recording Industry Association of America. The LP was recorded at a time when all the members of the group were not getting along, and it was rare to see all five band members in the same room at the same time. Two singles were released from the album. It would be more than three years before The Stones released their next studio album, *Steel Wheels*.

The Rolling Stones are a British rock band formed in London in 1962 with Mick Jagger, Keith Richards, Brian Jones, Bill Wyman, and Charlie Watts. Eight members have passed through the

band since its formation. Brian Jones left the band and died in 1969. He was replaced by Mick Taylor, who left the band in 1974 to be replaced by Ronnie Wood. Bassist Bill Wyman retired from the band in 1993, and The Stones have used bassist Darryl Jones on tour and in many of their recordings since. They have released 30 studio albums, 33 live albums, 29 compilation albums, three EPs, and 121 singles. They have won one Billboard Music Award, four Grammy Awards, three MTV Video Music Awards, and one World Music Award. They are members of the Grammy Hall of Fame and the Rock and Roll Hall of Fame. The Rolling Stones continue to record and tour, and they will be resuming their *No Filter* tour in St. Louis in September. Drummer Steve Jordan will be filling in for Charlie Watts, while Watts recovers from an undisclosed surgical procedure. The tour has 13 dates and will conclude in Austin in November.

Executive summary

Natural gas demand is defying the market's signal to subside in the face of strong burns, massive LNG netback margins and spiking domestic prices. The demand strength is placing ever increasing pressure on the market. An extremely mild winter or further price action seem to be the only avenues of escape.

- After a mild July, **the heat returns** in August and with it comes market tightness. We expect only 150Bcf of total net injections this month, 64Bcf lower than a year earlier. On a weather-adjusted basis, supply is about 60Bcf tighter than the average August.
- Revisions to historical production levels prompted a **200MMcf/d increase in our forecast**. Industrial gas consumption is trending in-line with last years levels despite economic recovery.
- LNG feedgas demand is registering **slightly below expectations**, mainly due to weakness at Sabine Pass. This lower feedgas translates into lower LNG deliveries to Europe. A strange dynamic given the continent's gas shortages.
- Year-over-year, the higher price environment has shaved off only about **700MMcf/d of gas burn**. The decrease is muted for a number of reasons, which include: less overall coal capacity and weaker regional gas prices (when compared to national).
- U.S. gas exports to Mexico have been growing despite **stagnating overall consumption**. This has increased that nation's gas dependency on the U.S. to 80% from 61%. When gas consumption growth returns in Mexico, increased dependency on U.S. exports could become a major demand growth driver.

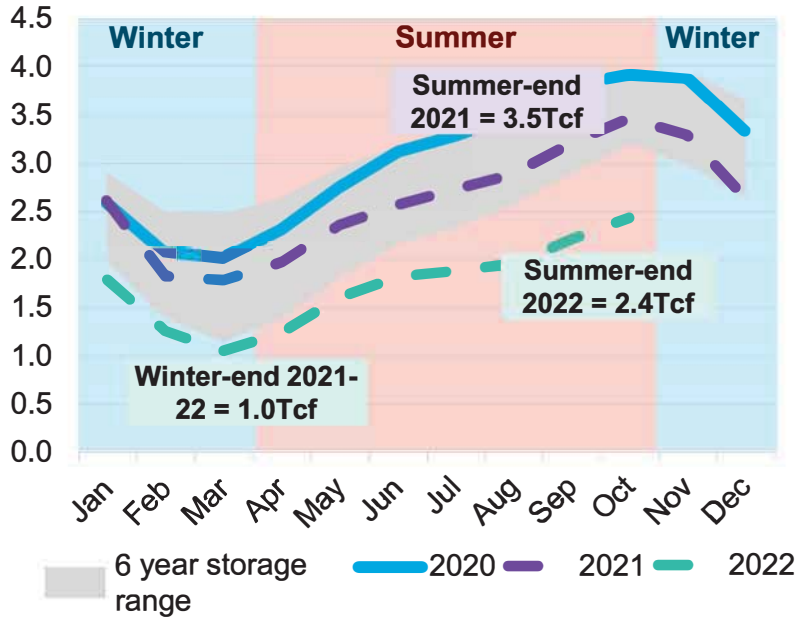
3.5Tcf Expected summer-end 2021 storage level

1.0Tcf Expected winter-end 2021-22 storage level

2.4Tcf Expected summer-end 2022 storage level

Natural gas inventory forecast, 2021-22

Trillion cubic feet

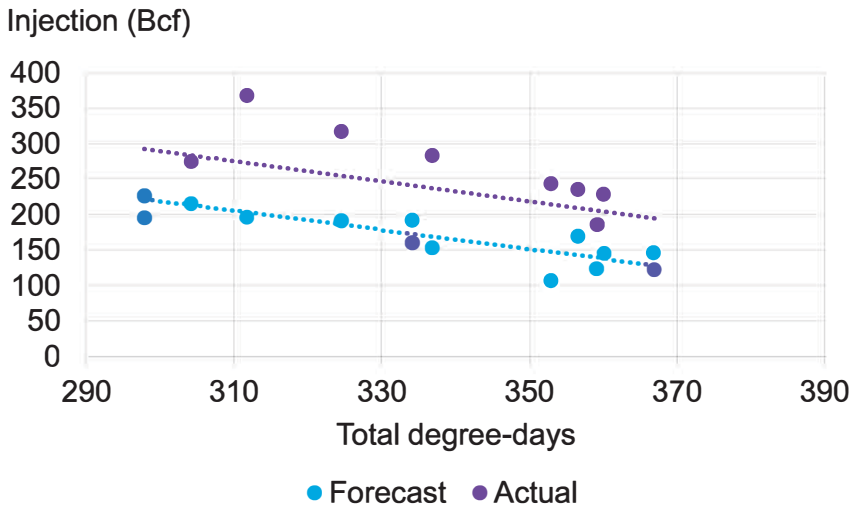


Source: BloombergNEF

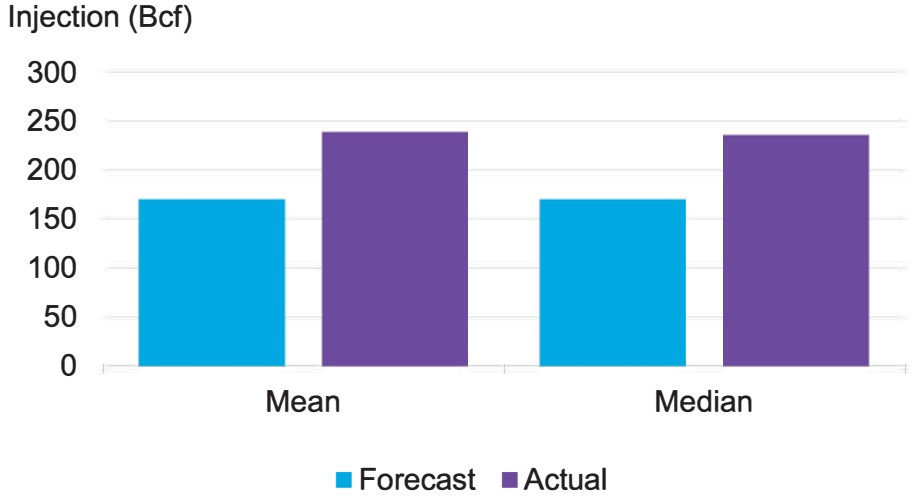
BloombergNEF

The market is about 60Bcf tighter in August than the historical mean

Weather-adjusted injection for August



Mean and median injections for August



How to interpret the charts: BNEF goes through a process to predict total storage injections/withdrawals for a month using weather from the same month in each of the past 10 years. For example, we calculate the total storage withdrawal for January 2021 if it had faced weather from January 2012. This allows us to compare the actual withdrawal in 2012 with that in 2021 using 2012 weather and removes the impact of weather on market conditions and outcomes.

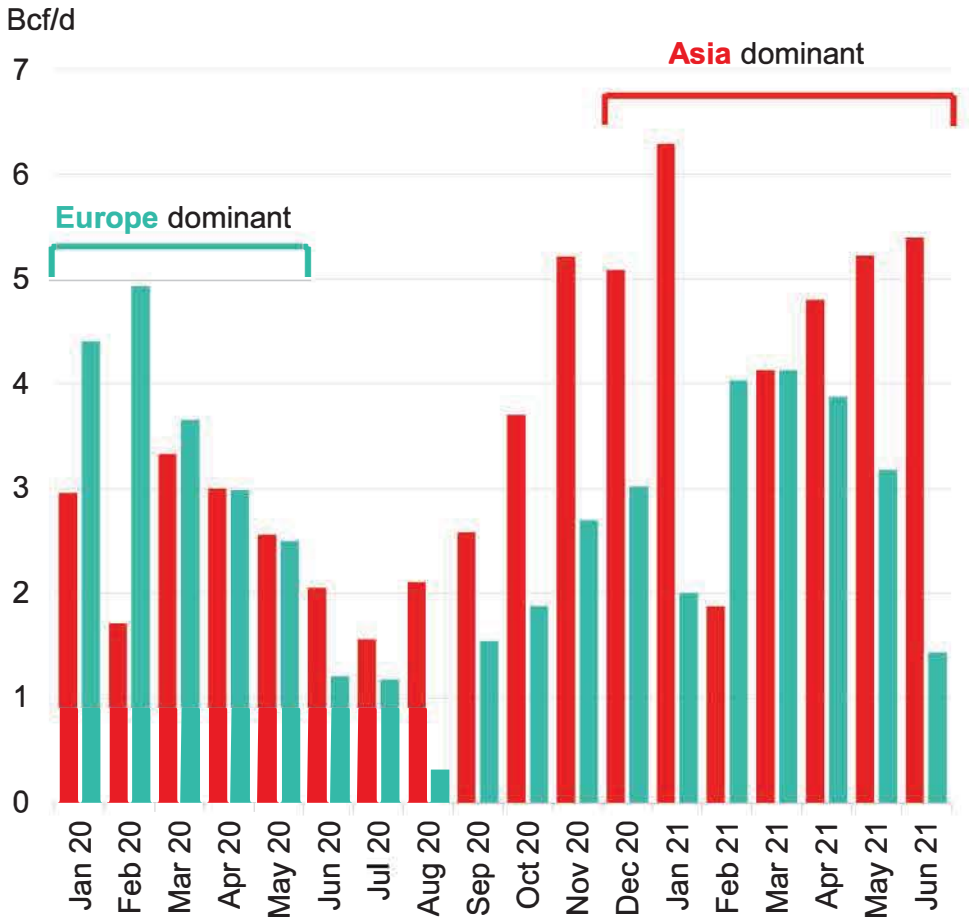
- August is about 50Bcf tighter-than-normal on a weather-adjusted basis. Eight of the 11 sampled years produced smaller injections using current market conditions than what was actually observed at that time. Furthermore, both the mean and the median of the forecasted injection are about 60Bcf below that of the average withdrawal in August.
- Weather-adjusted tightness is just another indication of the current market imbalance and the need for further price action.

Source: BloombergNEF, Weather Services International (WSI).

Sabine Pass feedgas is lower-than-expected

Explore the data: On-site LNG storage tickers

U.S. LNG exports by destination region

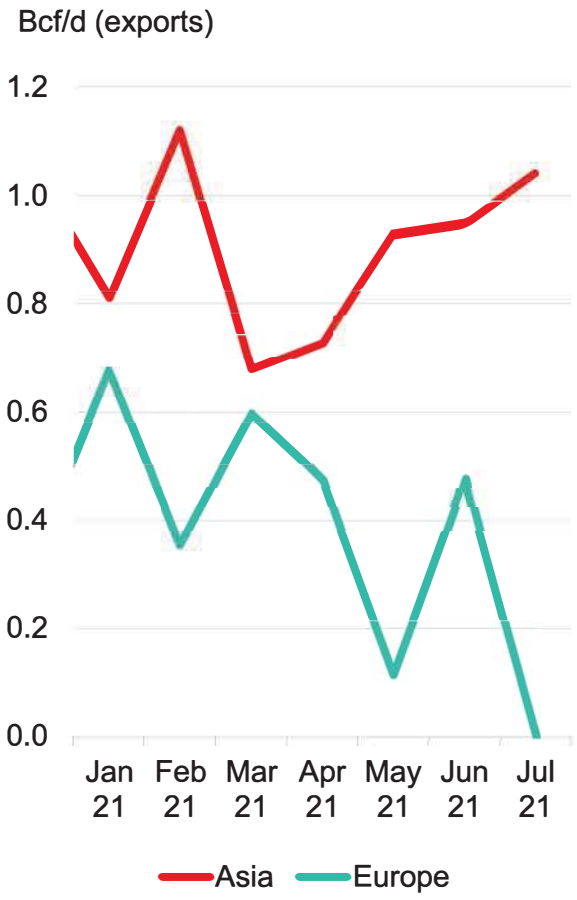


Source: BloombergNEF, AHOY JOURNEYS.

- Feedgas intake at Sabine has been disappointing of late, after running at its 5-train max of ~4.2Bcf/d consistently across April and 1H May. Cameron has also been slightly underwhelming.
- As shown by the charts on the next slide, this lower feedgas has translated into lower deliveries to Europe. While deliveries into Asia have grown over the same period, the facilities are still running at below-normal utilization for this time of year.
- Europe is short of gas. Storage is unusually low, Russian flows are down and there are planned maintenance events on upstream production assets. Every cargo is needed and the facility has room to produce more LNG. So the question is: why are they not consuming more feedgas?
- One explanation is a tight shipping market. Hot weather in Japan and Korea is driving demand (and deliveries from the U.S.) up, pushing JKM beyond $15/MMBtu. However, LNG tanker shipping rates are muted, implying adequate tanker availability.
- Other explanations include maintenance events/facility outages or optimization to take advantage of high domestic prices, but nothing has been confirmed.

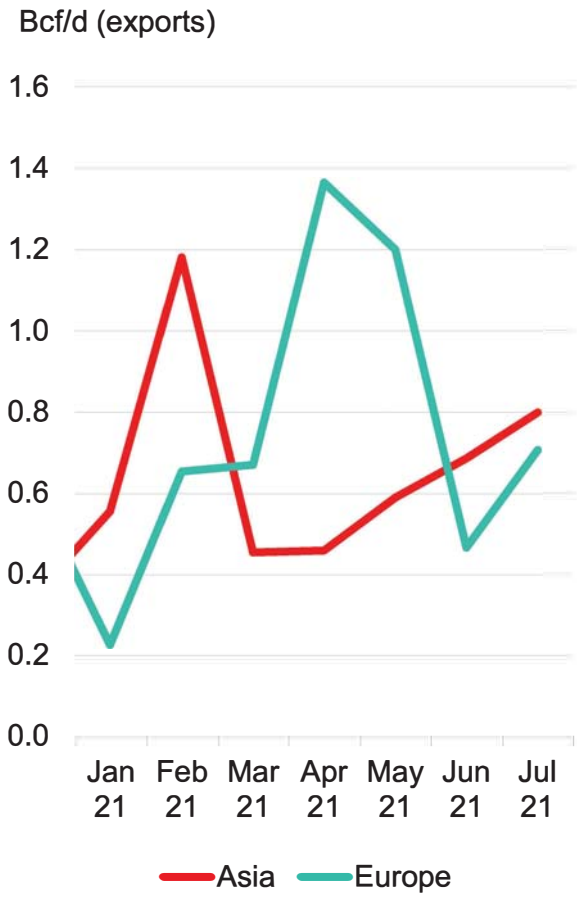
Sabine and Cameron deliveries to Europe have trended downward

Cameron LNG



Sabine Pass

Corpus Christi

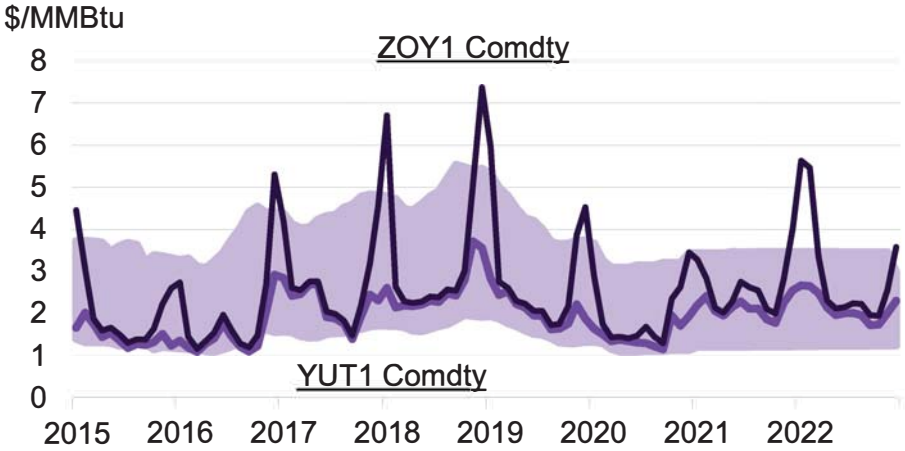


Source: BloombergNEF.

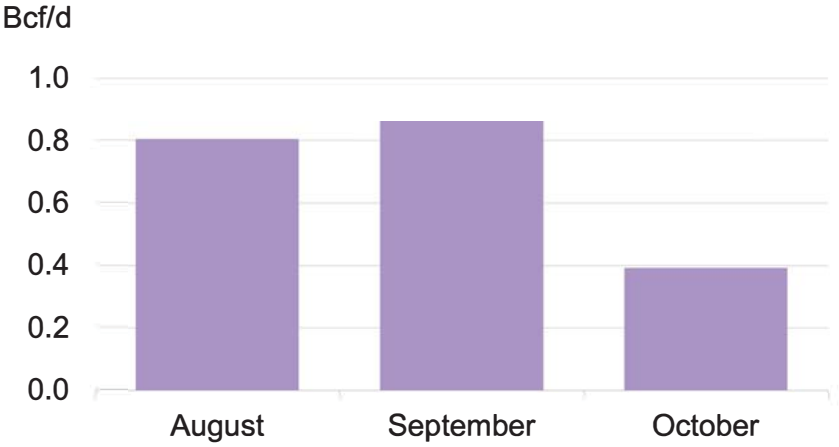
Prices shave off 700MMcf/d of weather-adjusted burns

Explore the data:
EIA 930 generation by source tickers

Coal-to-gas switching economics in the Northeast



Difference between power burns in summer 2020 and summer 2021 using 2020 weather

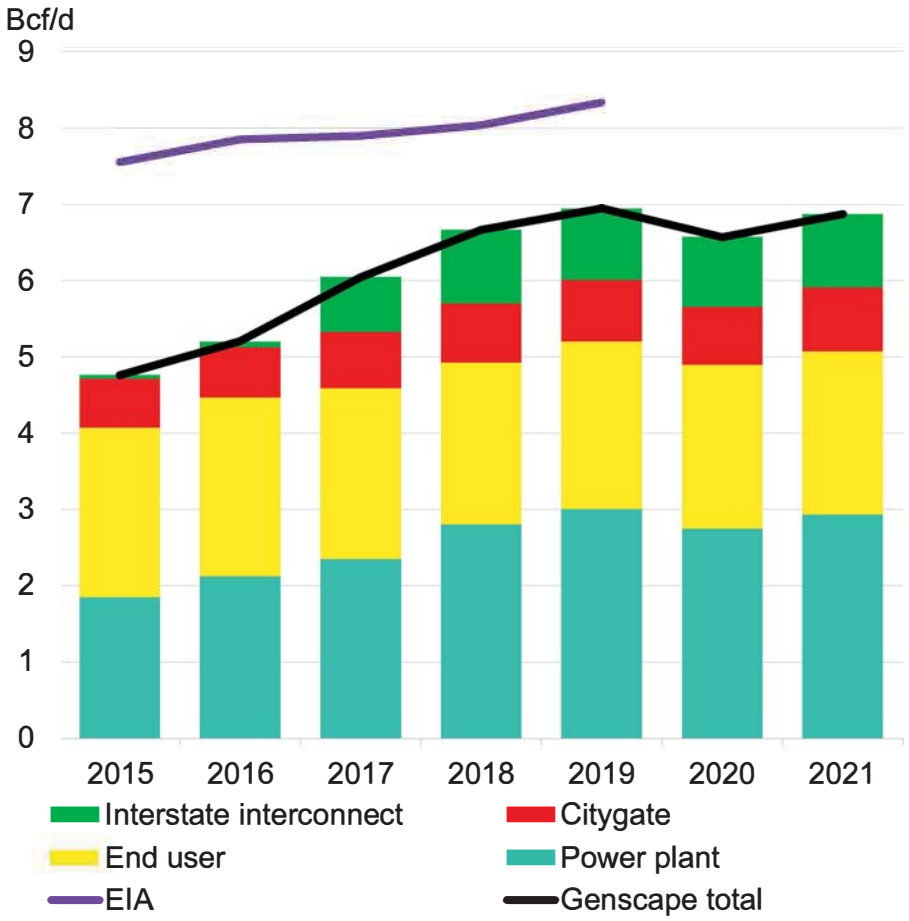


Source: BloombergNEF. Note: YUT is Dominion South and ZOY is TETCO M3.

- The current high price environment will shave 700MMcf/d of gas burn over the next three months, once adjusted for weather. This 700MMcf/d is the average difference between Aug-Oct burns in 2020 and for the same period in 2021 if it faces the same weather as in 2020.
- Gas burns have been quite resilient so far this summer. The fact that an over $2 price difference only produces 700MMcf/d lower burns is a testament to this.
- There are several factors at play that contribute to this resiliency, which include declining coal capacity to switch to. In fact, some regions such as California and New England have almost no coal generation available.
- Another important factor is the variance in regional prices. For example, in the northeast, which is one of the largest gas burning regions in the U.S., basis prices are still well within the coal-to-gas switching range this summer.

Mexican gas demand recovers after Covid-19 dip

Mexican gas demand by sector



Source: BloombergNEF, EIA.

- Average daily natural gas consumption in Mexico grew steadily over the period 2015-2019. In 2020 consumption fell by 5% according to pipeline nomination data. So far in 2021 that loss has been made up.
- Despite overall demand stagnating over 2019-2020, imports from the U.S. have not. In fact, Mexico has increased its natural gas dependence on the U.S. from 61% to 80% over the same time period.
- While natural gas exports to Mexico are growing, lack of reporting makes it difficult to discern what sectors are driving the growth. As of 2019, pipeline nominations gathered by Genscape represented 83% of the total natural gas consumption in Mexico compared to EIA figures. This is an improvement from 63% in 2015.
- Since 2015, power demand grew 1.1 Bcf/d and intrastate interconnects grew by 0.9 Bcf/d as projects like the Wahalajara system have come online.
- Next month, we will explore more granularity around the intrastate interconnects helping drive this growth in the Mexican natural gas sector.

Summer 2021 to finish at 3,461Bcf

U.S. L48 gas market supply-and-demand balance sheet

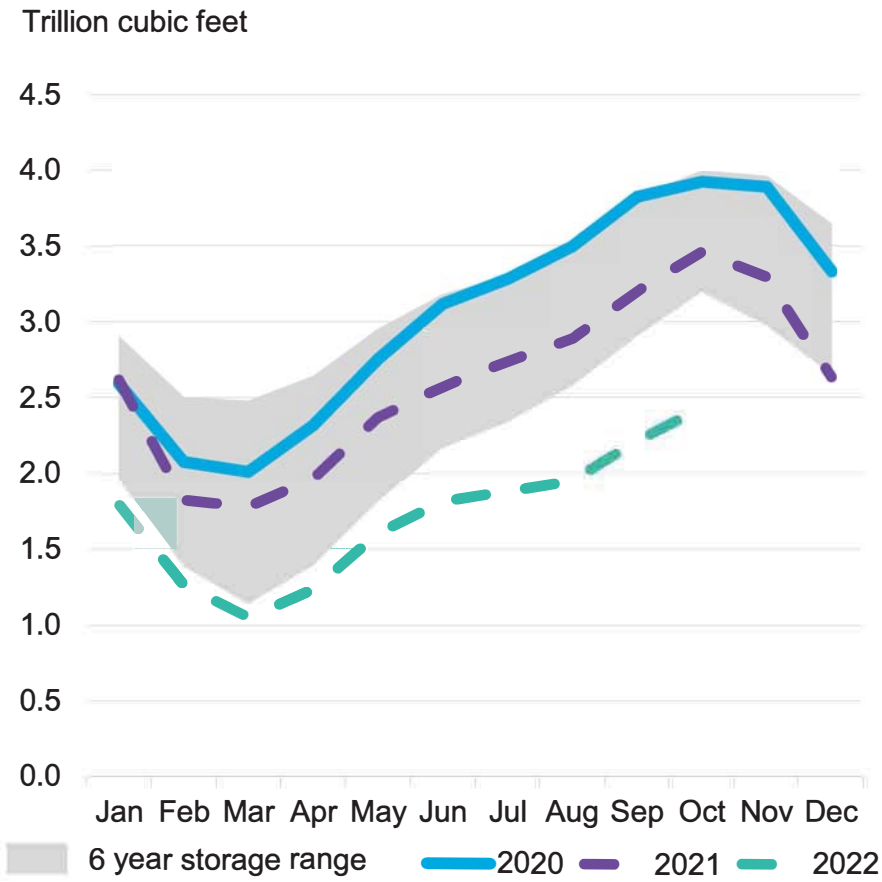
	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22
Dry production	92.2	92.7	92.8	92.2	91.9	92.6	92.9	93.2	93.4	93.7	93.9	93.9	94.3	94.6	94.8	95.0	95.0	95.1	95.2
Net imports from Canada	4.7	4.5	4.8	5.2	5.1	4.8	5.0	4.7	5.4	6.1	5.7	5.1	4.9	5.1	5.1	5.3	5.2	4.8	5.1
Total supply	**96.9**	**97.2**	**97.7**	**97.4**	**97.1**	**97.4**	**97.9**	**97.9**	**98.8**	**99.8**	**99.6**	**99.0**	**99.2**	**99.7**	**99.9**	**100.3**	**100.2**	**99.8**	**100.3**
Power consumption	24.9	26.7	35.3	39.4	39.1	33.9	29.0	25.9	27.0	27.1	24.0	24.1	24.3	27.6	34.5	39.9	39.7	34.6	29.4
Industrial consumption	21.2	20.3	20.8	19.8	19.9	19.6	22.3	24.2	25.5	25.5	24.8	23.4	22.3	21.9	22.1	22.4	22.2	21.8	22.9
Rescom consumption	19.7	13.2	8.8	8.3	8.1	8.9	14.3	27.6	40.6	46.8	42.6	31.1	19.8	11.8	8.8	7.9	7.8	8.5	14.3
Plant fuel	5.1	5.1	5.1	5.1	5.2	5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.5
Pipe losses	2.3	2.1	2.2	2.3	2.2	2.1	2.1	2.6	3.0	3.5	3.3	2.8	2.3	2.1	2.2	2.3	2.3	2.2	2.2
Exports to Mexico	6.5	6.6	7.2	6.9	6.9	7.0	6.9	6.9	6.7	6.8	6.3	6.7	6.8	6.8	7.1	7.0	7.0	7.0	7.0
LNG exports	11.1	10.5	9.9	10.5	10.7	10.2	9.7	10.9	11.9	12.3	12.2	12.3	12.0	12.2	12.8	13.4	13.4	11.4	12.0
Total demand	**90.9**	**84.3**	**89.2**	**92.3**	**92.2**	**86.9**	**89.6**	**103.5**	**120.0**	**127.2**	**118.6**	**105.7**	**92.9**	**87.8**	**92.9**	**98.3**	**97.8**	**91.0**	**93.3**
Balancing item	**-0.2**	**0.0**	**1.8**	**-0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Average daily storage change last year	10.2	14.0	12.1	5.3	6.9	10.8	3.3	-1.1	-18.0	-23.0	-28.3	-1.3	6.2	12.9	6.8	5.3	4.9	10.5	8.3
Average daily storage change	6.2	12.9	6.8	5.3	4.9	10.5	8.3	-5.5	-21.2	-27.5	-19.0	-6.8	6.3	11.9	7.0	2.0	2.4	8.8	7.0
Total monthly storage change	187	401	203	166	150	315	259	-166	-658	-851	-531	-209	190	369	211	63	73	263	217
Storage level (Bcf)	**1,968**	**2,369**	**2,572**	**2,737**	**2,888**	**3,202**	**3,461**	**3,295**	**2,637**	**1,785**	**1,254**		**1,234**	**1,603**	**1,814**	**1,877**	**1,950**	**2,213**	**2,430**

Source: BloombergNEF. Note: Based on forward curve as of August 6, 2021. Green indicates tightness, the market is either withdrawing more or injecting less than for the same month a year prior.

Resilient burns lower month-over-month inventory forecast

Read previous monthly:
U.S. Gas Monthly: Inventories Are Not Coming Home

Natural gas inventory forecast, 2021-22



Source: BloombergNEF

Prices and inventory estimates went in opposite directions over the past month. The front month year-ahead futures strip (NG1 COMDTY CCRV) increased by $0.43/MMBtu. Yet, end-of-season storage estimates shrank for each of the next three seasons.

Summer 2021

BNEF's **3,455Bcf** end-of-summer inventory view is **42Bcf** lower than last month's forecast. The deviance is mostly as a result of stronger-than-expected power burns.

Winter 2021-22

The winter-end estimate falls to **1,045Bcf** with gas use in the power sector again leading the month-on-month change.

Summer 2022

Next summer ends at a measly **2,430Bcf**, which is **210Bcf** lower than last month's report. Stronger production levels help negate forecast-on-forecast burns growth.

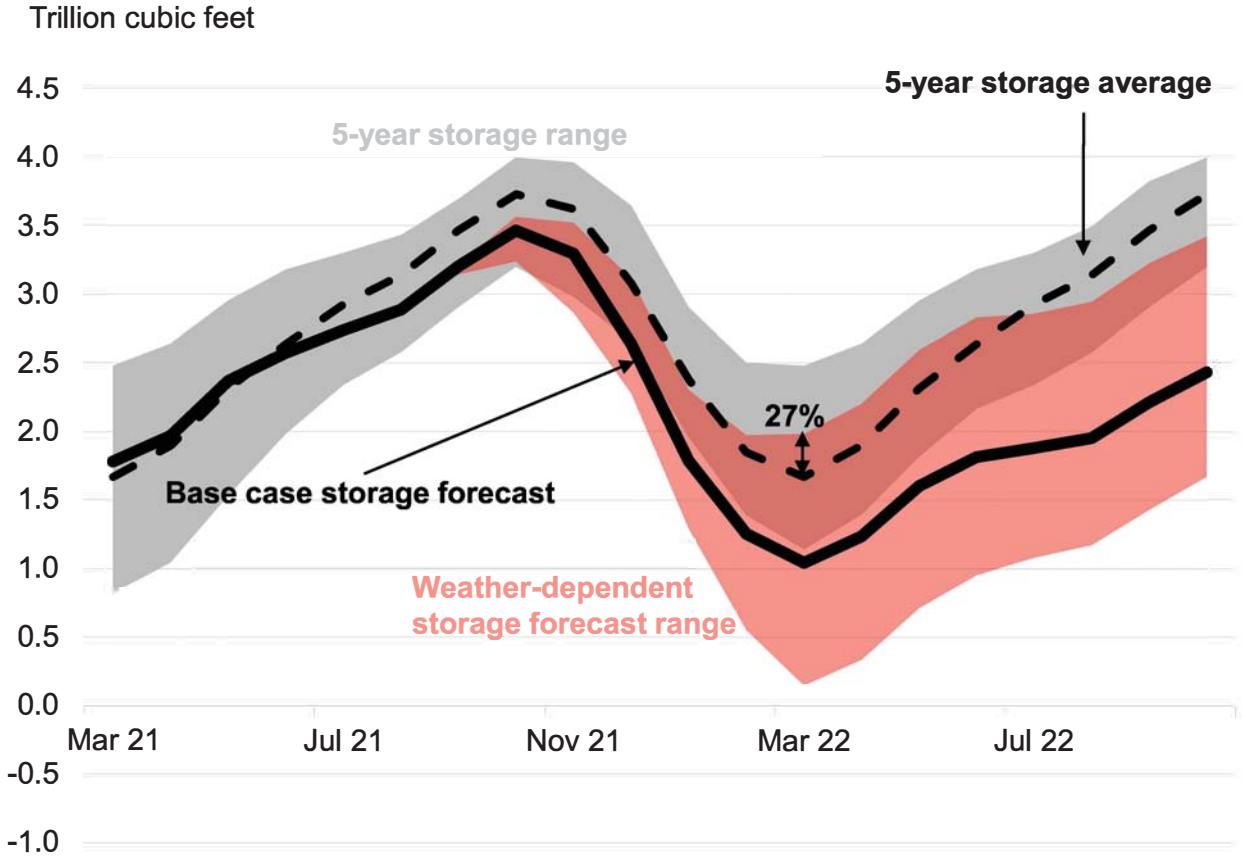
Year-on-year changes in major fundamental sectors

Sector	Summer 2021 (Bcf/d)	Winter 2021-22(Bcf/d)	Summer 2022 (Bcf/d)
Production	3.3	3.4	2.3
Power burns	-1.3	-1.2	0.3
ResCom	-0.1	0.7	-0.4
Industrial	-0.3	2.1	1.7
LNG	4.8	1.9	2.1

Storage will almost certainly finish below 5-year average levels

Read previous monthly:
U.S. Gas Monthly: Inventories Are Not Coming Home

Weather-dependent gas storage forecast range versus 5-year historical storage levels



- This chart compares the five-year historical storage range (gray) with the weather variability (red translucent) of the base-case storage forecast. Weather variability is calculated by running the storage model under weather scenarios from 2010-2020.
- The opportunity to end the season above 5-year average levels only applies to the upcoming winter. There is a 27% chance (three out of 11 years), where the weather is sufficient for storage to return to 5-year levels.
- The three mild winters that enable this dynamic are 2011, 2015 and 2016.

Source: BloombergNEF. Note: Weather modeling only varies Canadian imports, heating (ResCom) demand, industrial consumption and power burns. Other sectors are static.

https://www.argusmedia.com/en/news/2244592-peru-needs-more-gas-renewables-merino?amp=1

Peru needs more gas, renewables: Merino

Published date: 16 August 2021

Peru's new left-wing administration headed by President Pedro Castillo wants to restore the prominence of state-owned PetroPeru in the oil and natural gas sectors and expand renewable power. Energy minister Ivan Merino, a former social consultant, shared his vision with freelance correspondent Lucien Chauvin in Lima.

What is your vision for PetroPeru?

We are going to strengthen PetroPeru. This means restructuring it, because it has many limitations. We have to fix it first if we are going to improve it.

What do you mean by fixing it?

We need to make it more efficient. It has to be like any other company, with clear procedures, effective and efficient management. It needs to be agile and transparent. We believe in public companies and many of the major oil companies in the world are public. We want public companies that generate revenue for the state, not employment for the party in power.

President Castillo has talked about vertical integration of PetroPeru. Does this mean taking over production blocks?

We are in the process of gathering information to make informed decisions on our next steps. We need to evaluate our financial and human resources. We want PetroPeru to be a large strong company, but we need to have our priorities straight. We need to look at profitability sector by sector, including the (Talara) refinery, northern oil pipeline, production blocks and other divisions. This is what a private company would do.

The issue of production blocks goes to the heart of energy transition. Some major companies are already saying that they are moving away from oil. What is the case here?

I do not believe that the change in the energy matrix is around the corner. I think we need to see what happens with electric vehicles, for example, and advances in other areas. We are going to see major changes in the rest of this decade, but we cannot get ahead of ourselves. We can still talk about oil for now, but if you start thinking about 2050, then it is a different case altogether.

Natural gas has a bigger role than oil in Peru today, but new reserves have not been discovered for many years. What should be done about this?

The first thing is exploration. We need to explore to find reserves. This can be done by both the private and public sector. Part of the problem with declining production and failure to explore has to do with social conflicts, which is a product of inefficient state management and mistakes by private companies.

We need to guarantee that agreements that have been reached by the state or companies with communities are respected. Many agreements have been signed, but few have been implemented. This leads to resentment. We need clear rules, not favorable or unfavorable rules, to guarantee a stable operating climate that allows for exploration and production.

What about LNG exports?

Everything is on the table. The goal is to increase the use of gas in the country, and we want to make sure the population has access to gas at a reasonable price. We need to figure out how to get this done.

Is there a plan to promote more renewable energy to reduce gas use for power generation?

We have to stop using gas for power. This is obvious. We need to be more aggressive with renewables. We have solar capacity in the south of the country, and along the coast there is wind. Studies have shown that the southern highlands have strong geothermal potential.

The first geothermal law was approved in 1997, but there are no projects.
The government wants this, but first we need to figure out who would be in charge of it. We could create a specialized agency or possibly a new renewable energy division within PetroPeru like other private and public oil companies are doing.

We are not opposed to a public-private partnership or a different kind of long-term joint venture. There are many formats that can be used. What we want for the country is a basket of renewable resources that will provide energy security in the future.

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Bloomberg Transcript

A - Unidentified Speaker

See, it has been to the extent of 55% as far as the imported cash and 45% natural gas required. And I think back through domestic production. So, it has been the case in the previous year and similar trend is going on and in future. It may increase further, but right now this is the percentage.

And as far as the prospects are concerned. I'm just ensuring it that the consumption will continue to increase, because the requirement is much more than what is happening now and perhaps to the estimated, as high as almost --70 to 90 MMTPA 2030. So, it will gradually improve every year it is increasing. Last year it was 24 MMTPA import, this year it has increased to almost 26 MMTPA. So, it is increasing. But, as far as the consumption growth is concerned in future years, perhaps it will be more led by city gas distribution projects, which are coming up in a big way and that's in next five years. There will be, there is in place and perhaps then it will further entry.

So, we find that growth is immense and it will continue in future. And there is absolutely right feature for Petronet LNG in future.

Q - Unidentified Participant

Okay. And the second, as we have nearly like INR41 billion CapEx plan of the hedge plant and another investment INR120 billion. The investment in LNG drilling compressed --so which would be the, like a huge CapEx as of now. So is it for the internal accrual or through the deck?

A - Unidentified Speaker

I mean, you're talking more what we want billion in?

Q - Unidentified Participant

CapEx for the Dahej plant, right?

A - Unidentified Speaker

For the Dahej plant it is mentioned, as well as this tanks, which are coming up. Total CapEx is around INR1240 crores in tanks and perhaps INR1700 crores in jetty, third jetty, which we are bringing. Then more and more. This expansion will be there from 17.5 MMTPA to almost 22 MMTPA

By MMTPA. So, another say INR1000 crore of EBITDA, so, likewise, is the future CapEx plan.

Q - Unidentified Participant

Okay. So, like what would be the total can you to the same on a calendar year-end. 1200?

A - Unidentified Speaker

1217, INR2900 crores, then you can add up to that almost INR1000. It will be --4,000 crores for the year.

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Q - Unidentified Participant

Sure. Understood, understood.

A - Unidentified Speaker

[ph]Acceleration I think INR41 billion.

Operator

Sorry to inform you join back the queue.

Q - Unidentified Participant

Okay. Okay. No worries than now.

Operator

Thank you. (Operator Instructions). The next question is from the line of Puneet from HSBC. Please go ahead.

Q - Puneet Gulati {BIO 16658749 <GO>}

Yeah, thanks for the opportunity. Can you dwell a bit upon what led to Q-on-Q fallen long-term gas volumes and how do you see both long and sport in the current quarter of high LNG prices?

A - Unidentified Speaker

You are asking about Q1, a long-term volume? Just repeat your question?

Q - Puneet Gulati {BIO 16658749 <GO>}

So, I'm asking in the current Q1, it was the Q-on-Q, there was a Q-on-Q drop in long-term volumes, can you shed some light on what result what drove that. And secondly, what are you experiencing in terms of spot volumes in the current high price LNG market?

A - Unidentified Speaker

Yeah. If you look at the kind of quarter it has been April and May has been marked by this pandemic. So, in April, there was a little bit less consumption. But, after that lifting of this. I think this lock-down the other thing, it has come up again, it has revised and now if, you look at overall volume, as compared to Q1 versus Q1. It has increased only. But, if you compare with the previous quarter, then certainly it has gone down maybe two, three cargo or less. So that is the only impact, it has been there, but has the pandemic not been there, we would have performed even better.

Bloomberg Transcript

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Q - Puneet Gulati {BIO 16658749 <GO>}

And on the spot side side?Spot side actually, spot trade is very high $16.45 today. So at this rate, the consumption is very less in India. And as there is a reason not many spot cargoes are being bought by India and perhaps we are hopeful that in future. It will come down, because long-term volume is now cheaper as compared to spot-gas. So people are more attracted to long-term gas then spot-gas, to additional volumes, which used to come, because of low price of LNG that is not coming in, it's big way, but perhaps in future. We hope that the whenever the price will come down

A - Unidentified Speaker

Then certainly this will further increase. But, this will not remain at this level for a long time. This is our perception and our confidence that this will not have been for a long time, it will come down. Because, this is not sustainable price.

Q - Puneet Gulati {BIO 16658749 <GO>}

Understood. My second is on the CapEx part, if you can comment on how much you spent in quarter one. And what is the progress on CBG and other transportation-linked clients, that's all from my side? Thank you.

A - Unidentified Speaker

CBG Plant I'm telling, CapEx Q1 is not much, because, we have started work and tank job is being awarded. So, it has been tendered and now is in the process of being awarded, but perhaps it will come in this year. Not right now in Q1. That is not very big CapEx has been made. But, CBG plant as you are asking. That is basically is still, we are looking for land and perhaps initially will go for four, five plants early. See the visibility, how the availability of material is there and whether it would be sustainable or not. So, all these things are to be seen, before putting of them this CBG plant, and it will not come in one go. It will, as I'm saying, if there is a lot of factors which are basically deciding whether to put up a plant at place or not, because the availability of feeder stock, which is very important. Likewise, it is available in Haryana and Punjab. So, we are looking forward to have some plants in Haryana and also in Punjab, because lot of --any cases out there to buy that can be utilized in CBGplant.

So, we have to see the feasibility of feeder stock also and also the availability of pipeline nearby, because ultimately it has to be evacuated through the pipeline, which is nearby of local GA's whosoever is owning it. So it is like that, and only thing which is guaranteed by the government is INR46 per kg has been assured by government that as will be bought by CGD companies or overseas.

So it's a new area. So, we are also going not in a big way. Initially we are putting a four, five plant and if something is good and if, we find that this is really profitable will go ahead, so it's not something which is heading in a day, all the plants will come in a day, we have --feasibility at each and every field.

Q - Puneet Gulati {BIO 16658749 <GO>}

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Yeah, sir, one more question if I may. With respect to the volumes as you obviously mentioned that COVID had an impact on April, May, long-term gas volume offtake this quarter. So, looking ahead for the next three quarters. Even, if we assume normalized run rate. Getting back to the 100 and maybe 110 TBTU, is it fair to assume that whatever losses happened in Q1, may sort of remain in place. May not be made up completely for within the rest of the year given the environment that we are seeing?

A - Unidentified Speaker

But, we may. We will try to make up this loss of volume in this quarter and perhaps. Second quarter should be good, because it is going good, and we are having good throughput in the plants, but we will try to make up all those losses. But it's still. If you look at the comparison of the Q1 of previous year. It is still better, but we could have done even better at this kind of not been there. But anyway, but we are also better than Q1 of the previous year. So, will try to make up in the subsequent part of the year to make up all the loss of volume.

Q - Probal Sen {BIO 16341024 <GO>}

Thank you, sir. I'll come back, if I may.

A - Unidentified Speaker

Price of this LNG is spoiler.

Q - Probal Sen {BIO 16341024 <GO>}

For the spot you mean on spot and the gas?

A - Unidentified Speaker

Has been at a moderate level is to $7, we could have expected more spot cargoes also, which is not happening. It is additional --actually through the long-term Marketing.

Q - Probal Sen {BIO 16341024 <GO>}

Thank you so much for the detailed answer, sir. I'll come back. If I more questions, thank you.

Operator

Thank you very much. The next question is from the line of Abdul Sabnis from --Capital. Please go ahead.

Q - Unidentified Participant

Am I audible?

Operator

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And Gorgon volumes in Dahej?

A - Unidentified Speaker

Gorgon volumes in Dahej INR--.

Q - Unidentified Participant

Okay, sir. Thank you so much.

Operator

Thank you very much. The next question is from the line of. And I can from J.P Morgan. Please go ahead.

Q - Unidentified Participant

Sir, thank you very much sir. My first question is just your company, your views and your company's views on if spot prices do not materially pulled back from where they are at least for the next six months or sort of the peak demand is there, is it fair to say that the spot demand for LNG in India, would collapse from what we are seeing in the last two to three years. And would that impact Petronet LNG more or should that impact some of the other terminals in the region. Given that there are more spot-ended?

A - Unidentified Speaker

So, we will not be much impacted, but as I have already said that this I think on the cake. More and more volume come then our profitability increases that will not happen only thing is that long-term volumes, which are coming up is already assured, we have a booked capacity to the extent of almost 16.5 MMTPA. So, that is assured to the extent that whatever volume, we are importing from or from the Gorgon apart capacity. We think that will continue and perhaps the only thing that we could have done both at this size has been lower that may not come in that business, but of course it will continue, we will not be much impacted as others be.

Q - Unidentified Participant

Understood, sir. And sir. My second question is going back to the CapEx, you are not, you said that next year, you, the company expects to place more orders related to the Dahej expansion. Do you see the company placing orders next year for the project. Other than the Dahej, the East Coast terminal or the LNG LPG stations would, there would be order placement start next year on those.

So, as well?

A - Unidentified Speaker

See, is like that that project is already there East coast terminals, we have plan, but so far it has not is the stage, where we can start doing the activities perhaps make by next year it will be more clear. We are in the process of signing the agreement and perhaps thereafter

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Q - Amit Rustagi {BIO 16130113 <GO>}

Okay, sir. Even finally taking as much gas as they used to take?

A - Unidentified Speaker

Yeah, taking areas. Absolutely.

Q - Amit Rustagi {BIO 16130113 <GO>}

Okay, got it. Thank you, sir. Thank you.

Operator

Thank you. The next question is from the line of Vidyadhar from ICICI Securities, please go ahead.

Q - Vidyadhar {BIO 3592436 <GO>}

Thank you. Good afternoon. My first question was regarding so, currently in July-August, the while the pandemic has eased spot LNG prices have gone up. So, how are volumes doing, you seem to suggest that they have improved, if you compared to the previous quarter and maybe compared to even June and you in this context, you did mention on number of 16.5 million tonnes, because you are confirmed volumes are only 15.75 tonnes, is this balance some short-term contract, which is confirm one?

A - Unidentified Speaker

Yeah. Short term contract is there. So that is to the extent of 0.75 MMTPA. So, that's why we are saying 16.5, for the two years at least this volume is committed. So that is there. But, apart from that, what you are asking that from Q1, how it could be in Q2, who has been very promising. So far, because you know we have long-term contract. And people are now more interested in long-term contract, the pricing there is very low, as compared to spot-gas.

So it is in high demand. So almost $9 -- as compared to $16.45 spot-LNG. So, what I'm saying that our long-term demand and this capacity is continue to be used as and but has the throughput has been to the extent of almost 100% in the month of July. Maybe 90% to 95%, if you take there this but in some of the day it is even more than 100%.

So, what I want to say that long-term volume is in high demand, --gas, which is already committed to long-term contract. And whatever is by I don't offtakers and if they have some long-term contract, they're are also bringing their volumes to India. A GAIL has got a good opportunity to bring --here so, because that is cheaper than spot LNG as of now, what I'm saying that --. This is good for us that this longer one. It will continue to come and a our utilization will continue to be high. In second quarter.

Q - Vidyadhar {BIO 3592436 <GO>}

LNG station is there that you would take. --?

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Q - S Ramesh {BIO 15394926 <GO>}

Good afternoon and thank you very much. First question is, can you give us some breakup of the uptick of LNG from the Kochi terminal (inaudible) run about 1.25 million tons of (inaudible) breakup presumably.

A - Unidentified Speaker

Can you repeat. We are not able to hear you properly, repeat your question.

Q - S Ramesh {BIO 15394926 <GO>}

Hello, can you hear me now?

A - Unidentified Speaker

Yeah. Now it is clear.

Q - S Ramesh {BIO 15394926 <GO>}

Yeah. So can you give us a breakup because the Mangalore pipeline has already started taking so in the first quarter whatever run rate you are doing at 15 PBT and mainly breakup of Mangalore fertilizer MRPL for our other customers in Kerala. Can you give us a broad breakup in terms of the e-customer.

A - Unidentified Speaker

This is required because we have given 15 PBTU as we processed through that pipeline and perhaps it is further increasing in future. But we have already planned it will be in the range of almost 1.5 MMS CMD. So it is like that only and perhaps in future it may increase. But right now, it is in this range only.

Q - S Ramesh {BIO 15394926 <GO>}

No sir, trying to get a sense in terms of whether Bopal and MRPL also start, has started drawing the gas.

A - Unidentified Speaker

MRPL all 3 of them. MRPL, ORPL and as I mentioned the by 1.5, 1.6 MMSCMD will come mostly. This is likely to go up as well, more, more (inaudible) as dig it use more that of course [ph]7 pipeline (inaudible) the long end of

With occupancy in line and the demand and clinical instinct will go in.

Q - Unidentified Participant

Okay. Now coming back to the gas demand and supply, so you're saying that you're unlikely to be impacted by the spot prices going up, but how does the increase in the domestic gas supply from KG gas, impact no substitution of imported gas and thereby. What is the impact on your LNG import business?

INITIAL DRAFT

A - Unidentified Speaker

No, sir. I have already reiterated time and again that it is a long-term contract. So, it has to be there, because the clauses. Are there, take or pay, user pay. So, we are assured of the business, only thing is that whatever additional volume could have come through, is spot-gas that may not come, but otherwise our business will continue to grow like it is there.

Q - Unidentified Participant

And sir, thank you very much, I'll join.

A - Unidentified Speaker

There is any short in the this volume of the long-term gas coming to India and then sort of domestic the let's say is in any of the content. And then even --some part of it and domestic will affect in the short term. The spot LNG, perhaps that may be the case, but long-term LNG is already in high demand. It is going on and perhaps this will not be reduced only thing that it may impact the short term. And spot volume to some extent, but it is only short run, because is highly 17 MMSCMD has been the gas, it has come up in the domestic sector. Additionally.So that.

A - Vinod Kumar Mishra {BIO 16513268 <GO>}

We will. Let's say like the have service CLL and secured long-term as well as the profit to be. Meanwhile, other terminals without naming them. I wouldn't say they may CapEx because the mainly working on merchant side of things but PLL, will not be affected. Number one, that anything there.

Number two, and I think I am reiterating the them demand in Power sector is extremely price sensitive and that is getting a better to prices been at the last year level up $3, $4, this would have been, I think on the, and additional demand. Okay. So, that demand is only a sector, you see refinery, fertilizer, CGD, everything has bounce back and I think --I would say better than the normal level. You may begin. Are rebalancing. They have inventory and all that, everything bounce back, except going forward PLL and business is going to be better and better. When will. To clarify?

Q - Unidentified Participant

Yes, sir.

Operator

And the next question is from the line of what Dheeraj from Antique Stock Broking Go ahead.

Q - Unidentified Participant

Thank you for the opportunity. So, I wanted to understand this loading base essentially, it's not as if you only. So this year four, five stations in initially, there'll be others will be putting up similarly like testing the waters four, five stations in each. So, how many you

Bloomberg Transcript

https://www.thehindubusinessline.com/companies/lngs-share-of-indian-gas-demand-to-rise-to-70-by-2030-petronet-ceo/article34845886.ece

LNG's share of Indian gas demand to rise to 70% by 2030: Petronet CEO

Reuters NEW DELHI | Updated on June 18, 2021

Replacing about 30% of the country's crude oil imports with LNG would save $10 billion at current global oil price of $74/barrel, he said

The share of liquefied natural gas (LNG) in India's gas consumption could rise to 70% from the current 50% in 10 years, and new import terminals are needed, the chief executive of the country's top gas importer said.

Prime Minister Narendra Modi has set a target to raise the share of natural gas in the country's energy mix to 15% by 2030 from the current 6.3% to cut its carbon footprint.

To meet that target India's gas consumption needs to rise to 640 million standard cubic metres a day (mmscmd) from the current 155 mmscmd, AK Singh, chief executive of Petronet LNG, said at ET Energy Leadership summit.

Huge invesments by Indian cos

Indian companies are investing billions of dollars to strengthen gas infrastructure, including laying 15,000-kilometer pipelines to supply cleaner fuel to households and industries. India currently has 17,000 kms of gas pipeline network.

Also, LNG projects of 19 million tonnes per annum (mtpa) capacity are under construction and plans are afoot to increase use of LNG in trucks and buses.

"With limited increase in domestic gas supply LNG will play a major role in catering to this incremental demand and share of LNG in natural gas consumption is likely to increase from the present 55% to 70% in coming 9-10 years," Singh said.

Petronet operates two LNG terminals in India accounting for about 53% of the nation's existing 42.5 mtpa import capacity.

Singh said India needed to increase its LNG import capacity to 155 mtpa "considering 80% utilisation" to boost use of the cleaner fuel.

India imports about 85% of its oil needs. He said replacing about 30% of the country's crude oil imports with LNG would save $10 billion at current global oil price of $74/barrel.

Published on June 18, 2021

Finally, Some Visibility That India Is Moving Towards Its Target For Natural Gas To Be 15% Of Its Energy Mix By 2030

Posted: Wednesday October 23, 2019. 3:45pm MT

It's taking longer than expected, but we are finally getting visibility that India is investing significantly towards its goal to have natural gas be 15% of its energy mix by 2030. Earlier in Oct, India Oil Minister Dharmendra Pradhan said that there are $60 billion of natural gas infrastructure and LNG import terminals that are "under execution". He said "*I am not talking about potential investment. This number relates to the project that are under execution".* Natural gas consumption in India is only now back to 2011 levels at 5.6 bcf/d and represents only 6.2% of its energy mix. If India hits its 15% target of its energy mix by 2030, it would add natural gas demand, on average, of >1.5 bcf/d per year. At the same time India's domestic natural gas production peaked in 2010 at 4.6 bcf/d, but has been flat from 2014 thru 2018 at ~2.7 bcf/d, which means the big winner will be LNG. The most important factor driving this expectation for natural gas consumption growth is likely price. Asian LNG landed prices are down about 50% YoY and, more significantly, the expectation is for future Asian LNG prices to be at lower levels than prior cycles. India, by itself, may not be a LNG global game changer, but it is another positive support for why we believe LNG markets will rebalance sooner than expected ie. in 2022/2023. We see mid term Asian LNG landed prices lower than prior cycles in a rebalanced market (ie. +/- $8), which means that low capital costs will be critical for future LNG projects. We believe that BC's LNG key potential projects (LNG Canada Phase 2 and Chevron Kitimat LNG) can compete in this price environment as they have the potential for brownfield capital costs if they move to a continuous construction cycle following in lockstep to LNG Canada Phase 1, much like Cheniere does for its LNG projects in the Gulf Coast.

India has a pollution crisis. We don't think it is unfair to say India has a pollution crisis. In every pollution ranking, India has several cities among the most polluted cities. The 2018 World Air Quality Report (AirVisual) list of the World's Most Polluted Cities 2018 has 20 of the world's 25 most polluted cities being in India. India has all of the top 25 most polluted cities other than #3 Faisalabad (Pakistan), #7 Hotan (China), #10 Lahore (Pakistan), #17 Dhaka (Bangladesh), and #19 Kashgar (China). Like us, many people have been to Beijing on business and believe Beijing's reputation as a very polluted city is deserved. But to put in perspective, Beijing's ranking isn't even close to the 15 most polluted cities in China, let alone the world. Beijing's score on their scale is 50.9 vs the other Chinese cities #7in the world, Hotan at 116.0, and #19 Kashgar at 95.7, and the world's most polluted city #1 Gurugram (India) at 135.8 .

World's Most Polluted Cities 2018

Rank	City	Country	Rank	City	Country
1	Gurugram	India	14	Varanasi	India
2	Ghaziabad	India	15	Moradabad	India
3	Faisalabad	Pakistan	16	Agra	India
4	Faridabad	India	17	Dhaka	Bangladesh
5	Bhiwadi	India	18	Gaya	India
6	Noida	India	19	Kashgar	China
7	Patna	India	20	Jind	India
8	Hotan	China	21	Kanpur	India
9	Lucknow	India	22	Singrauli	India
10	Lahore	Pakistan	23	Kolkata	India
11	Delhi	India	24	Pali	India
12	Jodhpur	India	25	Rohtak	India
13	Muzaffarpur	India	26	Mandi Gobindgarh	India

Source: Airvisual

India natural gas consumption is only now back to 2011 levels. For the past couple years, we have been highlighting that the growth in India's natural gas consumption (and linked LNG imports) has been very low due to the slow buildout of domestic natural gas infrastructure and LNG import facilities. BP data shows India's natural gas consumption was 5.6 bcf/d in 2018, and this compares to its peak of 5.8 bcf/d in 2011. To put in perspective, China's natural gas consumption in 2011 was 13.1 bcf/d and reached 27.4 bcf/d in 2018.

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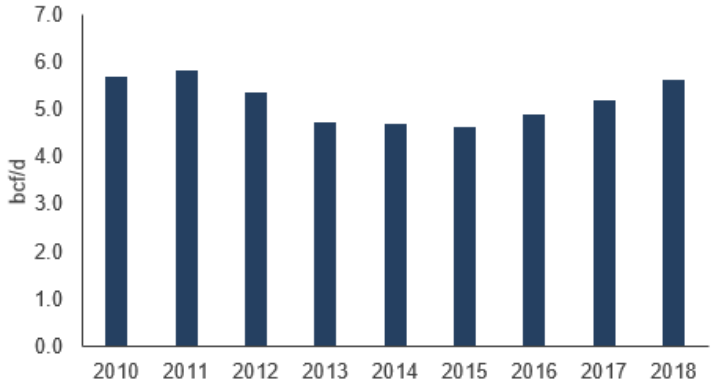
India's Natural Gas Consumption (bcf/d)



Source: BP

Perhaps the best reason why there is better visibility – LNG prices are expected lower than prior cycles. A key reason for this lack of growth has been the price of LNG relative to coal. Our June 17, 2018 Energy Tidbits [LINK] highlighted comments from the Q&A from BP's Chief Economist speech "*Energy in 2017: two steps forward, one step back*" on this relative cost concept. We then wrote on the BP Chief Economist comments from an India company on why there isn't more natural gas and why coal is still going up. He said that the Indian executive said it was because the cost of natural gas was significantly more expensive than domestic coal and that the push in India is to get more power to more poorer people, but if natural gas is significantly higher, it can't be done, they have to rely on coal. What has happened since the BP Chief Economist June 2018 comment is that Asian LNG prices are down 50% and the expectation going forward is that future LNG prices are not expected to be at prior cycle highs. But the other question is what does it mean for LNG prices. There is an increasing supply of reasonable priced LNG around the world, whether it from Qatar, Papua New Guinea, the Gulf of Mexico and even Canada. And each of these areas has anchor projects to support future brownfield development. Couple that with increasing linkage of LNG prices away from oil indexed contracts, we believe this means that a balanced LNG market going forward is going is not going to see sustained high Asian LNG prices from prior cycles, but around more costs related more to lower LNG supply basins ie. LNG prices around mid to long term +/- $8 landed Asian LNG prices, and not the prior $10 - $12 range. As the BP Chief Economist highlights, price is a huge issue for India and it is likely that the expectation for lower LNG prices than prior cycles is the most important reason to push India to increased natural gas consumption.

Japan/Korea Marker (JKM) LNG Price

Source: Bloomberg

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India is now getting serious about increasing natural gas consumption, has $60b of projects under execution. We follow the key India news as part of our weekly news scan for our Energy Tidbits memos and there is no question that the India government and its people realize they have to deal with this increasing pollution problem. And perhaps most of all, India is now taking specific, significant action to set the stage for increasing natural gas consumption and LNG imports. Earlier in Oct, Japan Times picked up a Reuters story "*India investing $60 billion on gas grid to link up nation by 2024*" [LINK]. The story notes "*India, one of the world's largest consumers of oil and coal, is investing $60 billion to build a national gas grid and import terminals by 2024 in a bid to cut its carbon emissions, the oil minister said on Sunday. India has struggled to boost its use of gas, which produces less greenhouse gas emissions than coal and oil, because many industries and towns are not linked to the gas pipeline network. Gas consumption growth was running at 11 percent in 2010 but growth slid to just 2.5 percent in the financial year 2018/19*." The most significant part of this story is that this is $60 billion of projects under execution, not planned or potential projects. The story quotes Oil Minister Dharmendra Pradhan "*I am not talking about potential investment. This number relates to the project that are under execution*". The critical natural gas infrastructure requirement is a domestic natural gas pipeline network to deliver gas throughout India. The India Ministry of Petroleum & Natural Gas Oct 3, 2019 release [LINK] said "*On the issue of moving towards the gas economy, Shri Pradhan said that over 16,000 km of gas pipeline has been built and an additional 11,000 km is under construction. With the tenth bid round for City Gas Distribution completed, it will cover over 400 districts and will extend coverage to 70 percent of our population".* Progress is being made. Plus LNG regasification projects continue to be completed. Below is our updated table of India LNG projects that are estimated to come on stream in 2019 and 2020. We haven't included the projects beyond 2020, but there are several planned projects already on the books.

India Current/Planned LNG Regasification Projects Est. In Service In 2019/2020

	State	Coast	Operator	Capacity (mtpa)	Capacity (bcf/d)	Expected Timelines
Existing Terminals						
Dahej	Gujarat	West	Petronet LNG	10.00	1.32	Operating
Dahej Phase 2	Gujarat	West	Petronet LNG	5.00	0.66	Operating
Hazira	Gujarat	West	Shell	5.00	0.66	Operating
Dabhol RGPPL	Maharashtra	West	GAIL & NTPC JV	5.00	0.66	Operating
Kochi	Kerela	West	Petronet LNG	5.00	0.66	Operating
Ennore Phase 1	Tamil Nadu	East	IOCL	5.00	0.66	Operating
Total Existing				**35.00**	**4.61**	
Upcoming Terminals						
Mundra	Gujarat	West	Adani & GSPC	5.00	0.66	2019
Jaigarh	Maharashtra	West	H-Energy Gateway Pvt. Limited	4.00	0.53	2019
Dahej Phase 3	Gujarat	West	PLL	2.50	0.33	2019
Mundra	Gujarat	West	Adani	5.00	0.66	2020
Digha FSRU	Odisha	East	H-Energy	4.00	0.53	2020
Ennore Phase 2	Tamil Nadu	East	IOCL	1.75	0.23	2020
Jafrabad	Gujarat	West	Swan Energy	5.00	0.66	2020
Total Upcoming				**27.25**	**3.59**	

Source: Bloomberg, Company Reports, Street Reports

It reminds us of when China got really serious about natural gas in 2018. We should be clear that we do not consider India anywhere near as significant to global LNG markets as China. But conceptually, India getting serious about increasing natural gas consumption reminds us of what we were seeing in China in 2016/2017. India is probably more like China in 2016 as opposed to the summer of 2017, when it seemed clear that China was on the cusp of a major push in natural gas consumption and LNG would be the winner in 2018. India's impact should start to play out by year end 2020 as opposed to this winter. We first outlined the China LNG thesis in our Sept 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]. Our Sept 20, 2017 blog wrote "*The news flow from China this summer on its increasing fight and urgency to fight pollution supports China's plan to increase natural gas to 10% of its energy mix in 2020 and 15% of its energy mix in 2030. This is a game changer to global natural gas markets and, by itself, can bring LNG to undersupply 2 to 3 years earlier than expected. China's natural gas consumption increased by ~15% per year from 2005 thru 2016 and ~1.5 bcf/d per year vs China's 8.5%*

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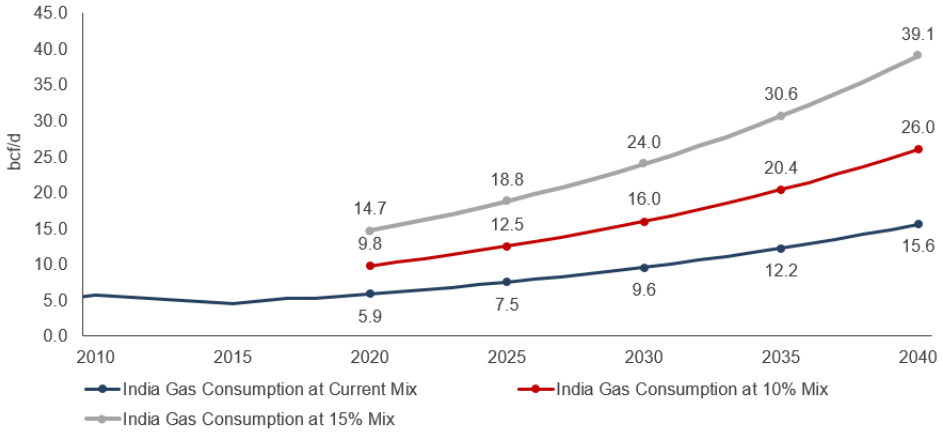
growth rate in energy in total. Yet natural gas only got to 5.9% of China's energy mix. If China is to hit 10% by 2020, it will need to increase natural gas consumption by 4 to 5 bcf/d per year. Assuming China continues to grow its domestic natural gas production by 0.6 bcf/d per year (its growth rate for last five years), China will need to import an additional ~3.5 to ~4.5 bcf/d per year. This is "per year"! And if so, we believe BC LNG will be back and there is a higher probability than ever before for a Shell FID on its BC LNG project in 2018." As it turned out, Shell did FID its LNG Canada project on Oct 1, 2018.

Natural gas is only 6.2% of India's energy mix vs its target of 15% in 2030. India, similar to China, has a target to have natural gas to be 15% of its total energy mix by 2030. This is not a new target, rather it has been in place and we first highlighted India's 15% target of its energy mix in our Nov 23, 2018 blog "*"India's Natural Gas Consumption Would Be Up ~1.3 Bcf/D Per Year If Its To Reach Its Target Of 15% Of Its Energy Mix By 2030*" [LINK] At that time, we noted some specific steps that were happening in 2019 and 2020 to put them on that long term plan. The impact to get to 15% of energy mix is significant to world LNG markets. This is a big increase from natural gas being 6.2% of India's energy mix in 2018. To put in perspective, in 2018, natural gas was 30.5% of US energy mix, 21.9% of Japan's energy mix, 16.0% of South Korea's energy mix, and 7.4% of China's energy. Note, China is up from 6.6% in 2017.

Hitting 15% of its energy mix would increase India's natural gas consumption by >1.5 bcf/d per year. We projected how much India's natural gas consumption would increase if it can hit its target of 15% of total energy mix in 2030. BP data shows India's natural gas consumption in 2018 was 5.6 bcf/d and natural gas was only 6.2% of total energy mix. BP also estimates India's total energy consumption grew at a rate of 5.2% per year for the 2007 – 2017 period, but energy consumption growth increased to +7.9% in 2018 YoY vs 2017 But if we only assume a 5% growth in total energy mix to 2030, then if natural gas is 15% of India's energy mix, it would be 18.8 bcf/d in 2025 and 24.0 bcf/d in 2030 ie. growth of +13.2 bcf/d to 2025 and +18.4 bcf/d to 2030. India's domestic natural gas production peaked in 2010 at 4.6 bcf/d, but has been flat from 2014 thru 2018 at +/- 2.7 bcf/d. We expect there to be some increased focus to at least return India to modest domestic natural gas production. But, until then, any growth in natural gas consumption will be met with LNG. Our model forecasts of >1.5 bcf/d per year, on average, in consumption is the equivalent of 2.5 Cheniere LNG trains per year.

India's Projected Natural Gas Consumption @15% Of Energy Mix (bcf/d)



Source: BP, SAF

India may not be a LNG global game changer by itself like China, but does support the call that LNG markets rebalance sooner than expected. We had our SAF Group 2020 Energy Market Outlook on Monday Oct 7. A replay of the call and the supporting slide presentation are available on our website at [LINK]. Two of our key off consensus calls were on LNG including our view LNG market would balance earlier than expected ie. 2022/2023. We noted that we agree with markets that LNG will be oversupplied thru 2021, but where we disagree is that we see LNG markets balancing in 2022 or 2023. Our presentation reminded that LNG supply capacity needs to be in excess of demand to provide for turnarounds and

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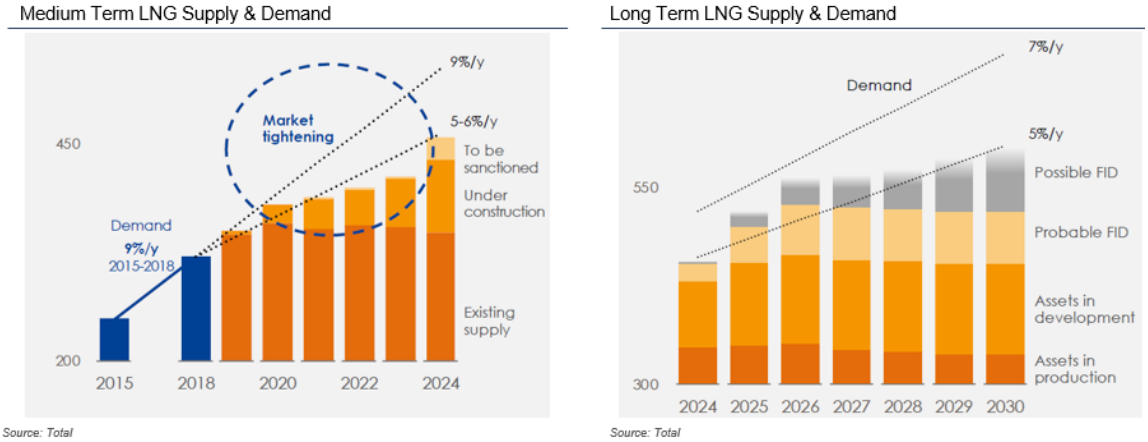
allowance such that suppliers can deliver contract volumes. We also expect the required over capacity of supply is increasing as contract mix shifts away from historical oil indexed take or pay contracts with destination clauses to an increase share of portfolio contracts. There is no firm number, but we believe the required excess supply capacity relative to demand has increased from approx. 5% to 10% to +/-15% ie. LNG markets are effectively balanced when LNG supply capacity is >10% of demand. As a result, we believe that LNG markets rebalance in 2022/2023, a view which is similar to Total's Sept 25, 2019 Investor Day [LINK] (see below graphs). We should note that our view of balanced LNG markets doesn't mean a return to $12 or more Asian landed LNG prices, rather, we see the emergence of anchor LNG projects in areas with brownfield expansion potential means that a planning case for mid term Asian LNG price is in the $8 range. Our outlook presentation also includes our view that BC's LNG key potential projects (LNG Canada Phase 2 and Chevron Kitimat LNG) can compete in this price environment as they have the potential for brownfield capital costs if they move to a continuous construction cycle following in lockstep to LNG Canada Phase 1, much like Cheniere does for its LNG projects in the Gulf Coast. Our outlook call did not specifically work in the India Energy Minister's comment on in execution projects, but, if anything, it provides us with more confidence for the call for LNG markets to rebalance in 2022/2023.

Total's Medium And Long Term LNG Supply & Demand



Source: Total Sept 25, 2019 Investor Day

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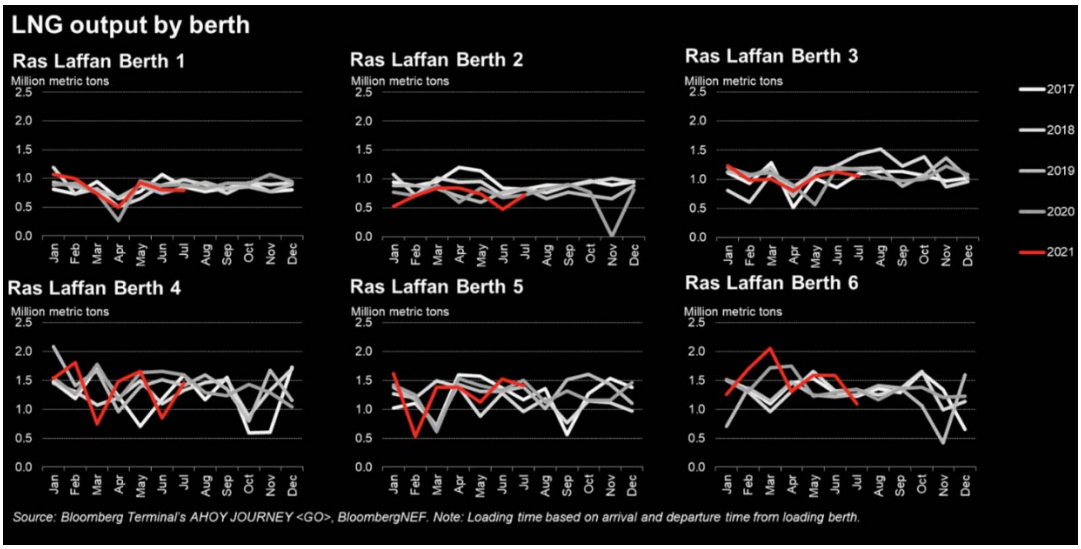
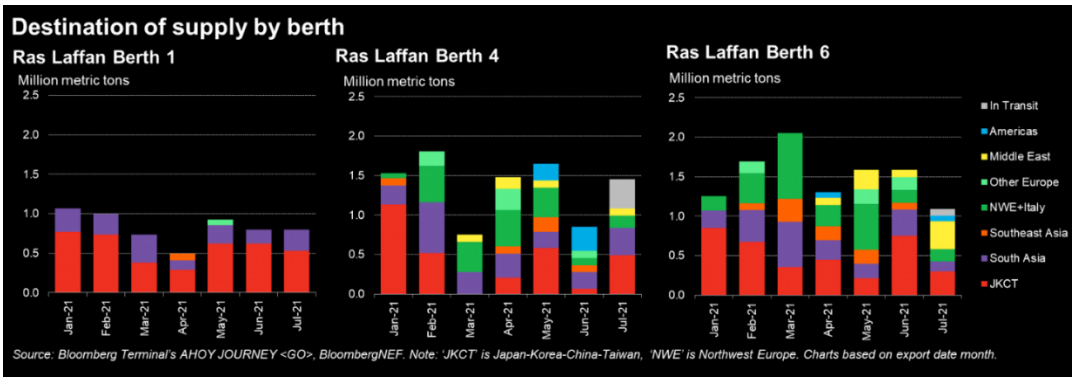
Bloomberg "LNG Ships Piling Up Near Qatar Waiting to Load: BNEF LNG Watch"
2021-08-18 07:05:00.0 GMT

By Fauziah Marzuki and Michael Yip
(BloombergNEF) -- Japan-Korea Marker liquefied natural gas futures prices breached $19 per million British thermal units for December-February. The market is increasingly weary of anything that could disrupt supply. Seasonally low output from Qatar in the last two months and loading times creeping up could perpetuate the feeling of market tightness. But there could be a benefit in the fourth quarter as Ras Laffan loading berth maintenance patterns look to be changing. Sakhalin LNG resumed loading after major maintenance, but its North Asian customers could face delays as work is still being carried out. Two other plants which usually feed portfolio players and traders still haven't produced any cargoes this month. Last week, Storm Lupit delayed some arrivals into the Tokyo Bay area; Fred and Grace are now on the watchlist for any potential impact to U.S. Gulf Coast shippers.

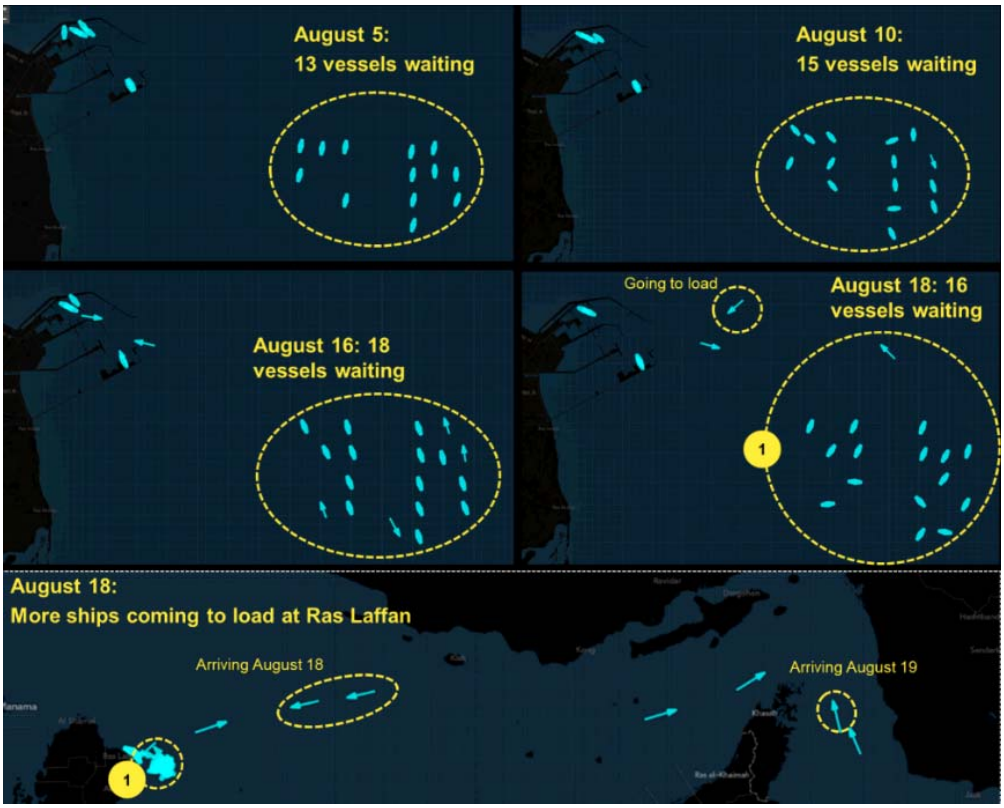
Shifting patterns in Qatari output

Qatar's LNG output reached a four-year seasonal low in June and July, unusual for the Gulf State whose production usually peaks both in summer and winter. Loadings by berth, based on Bloomberg vessel tracking, may point to a potential shift in maintenance schedules at the 77 million ton Qatargas complex.
Unusually low output in July for Ras Laffan Berth 6 coincided with a dip in exports to Northwest Europe and Italy, potentially the reason for the U.K.'s sharp drop in LNG receipts that month.
This is a deviation from the 18-month average of 32% destination share of volume going to Europe from the berth. Ras Laffan Berth 4 caused the dip in output for June. The monthly output pattern for Berth 4 and 6 look like Qatargas might have shifted and brought forward its traditional October-November maintenance at the two berths. If so, the market could see an increase in output to the tune of 1 million tons over October-November, and it could be intended for Europe.

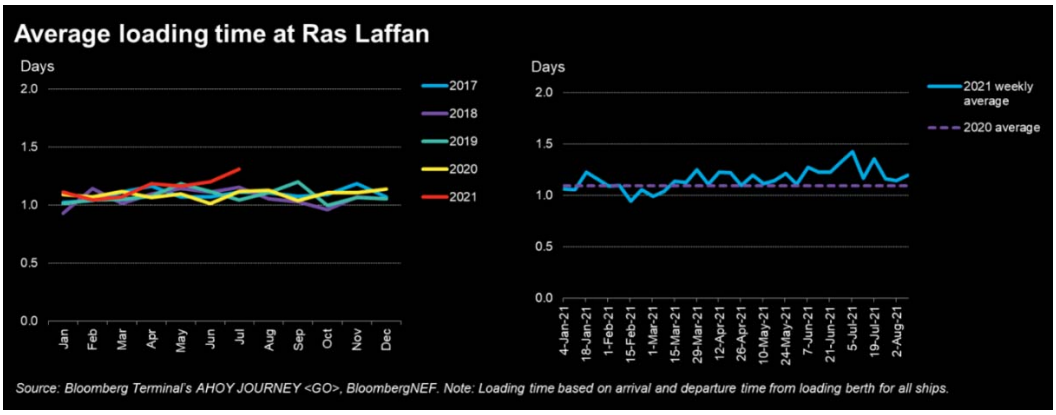




Sixteen LNG tankers are waiting off Ras Laffan to load, with two more arriving later today. Last week saw 15, while the beginning of August saw 13. It is normal to have a relatively high number of ships off Ras Laffan given its size, but it looks like they are starting to pile up. Loading times in July averaged 1.3 days compared to 1.1 days average for 2020. The first two weeks of August are now averaging 1.2 days. Loading times at Berth 1 increased noticeable in July, climbing to about two days last month but coming back down in August. This berth historically only sends cargoes to Asia, concentrated in the Japan-Korea-China-Taiwan market. Further deviations from normal loading times could have a ripple effect that may go unnoticed. The reason for the increased loading time is unclear, but if loading times don't speed up - and the pile doesn't start to clear - the sense of tightness in the market will only perpetuate.



LNG vessel tracking via MAP SHIP <GO>



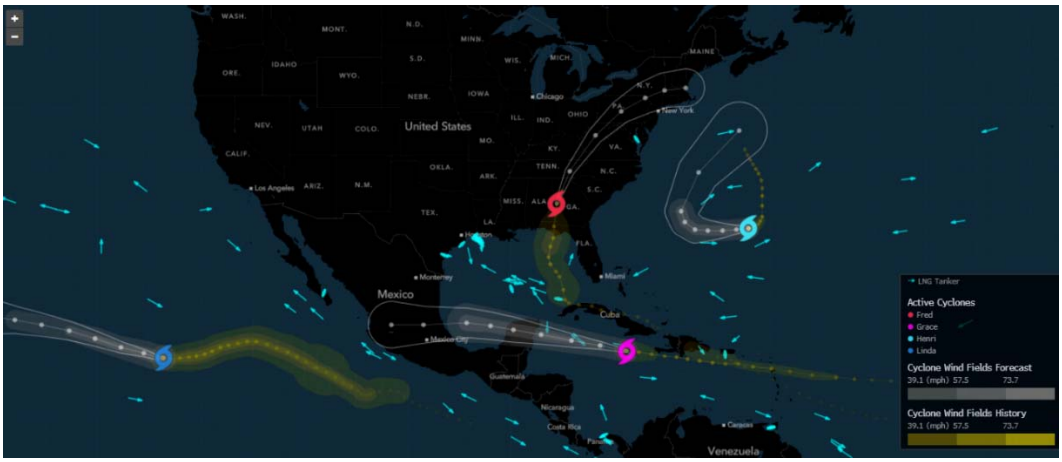
Other plant outages

The Russian Sakhalin export plant, owned by Gazprom PJSC and Royal Dutch Shell Plc, loaded its first cargo after a major planned maintenance event in July. The first loading on the Amur River tanker is signaling Japan's Yanai port. Restart of cargo loadings were initially delayed by a few days, based on
Bloomberg News reports on Aug. 12. Today, reports are that more than three cargoes have been delayed as only one of the plant's two production trains is currently online. The plant's North Asian customers would have planned for the outage in July, but this delay into August might impact customers with tight procurement plans. If commissioning work can be completed swiftly, the delay could be mitigated by the relatively short shipping distance between Sakhalin and its primary markets.
Peru LNG hasn't exported a cargo since June. In July, a tanker was waiting to load there, but eventually diverted to load at Elba Island instead. Peru not producing for the last two months means Shell - the sole offtaker from the plant - has been down about four cargoes a month in its overall portfolio of supply.

Damietta, the Egyptian export facility which was turned back on earlier this year, hasn't loaded any cargoes this month - down from five in July. Exports from the Idku plant have also slowed. It is unclear what is causing the dip in Egyptian exports, but it could be related to increased domestic demand for the gas given that high international gas prices would merit exports.

U.S. Gulf storms

The trajectory of Tropical Storm Fred and Grace don't look like they will make landfall where the U.S. LNG export facilities are. The storms could, however, potentially delay the arrival and loading of some ships. U.S. LNG exports look clear unless Tropical Depression Grace, which already swept through Hispaniola and held off arrivals at the Andres LNG terminal in the Dominican Republic, changes course.



MAP SHIP <GO>, filter LNG Tankers and Cyclones

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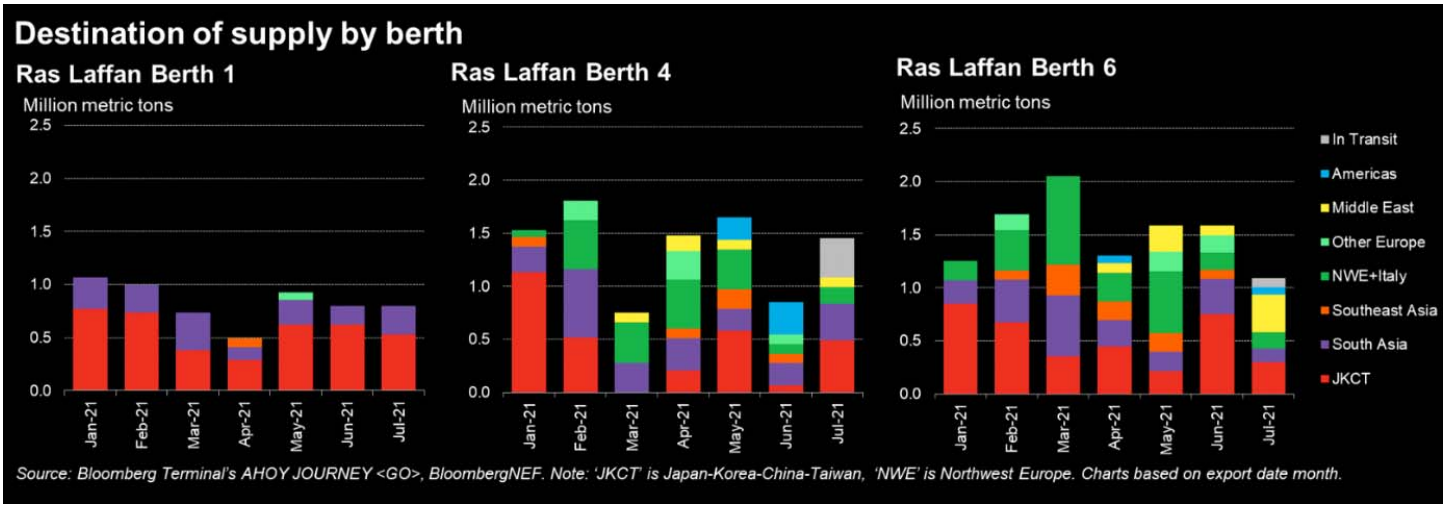
Destination of supply by berth
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Mar-21
Apr-21
May-21
Jun-21
Jul-21
In Transit
Americas
Middle East
Other Europe
NWE+Italy
Southeast Asia
South Asia
JKCT
Source: Bloomberg Terminal's AHOY JOURNEY <GO>, BloombergNEF. Note: 'JKCT' is Japan-Korea-China-Taiwan, 'NWE' is Northwest Europe. Charts based on export date month.

https://www.facebook.com/399702506777349/posts/4244511448963083/?d=n

Gazprom

20 hrs ·

August has become another “winter” month in the gas market.

According to preliminary data, Gazprom produced 316.5 billion cubic meters of gas over the first seven and a half months of 2021, which is 18.1% (or 48.6 billion cubic meters) more than in the same period of 2020. In absolute terms, this is like one more winter month (for instance, our gas production for January 2021 stood at 47 billion cubic meters).
Gazprom ramped up its domestic supplies from the gas transmission system by 14.7% (or by 19.6 billion cubic meters) over said period of 2021.

The Company increased its gas exports to the countries beyond the FSU to 123 billion cubic meters. Thus, Gazprom is maintaining the amounts of its gas supplies near the all-time high level (125 billion cubic meters for the same period of 2018). This is higher than the figure for the same period of 2020 by 21.5% (or by 21.8 billion cubic meters). As a point of comparison, this increase exceeds the overall amount of gas supplied by us last year to Italy, one of Europe’s key gas consumers.

Specifically, in the period from January to August 15, 2021, Gazprom increased gas supplies to Turkey (+188.5%), Germany (+41.5%), Italy (+15.9%), Romania (+332.4%), Serbia (+121.5%), Poland (+13.8%), Bulgaria (+48.9%), Greece (+17.5%), and Finland (+27.9%). Notably, the amount of gas supplied by Gazprom to Germany and Poland in the first half of August is significantly bigger than that observed in the same periods of 2020 and 2019.

Gas supplies to China via the Power of Siberia gas pipeline continue growing as well. In August, the aggregate amount of Russian gas that has been delivered to Chinese consumers since the beginning of the pipeline supplies exceeded 10 billion cubic meters.

According to Gas Infrastructure Europe, the level of reserves in the underground gas storage facilities of the EU and Ukraine remained the lowest in many years as of August 14, 2021. In Ukraine’s UGS facilities, the negative difference between the amounts of gas injected in 2021 and 2020 keeps growing and has now hit 6.2 billion cubic meters. In Europe’s UGS facilities, only 31.9 billion cubic meters of gas were replenished out of the 66 billion cubic meters that had been withdrawn in the last season.

In response to the question of what comes next, the prices of day-ahead contracts set a new record on the market, rising from USD 500 to over USD 550.

As we analyze the volumes of supplies within Russia and to the countries beyond the FSU observed in August, we see that the consumption of gas in this month has lately reached a new peak level. For instance, the average daily figure for Russia recorded in 2021 is 53 (!) million cubic meters (or by 9%) higher than the average gas supply volume observed over the previous eight years. Our gas exports increased by 9.4%, which makes the average daily supply volumes of August comparable with those of the winter months.

The “green winter” of August that has occurred in the gas market means an increased load on the gas supply system in the period when scheduled preventive maintenance & repairs and preparations for the autumn/winter period – the activities that cannot be put on hold – are traditionally performed. As can be seen from the practice that has established itself over the last several years both in Russia and Europe, the winter period now includes the spring month of March. That is why now, in summer, the priority is on injecting gas into underground storage facilities, so as to ensure that by March, i.e. by the end of the withdrawal season at UGS facilities, their available reserves will stay at a high level, which is essential for a confident performance during the abovementioned difficult period. And our colleagues from Europe are well aware of this as well.

https://tass.ru/ekonomika/12168755
AUG 19, 03:13Updated Aug 19, 04:04

Gazprom is ready to supply 5.6 billion cubic meters of gas via Nord Stream 2. m of gas in 2021

Gas supplies via Nord Stream for 7 months of 2021 amounted to 33.7 billion cubic meters. against 32.9 billion cubic meters. m a year earlier

MOSCOW, August 19. / TASS /. The Nord Stream 2 gas pipeline may supply 5.6 billion cubic meters this year. meters of gas, according to the message of "Gazprom".

"The Nord Stream 2 gas pipeline can supply 5.6 billion cubic meters of gas this year," the gas holding said in a statement.

The Nord Stream 2 project involves the construction of two lines of a gas pipeline with a total capacity of 55 billion cubic meters. m per year from the coast of Russia through the Baltic Sea to Germany. The work was suspended in December 2019 after the Swiss Allseas abandoned pipe-laying due to possible US sanctions. But from December 2020, the construction of the gas pipeline was resumed after a year's pause.

At the end of July, it was reported that Nord Stream 2 was 99% complete, and the pipe-laying barge Fortuna continues to work at the final section. The first string of the pipeline was completed in June this year.

On deliveries via Nord Stream

At the same time, gas supplies via Nord Stream for 7 months of 2021 amounted to 33.7 billion cubic meters. against 32.9 billion cubic meters. m a year earlier.

"According to the management accounting data of Gazprom Export, Russian natural gas supplies to Europe via the Nord Stream gas pipeline amounted to 33.7 billion cubic meters (for 7 months of 2020 - 32.9 billion cubic meters, 2019 - 31 This year, 22.7 billion cubic meters were supplied to Germany via the gas pipeline (for 7 months of 2020 - 15.9 billion cubic meters, in 2019 - 20.3 billion cubic meters). m) ", - said Gazprom.

Gazprom's pipeline gas supplies to Germany in all directions amounted to 33.1 billion cubic meters. m, which is 42.1% or 9.8 billion cubic meters. m more than in 7 months of 2020 and by 8.5% or 2.6 billion cubic meters. m more than in 7 months of 2019, the company notes.

UGS occupancy in Europe

The occupancy of underground gas storage facilities (UGS) in Germany as of August 1, 2021 was only 50.7%, Gazprom said in a statement.

Last year, this figure was 88.6%, and in 2019 - 85.9%, the gas holding said in its message.

Excerpt from Kremlin transcript http://en.kremlin.ru/events/president/transcripts/66418

Vladimir Putin and Federal Chancellor of Germany Angela Merkel gave a joint news conference following Russian-German talks.

August 20, 202118:00The Kremlin, Moscow

Federal Chancellor of Germany Angela Merkel (retranslated): Thank you.

We also talked about bilateral economic relations, which are moving forward. In this regard, of course, we talked about Nord Stream 2. I would like to emphasise that this is not a bilateral German-Russian project, but a project of European dimension, because companies from other countries are also part of it.

In this context, we talked about the document concluded between the United States and the Federal Republic of Germany, and Mr President and I emphasised that Georg Graf Waldersee would act as a highly experienced negotiator with regard to gas transit through Ukraine beyond 2024. This is his assignment. We bear certain responsibility in this regard despite the economic developments that need to be taken into account.

In this context, we also discussed relations between Russia and the EU. It became clear that Russia is interested in entering an exchange with the EU on the “Fit for 55” climate package with account taken of cross-border carbon regulation and other problems. And I also noted that I am in favour of this approach.

And a question for you, Mr President. Once the Nord Stream 2 is completed, can you guarantee that gas transit across Ukraine will remain in place, and if so, will this arrangement remain in force after Ms Merkel leaves the post of chancellor?

Vladimir Putin:

Now, with regard to gas transit. Indeed, the Federal Chancellor has always advocated this approach. Always, mind you, even during construction, which is about to be completed. There are 44 or 45 kilometres left to go. (Addressing Alexei Miller.) How many, Mr Miller? 15? There are 15 more kilometres across the sea to go. We can safely assume that this project is nearing completion. But the Federal Chancellor has always raised the issue of continuing transit across Ukrainian territory even after the expiry of the transit contract.

The first thing I want to say in this regard. First, today this issue was raised again by the Federal Chancellor during the talks. I assured the Federal Chancellor that we will fully comply with our obligations under the transit contract even after she leaves the office of Federal Chancellor. Russia will fulfil all its obligations. We are doing so now and we will continue to do so going forward.

Next, Nord Stream 2. Some people claim the project is politically motivated. This is a fallacy or an attempt to mislead people. It is 2,000 kilometres shorter than the Ukrainian transit route. And it is a modern environmentally friendly system, and I mean it. It uses innovative equipment which, I believe, cuts carbon emissions into the atmosphere during the transit of our hydrocarbons to Europe by five times. We just need to be aware of it and know it. And it is much cheaper than transit across Ukraine.

However, we stand ready, and I’ll say it again, I have already said it publicly before and I want to make a point of it now, that we stand ready to transit gas across Ukraine beyond 2024. But we must understand the timeframe and volumes. And for this, we must know, and our European partners must tell us, how much they are willing to buy from us. This is obvious.

We cannot sign a transit contract if we have not signed supply contracts with our consumers in Europe. With the green agenda, which is already underway in Europe, we are wondering whether anyone will be buying gas from us altogether and, if so, how much. This needs to be discussed.

In any case, this is a purely business matter. I mean there is yet another component that is the technical condition of the pipeline system. To reiterate, we are not only willing to discuss this, we are really willing to get there. This is especially true of our supplies to Southern Europe. Consumption is on the rise, and I hope it will keep rising in the years ahead. Today, there is no other, more reliable source than Russian gas for German and other European consumers.

Don’t Count on LNG to Save Europe From a Winter Gas Crunch (1)
2021-08-19 08:39:28.587 GMT

By Anna Shiryaevskaya
(Bloomberg) -- Europe’s vast network of liquefied natural gas terminals can’t save it from a winter supply crunch.
LNG supplies entering European grids in July fell to the lowest for that month in three years and the outlook for this month is even grimmer. Just one cargo is scheduled to arrive in the U.K. in August and traders who have the fuel stored in Spain are set to export six cargoes to capture higher prices in Asia.
All of that comes as Russia has been flowing less gas to Europe, setting the continent up for a very difficult winter should freezing temperatures hit. With inventories at their lowest level in more than a decade, gas prices in Europe have been volatile. Records have been broken day after day, with the market on edge for any sign of new supply coming through the yet-to-be completed Nord Stream 2 pipeline linking Russia and Germany.

“Europe needs to refill storage, but with the current fight for cargoes, it seems like the market will be very tight unless pipeline flows increase,” said Oystein Kalleklev, chief executive officer of shipowner Flex LNG Ltd. “We need to prepare for a very volatile winter depending on winter weather.”
Russia has been flowing less gas to Europe via Ukraine -- a key transit route -- and supplies into Germany through the Yamal-Europe pipeline crossing Belarus and Poland also took a hit after a fire at a Gazprom PJSC facility earlier this month. The Russian gas giant said this week it was overwhelmed with record demand both abroad and in Russia, where it needs to refill storage sites depleted beyond normal last winter.

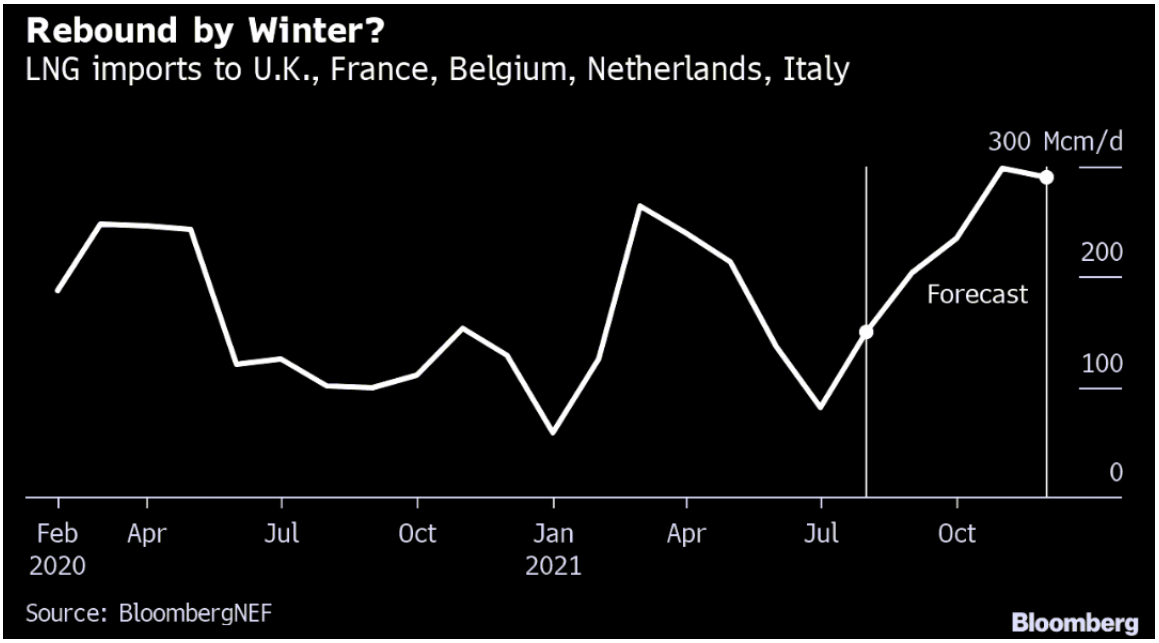
European Production

Europe gets more gas from Russia than from the continent’s

top producers. With domestic output in decline and the giant Groningen gas field in the Netherlands possibly closing three years ahead of schedule, the continent is becoming a lot more dependent on the vagaries of the global gas market to get the LNG it needs to keep homes heated and the lights on during the winter.

But tight supplies in Asia mean countries from China to Japan and Korea have been willing to pay more, luring even the supplies stored in Spanish tanks. Demand for LNG in Asia will remain strong through the rest of the year, Mark Gyetvay, deputy chief executive officer of Russian LNG producer Novatek PJSC, said in an earnings call.

It's not just demand that's picking up. Gas supplies from Norway have been disrupted this year due to heavy maintenance after pandemic-induced delays. LNG production has also faced challenges, with numerous terminals from Trinidad & Tobago to Nigeria and Egypt also under-performing.

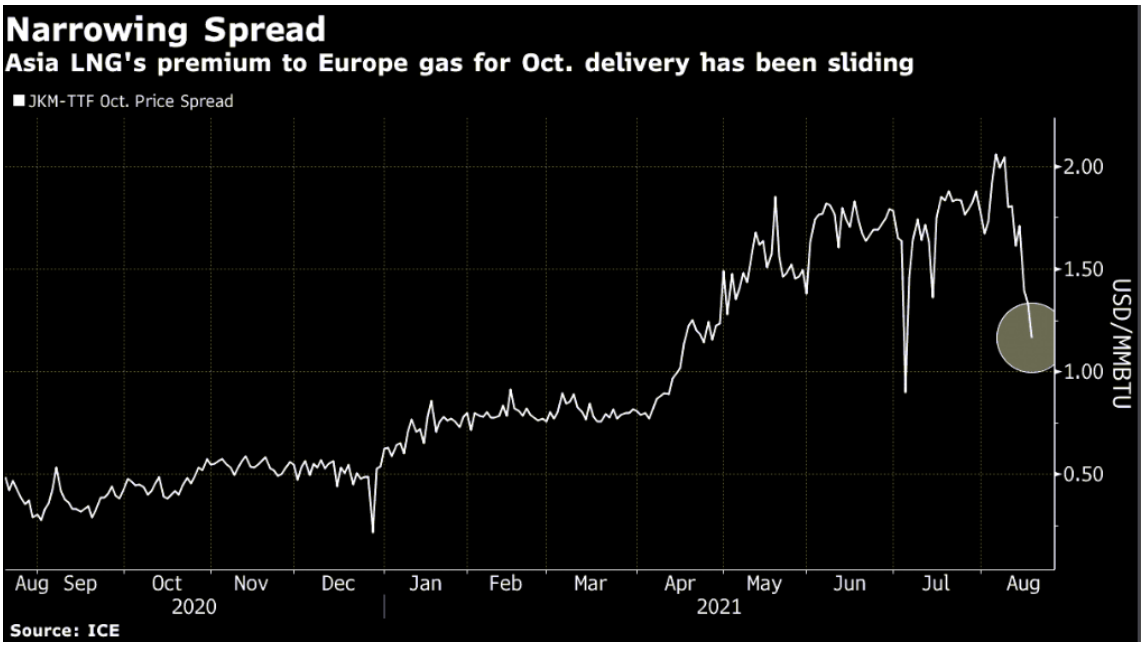


Supply disruptions aren't "long-term structural issues" and will get sorted out, according to Jessica Uhl, chief financial officer of Royal Dutch Shell Plc, the biggest LNG portfolio player. Imports into Europe are set to rebound in the fourth quarter due to more supplies from the U.S., Oman and Australia, BloombergNEF forecasts. Morgan Stanley is already expecting gas prices in Europe to ease as more LNG arrives in the continent.

October Breather

"As Asian demand peaks in the summer, demand will start to go down in the autumn, so finally Europe may attract some spot LNG back and this might give Europe a breather in October," Ronald Smith, senior oil and gas analyst at BCS Global Markets in Moscow, said by phone. "And if we have a very warm October we can keep injecting gas in storage sites."

The price arbitrage between Europe and Asia for October deliveries has nearly closed, which suggests that more cargoes will opt to head to terminals in the Atlantic, according to traders. However, that is likely to be too little too late for European utilities to sufficiently refill inventories before winter's icy weather descends on the region.



Nord Stream 2

Europe's crunch could ease when Nord Stream 2 starts flowing gas. Futures in Europe plunged as much as 9.5% on Wednesday after the German gas grid published erroneous data on its website showing supplies via the pipeline. The market rebounded after Bloomberg News reported the error.

"I think the first line of NS2 might be getting tested and it is possible that some small test volumes may have been flown through it," said Katja Yafimava, a senior research fellow at the Oxford Institute for Energy Studies. "But it is too much of a wishful thinking on part of the market to believe that the line is ready for commercial operations."

It's still unclear how much the pipeline will flow at the start and while Europe is set to get more LNG in October, supplies will tighten again from November as Northeast Asian buyers prepare for the peak winter heating season, London-based consultants Energy Aspects forecast. Demand in Asia-Pacific will rise by 2.8 million tons from December to January while supply in the region will only gain by less than half of that.

"This means that the region will need stronger flows from further supply sources," Energy Aspects said in a report last week.

For now, LNG buyers in Asia keep bidding above European prices.

Futures “can’t get high enough to attract the LNG it needs to fill stocks and cool the market off,” said Melissa Lindsay, founder of LNG brokerage Emstream.

--With assistance from Isis Almeida and Stephen Stapczynski.

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https://www.npd.no/en/facts/news/Production-figures/2021/production-figures-july-2021/

Production figures July 2021

19/08/2021 Preliminary production figures for July 2021 show an average daily production of 2 035 000 barrels of oil, NGL and condensate.

Total gas sales were 9.7 billion Sm^3 (GSm^3), which is an increase of 1.8 GSm^3 from the previous month.

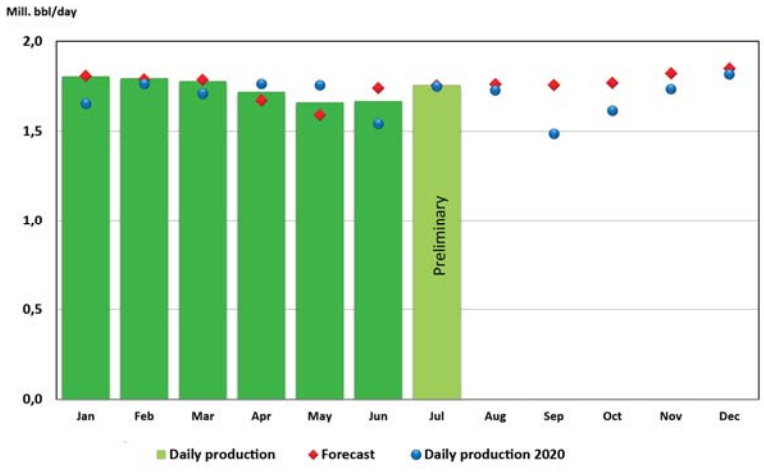
Average daily liquids production in July was: 1 753 000 barrels of oil, 272 000 barrels of NGL and 10 000 barrels of condensate.

Oil production in July is equal the NPD's forecast, and 0.4 percent higher than the forecast so far this year.

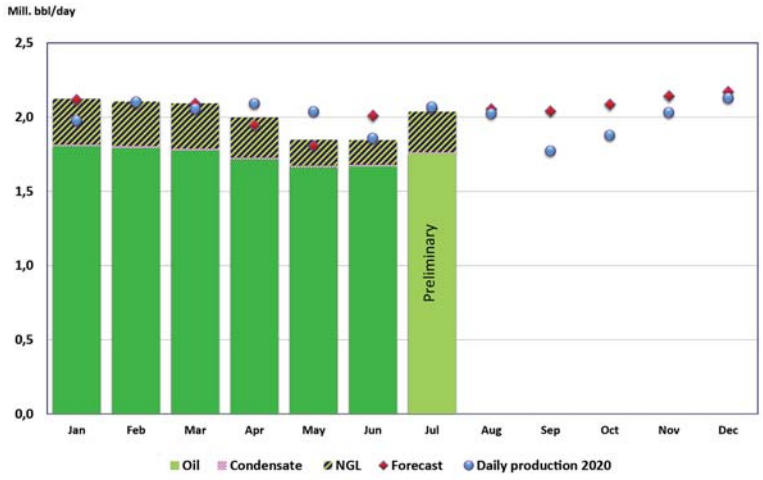
Production July 2021

		Oil	Sum liquid	Gas	Total
		mill bbl/d	mill bbl/d	MSm^3 /d	MSm^3 o.e/d
Production	**July 2021**	**1,753**	**2,035**	**311,9**	**0,635**
Forecast for	July 2021	1,752	2,056	316,3	0,643
Deviation from forecast		0,001	-0,021	-4,4	-0,008
Deviation from forecast in %		0,1 %	-1,0 %	-1,4 %	-1,2 %
Production	June 2021	1,668	1,844	261,7	0,555
Deviation from	June 2021	0,085	0,191	50,2	0,080
Deviation in % from	June 2021	5,1 %	10,4 %	19,2 %	14,4 %
Production	July 2020	1,745	2,068	305,7	0,635
Deviation from	July 2020	0,008	-0,033	6,2	0,000
Deviation in % from	July 2020	0,5 %	-1,6 %	2,0 %	0,0 %

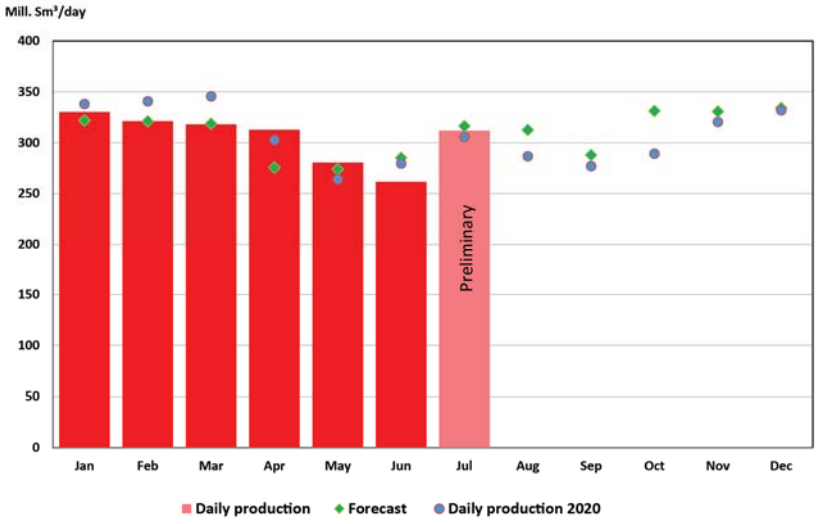
Oil production 2021



Liquid production 2021



Gas production 2021



The total petroleum production for the first seven months in 2021 is about 132.3 million Sm^3 oil equivalents (MSm^3 o.e.), broken down as follows: about 58.6 MSm^3 o.e. of oil, about 9.0 MSm^3 o.e. of NGL and condensate and about 64.7 MSm^3 o.e. of gas for sale.

The total volume is 2.6 MSm^3 o.e. lower than in 2020.

Updated: 19/08/2021

https://www.politico.com/newsletters/national-security-daily/2021/08/19/exclusive-bidens-iran-envoy-calls-nuclear-deals-fate-one-big-question-mark-494049

Exclusive: Biden's Iran envoy calls nuclear deal's fate 'one big question mark'

By ALEXANDER WARD and QUINT FORGEY
08/19/2021 03:46 PM EDT

Robert Malley, U.S. special envoy for Iran. | Florian Schroetter/AP Photo

With help from Daniel Lippman

Welcome to National Security Daily, POLITICO's newsletter on the global events roiling Washington and keeping the administration up at night. I'm Alex Ward, your guide to what's happening inside the Pentagon, the NSC and D.C.'s foreign policy machine. National Security Daily arrives in your inbox Monday through Friday by 4 p.m.; subscribe here.

Aim your tips and comments at award@politico.com and qforgey@politico.com. Follow us on Twitter at @alexbward and @QuintForgey.

ROBERT MALLEY, the man President JOE BIDEN has tasked with putting the United States back into the Iran nuclear deal, isn't supremely confident he'll succeed in his mission.

"It's just one big question mark," he told NatSec Daily during an exclusive interview in his State Department office. Rejoining the multinational accord "is not something that we can fully control," he said, citing a lack of engagement from the Iranians.

Negotiations between the United States, Iran and five world powers have proceeded fruitlessly since April. Tehran's side won't even speak directly with Washington's and instead prefers working through intermediaries while in Vienna. That dance was complicated by the arrival of new Iranian President EBRAHIM RAISI, a hardliner who experts suspect is more skeptical of the diplomatic effort than his pact-signing predecessor. No open bargaining has taken place since Raisi came to power in mid-July.

Moments after pointing to a portrait of former Secretary of State MIKE POMPEO unceremoniously stashed at the bottom of his closet (a joke apparently played by staff), Malley repeatedly refused to assign a percentage chance to America's reentry into the deal. "I wouldn't be helping you much if I gave you a percentage," he insisted, saying the unknown variables are about what the Iranians will and won't do. But, he added, "we are prepared to resume the talks, which we wouldn't do if we didn't think [a deal] was possible."

Should the United States and Iran fail to agree on terms in the coming months, the envoy says his team is preparing some contingencies. One is that Washington and Tehran sign a wholly separate deal, complete with different parameters than the current accord. Another is a suite of punitive responses in coordination with European allies, though Malley didn't specifically detail what those would be.

Malley does say that, in his mind, it's only logical that "a return to the deal is in the cards," since both the United States and Iran — even under Raisi — have said that's what they want. The delay, he claimed, is due to mistrust sowed during the Trump administration's "maximum pressure" campaign and the political transition in Iran.

"But there is absolute justification to have a question mark, because if you haven't reached [a deal] yet, the talks drag on. If Iran's nuclear advances progress, and Iran continues to take provocative nuclear steps, not even mentioning their regional provocations … that pulls in the other direction" — meaning away from an agreement, Malley told NatSec Daily.

"It at least makes us very aware of the fact that it is certainly not a done deal, that it's a legitimate question whether we will be able to come back, and that we have to be prepared for a world in which Iran's intentions are not to go back into the [pact], at least not in a realistic way," he said.

https://www.jpost.com/middle-east/how-the-taliban-takeover-changes-the-dynamics-in-a-biden-bennett-meeting-analysis-677094

How the Taliban takeover changes the dynamics in a Biden-Bennett meeting - analysis

The events that unfolded in Afghanistan were hardly surprising to Israelis. They were history repeating itself.

By LAHAV HARKOV

AUGUST 18, 2021 21:51

NAFTALI BENNETT (photo credit: MARC ISRAEL SELLEM)

The timing of Prime Minister Naftali Bennett's trip to Washington to meet with US President Joe Biden next week is notable.

Just last week, some analysts were saying that after passing a massive, bipartisan infrastructure bill, Biden is a stronger president than ever, and that Bennett should keep that in mind.

But now – after the fiasco of the US pullout from Afghanistan – Biden will be coming to the meeting from a much weaker position in the region than if the meeting had taken place last week or before then.

US PRESIDENT Joe Biden has been riding a new wave of populism that will become the central theme in the next decade's election campaigns across the Western world: disparaging big tech corporations. (credit: JONATHAN ERNST / REUTERS)

The events that unfolded in Afghanistan were hardly surprising to Israelis. They were history repeating itself.

Israel already knows what happens when it withdraws from territory. It may have worked out mostly well with the Sinai Peninsula, but the two other times out of three, Islamist terrorists took over. First, when the IDF left southern Lebanon in 2000, and then after the Disengagement from the Gaza Strip in 2005.

In both of those cases, a local population had been trained to keep the extremists at bay – first, the South Lebanon Army, which worked with the IDF, then, Fatah-

affiliated Palestinian Authority security forces, trained by the US – and they were quickly overrun and massacred by Hezbollah and Hamas, respectively.

But the Biden administration acted like it had no idea what had happened in our part of the world, or – to make a comparison Biden and Secretary of State Antony Blinken do not like – in Vietnam.

The US intelligence estimate that was made public was that it would take 90 days for the Taliban to take Kabul; it took them less than a week. The US trained the Afghan military to defend its country from terrorists; the soldiers surrendered to the Taliban. Plus, the US said it would give special immigration visas to Afghans who worked with Americans; only a fraction of them have managed to get out so far, and many thousands of Afghans mobbed the airport in Kabul to try to escape.

All of this adds up to a US that has far less credibility to make demands of, and promises to, Israel.

The Biden administration is not currently pressuring Israel to make territorial concessions, though it vocally opposes building homes for Jews in Judea and Samaria and seeks a two-state solution in the long term.

The US – with the exception of the Trump administration – has long sought to offer security guarantees in exchange for Israel withdrawing from the West Bank. With Israel's recent history, it's a hard sell. While a narrow majority of Israelis support a two-state solution, according to many polls, fewer tend to support the territorial concessions that would allow that to happen. And a military withdrawal from the Jordan Valley is something that the political Center and Center-Left, in addition to the Right, oppose.

ISRAEL HAS never really entertained offers of international forces or US surveillance technology, as former secretary of state John Kerry suggested, to take the place of IDF boots on the ground in the Jordan Valley. But the current state of affairs in Afghanistan makes American security assurances weaker and less reliable. Who's to say that the US won't get sick of guaranteeing Israel's security and stop doing it, consequences be damned?

The same is true of US security assurances when it comes to Iran. The Biden administration is still pushing for a return to a nuclear deal with Tehran that would allow it to have a nuclear weapon when the deal expires in less than a decade. Washington has asked Jerusalem to work with it instead of making a loud public campaign against the nuclear negotiations, as former prime minister Benjamin

Netanyahu did, saying it will make sure Iran can never threaten Israel with nuclear weapons. And Bennett agreed to greater cooperation on the issue, even saying on Wednesday that he is taking an “approach of partnership.” But the situation in Afghanistan must give him pause when taking a long-term view on the Iranian nuclear threat.

This is why the quintessentially Israeli philosophy about national security is that Israel needs to be able to defend itself on its own. Partnerships are good and should be cultivated, but Israel cannot rely on them.

The weakening of the US position in the region following Afghanistan could also make Israel more vulnerable in the sense that its enemies may test Israel to see if it is still strong even when its largest strategic ally is wavering.

But it could strengthen Israel’s standing in the region, by encouraging partnerships with other Middle Eastern countries with strong ties to the US, such as the Abraham Accords countries – the United Arab Emirates, Bahrain and Morocco.

When Bennett heads to the White House – whenever it will be – he will be encountering a US president with weaker levers of pressure and less credibility than it had just a week ago in regard to the Middle East. But as one source close to Bennett posited, he may also find that Biden is more willing to take Bennett’s and Israel’s regional allies’ positions more seriously, as the US seeks to reduce engagement in the region while avoiding a repeat of its blunders.

https://en.shana.ir/news/319959/West-Karoun-Oil-Fields-under-Development
21 August 2021 - 15:22

- News Code: 319959

West Karoun Oil Fields under Development

TEHRAN (Shana) -- West Karoun is home to a cluster of oil fields Iran shares with neighboring Iraq. This area in western Iran is set to form a new oil civilization in Iran. There are 11 oil fields in West Karoun. Iran Plans to develop them to increase its oil output by 1 mb/d by developing these fields.
Arvand and Phase 3 of Darquain are among these projects.

Darquain field will have a 200,000 b/d share in the above figure. Darquain which lies in Khuzestan Province is 45 kilometers north of the city of Khorramshahr and 100 kilometers south of the oil-rich city of Ahvaz. The field is expected to see its output exceed 220,000 b/d once phase 3 development is fulfilled.

Darquain is one of the 49 oil fields introduced for investment under the Iran Petroleum Contract (IPC) model.

Darquain which was discovered in 1964 following drilling one exploration well, holds over 5 billion barrels of oil in place, 1.3 billion barrels of which is recoverable. Darquain's oil is light with an API gravity of 39. The oil produced at this field is delivered to the Ahvaz-Abadan oil pipeline.

According to estimates, the investment required for the development of Darquain-3 amounts to $1.5 billion. Darquain-3 envisages operating the Ilam and Sarvak reservoirs, as well as the untapped part of Fahlyan. To that end, water and gas would be injected into the Sarvak reservoir and gas would be injected into the Fahlyan reservoir.

Furthermore, 31 oil wells, 6 gas injection wells, crude oil processing facilities including pipelines, processing installations, gas compressors, infrastructure including crude oil storage tanks and roads are among other activities under way at Darquain-3.

Darquain-1 and Darquain-2 were developed by Italy's Eni under buyback deals. A state-of-the-art technology – simultaneous oil and associated gas injection – is being used there.

In August 2011, an agreement was signed with an Iranian consortium for the Darquain-3 development after Eni quit cooperating with Iran due to international sanctions. But the Iranian consortium failed to handle the project and the project remains open to international investment.

In phases 1 and 2, oil was recovered from Fahlyan formation. In phase 3, oil recovery from the Ilam and Sarvak layers will be done, as well.

Darquain-1 came online in 2005. Darquain-2 required $1.3 billion in investment and demining 7.5 million square meters. Darquain-2 came online in February 2011.

Darquain-3 was expected to become operational within five years. Three years have since passed and the field is still far from startup. According to plans, in the first stage, 14,000 b/d of light crude and in the second stage, 46,000 b/d of heavy crude will be extracted from Ilam and Sarvak layers.

Darquain-3 targets the heavy crude layers of Ilam and Sarvak and the undeveloped part of Fahlyan. Eni completed feasibility studies on this project and submitted its results.

The findings of Eni studies indicate that the heavy crude in Ilam and Sarvak layers were recoverable. Due to the heavy crude oil content, the third phase is totally different from the first and second phases.

Arvand Awaiting Investment

Until a couple of years ago, development of the oil and gas fields that Iran shares with neighboring countries had been slowed due to financial and technical impediments in Iran, thereby helping neighboring nations make big gains.

Iran has shifted its focus on the development of joint oil and gas fields located mainly in South Pars and West Karoun. In the West Karoun area, Iran shares oil fields with Iraq. Three West Karoun oil fields recently started production.

The fields shared with Iraq have been proposed to foreign investors for future cooperation. Foreign companies may sign agreement with Iran based on the content of IPC.

Arvand oil field which is located 50 kilometers south of Abadan in Khuzestan Province is one of these fields in question. The field lies at the entry of Arvandroud River and is 42 kilometers long and 13 kilometers wide.

Arvand is estimated to contain one billion barrels of oil in place with a recovery rate of 15%. Arvand also holds over 14 bcm of dry gas and 55 million barrels of gas condensate.

Discovered in 2008, the Arvand field lies along Iran-Iraq border. Drilling had started in Arvand in 2006 for the purpose of estimating the hydrocarbon potential of the formations in the Khami and Bangestan centers.

Four well logging operations were carried out in Fahlyan formation to prove the existence of oil and gas in that formation. The Fahlyan formation holds light crude oil with API gravity at about 44.

Arvand oil field is administered by Arvandan Oil and Gas Production Company (AOGPC) whose production is estimated to reach 1.4 mb/d by 2025.

AOGPC is estimated to have the highest oil and gas production rate in the coming decade. A major facility inside this field is a 165,000-barrel-per-day processing unit. This treatment unit was built by National Iranian Oil Company during years when Iran was under sanctions. A variety of crude oil may be processed at this facility. Thanks to the existence of this treatment facility, the return of investment will be fast. Any investment in the development of Arvand oil field will have a good rate of return. The short distance between the Arvand field and the treatment facility is an indicator of the fast development of the oil field.

Several years ago, an agreement was signed between AOGPC and the Iranian Offshore Engineering and Construction Company (IOEC) for the development of the Arvand oil field, but the agreement was never implemented due to financial and other problems.

The Arvand oil field is expected to produce 5,000 b/d of oil in the first phase, which would reach 20,000 b/d in the final phase. The investment needed for the development of this field stands at $135 million, which is likely to increase. The API gravity of oil in Arvand varies between 39 and 43. The Arvand oil is planned to be delivered to the Abadan refinery.

Iran and Iraq share eight oil fields along their joint border with combined recoverable reserves of 14 billion barrels. The fields are Dehloran, Naftshahr, West Paydar, Azar, Azadegan, Yadavaran and Arvand. They have different names on the Iraqi side. Nine percent of Iran’s crude oil reserves exist in the fields shared with Iraq.

As recovery from jointly owned fields leads to migration of hydrocarbon, NIOC officials are concentrating on the development of such fields.

Courtesy of ***Iran Petroleum***

News Code 319959

https://www.libyaobserver.ly/news/jmc-calls-reorganizing-security-forces-no-mention-haftars-militias

JMC calls for reorganizing security forces, but no mention of Haftar's militias

August 17, 2021 - 16:44

Posted in:

NEWS

Written By: SafaAlharathy

The 5+5 Joint Military Committee (JMC) has called for the reorganization of the security and military organs, expressing concern that the current status could affect the committee's plans to remove the specter of war and restore security and stability.

Many security services have been granted powers or assigned overlapping functions that may undermine security and stability in the country, the committee said in a statement following a meeting in Sirte on Saturday.

But it was notable that the JMC listed a group of security and military organs, none of which were from the eastern region operating under Haftar's command.

The list included groups regarded as the spearhead of forces that the UN-recognized government relied on to repel Haftar's offensive on Tripoli.

Among them were the Western, Central, and the Tripoli Military Regions, as well as the Counter-Terrorism Force, the Deterrence Force, and the Joint Force of Misrata.

The statement indicated that the absence of specific assignments for each apparatus has generated instability and strained the capacity of the military and security establishments.

It called for re-associating these agencies to the Chief of Staff and the Ministry of Interior, provided their tasks be determined according to a scientific and professional study.

The JMC also expressed its rejection to grant the security organs financial independence, as it believes they should be under the General Staff and the Ministry of Interior.

Tags:

Libyan Leader Warns Foreign Meddling Poses Risk to Landmark Vote
2021-08-20 08:58:30.197 GMT

Aug. 20 (National Post) -- (Bloomberg) - Libya's prime minister vowed a landmark December presidential election would go ahead even as foreign meddling poses obstacles to the vote.
Holding the ballot on Dec. 24, which could end a decade of turmoil in the OPEC member, is his administration's most important task, Abdul Hamid Dbeibah said. It would cap a United Nations-led process to reconcile rivals who emerged in the chaotic years following a 2011 uprising that toppled leader Moammar Qaddafi.
But Libya's conflict also morphed into a proxy war involving Russian mercenaries and other foreign fighters. A cease-fire is holding as outside powers look to the election as the culmination of their efforts.
"International interventions, as well as the interventions of military systems, may create obstacles to the holding of elections, despite all countries officially" supporting the vote, Dbeibah said Wednesday in an interview in Tripoli.
Nevertheless, he said, Libya would not return to war.
One intervention is supposedly being plotted by Russian President Vladimir Putin. He's said to be intent on challenging the U.S. and Europe, as well as Turkey, by elevating into office the ex-dictator's son, Saif al-Islam Qaddafi, who's emerged from years of seclusion.
Putin's Qaddafi Comeback Gambit Sows New Conflict With the West
The Kremlin's pressuring Libyan military strongman Khalifa Haftar, who controls much of the oil-rich east, to support the push, according to people in Moscow aware of the efforts. The ploy, if successful, would boost Russia's clout in the Middle East after Putin propped up Syria's Bashar Al-Assad.
Saif al-Islam's "a Libyan citizen and the son of an important tribe in Libya, and I have no objection to the candidacy of any citizen who has no legal issues," said Dbeibah, chosen by delegates at a February UN forum.
Election rules not yet formalized could in theory bar Qaddafi from running - he's wanted for war crimes by the International Criminal Court - or make a problem of Haftar's dual U.S.-Libyan nationality. No candidate has put their name forward.
Dbeibah said he only communicated indirectly with Haftar when his term began to resolve matters including prisoner exchanges, but Haftar's recent speeches haven't been encouraging. The premier doesn't object to meeting Haftar if he "recognizes me as prime minister and defense minister," he said.
The premier cited progress toward agreeing the exit of mercenaries. "I won't say they'll be out in a month or two," but they'll eventually leave, he said, describing a "very significant decrease" in weaponry brought into Libya.
Conflict has stunted efforts to revive the economy,

stabilize oil production and provide basic services. Libya pumped 1.17 million barrels a day in July, down from 1.6 million barrels before the 2011 revolution.

Libya's oil minister says sustaining output might be difficult unless lawmakers pass a long-delayed budget. The draft plan allocates 25% of development spending to the National Oil Corp., about 3 billion dinars ($661 million).

Libya will present projects for investment at two oil and gas conferences at year-end, one in Texas, the other in Tripoli, Dbeibah added.

Italy's Eni SpA, TotalEnergies SE of France and Spain's Repsol SA have stakes in Libyan oil projects. Russian energy company Gazprom PJSC is also in Libya.

Dbeibah cited "offers from Eni, which is ready to invest $10 billion in various oil fields, as well as Total that has an investment budget in Libya of more than $2 billion."

The premier said he hasn't yet looked into changing the NOC's head, Mustafa Sanalla, as the oil minister suggested. "It may or may not change - everything is possible," Dbeibah said. There will be personnel "changes, but not in the form the minister requested."

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-0- Aug/20/2021 08:58 GMT

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https://www.reuters.com/world/india/exclusive-india-starts-selling-oil-strategic-reserves-after-policy-shift-2021-08-17/

August 17, 20216:01 PM MDTLast Updated 3 days ago

EXCLUSIVE India starts selling oil from strategic reserves after policy shift

By Nidhi Verma

A worker holds a nozzle to pump petrol into a vehicle at a fuel station in Mumbai, India, May 21, 2018. REUTERS/Francis Mascarenhas

NEW DELHI, Aug 17 (Reuters) - India has begun selling oil from its Strategic Petroleum Reserve (SPR) to state-run refiners as it implements a new policy to commercialise its federal storage by leasing out space, three sources familiar with the matter said.

Reuters reported last month that India had changed its policy to allow the Indian Strategic Petroleum Reserves Ltd (ISPRL), which manages the federal oil inventories, to lease 30% of its overall 37 million barrels capacity to Indian and foreign companies. read more
Last year, the ISPRL filled the SPRs with cheap oil and it needs to sell some of that to make way for leasing.

So far Abu Dhabi National Oil Co (ADNOC) has leased one of the two equal size chambers at the 11-million-barrel Mangalore SPR.

The ISPRL is gradually releasing 8 million barrels from the SPRs to create space to also lease to state-run Mangalore Refinery and Petrochemicals Ltd (MRPL.NS) and Hindustan Petroleum Corp (HPCL.NS), the sources said, asking not to be named.

After last year's oil price crash, caused by a collapse in demand triggered by the COVID-19 pandemic, prices have rallied strongly.

Refiners face higher costs for term supplies from the Middle East after Saudi Aramco hiked September official selling prices to the highest since February 2020, reflecting tighter sour crude supplies following production cuts by the Organization of the Petroleum Exporting Countries and its allies (OPEC+).

The two state-refiners, however, will buy oil from the ISPRL at a discount to the official selling price set by the producer countries.

India, the world's third-biggest oil importer and consumer that imports over 80% of its oil needs, is mirroring a model adopted by countries such as Japan and South Korea in its commercialisation of its SPRs.

The aim is to boost private participation in two new facilities that are planned.

Although the scale of India's oil release from the SPR is relatively small, it may reduce imports of UAE oil, one of the sources said.

So far, the ISPRL has started to sell about 5.5 million barrels of Upper Zakum oil from the UAE, which is stored in its Mangalore cavern, to MRPL.

It is seeking to empty the chamber by February, because MRPL wants to store a different grade of crude in it, two of the sources said.

MRPL will lease 300,000 tonnes of space in the Mangalore, while HPCL will take a similar-sized space in the about 7.5-million barrel Vizag SPR, which contains Iraqi Basra oil, they said.

The sources said HPCL wants the Iraqi oil, so the full volume does not need to be sold.

In the next stage, the ISPRL will lease out some space in its 2.5 million tonne (over 18 million barrels) Padur storage, which holds a mix of Arab oil, they said.

Under the policy shift, the federal government will also allow the ISPRL to trade oil equivalent to 20% of the overall SPR capacity in the India markets. The ISPRL has yet to decide on when to sell its share of oil in market, the sources said.

The ISPRL, HPCL and MRPL had no immediate comment when contacted by Reuters.

https://www.reuters.com/article/uk-column-russell-oil-china/column-china-draws-again-on-crude-oil-inventories-despite-refinery-slowdown-idUSKBN2FI0PG

COMMODITIES

AUGUST 17, 20212:46 AMUPDATED AN HOUR AGO

Column: China draws again on crude oil inventories, despite refinery slowdown

By Clyde Russell
4 MIN READ

LAUNCESTON, Australia (Reuters) - China drew on crude oil inventories in July, marking the fourth consecutive month it has processed more crude that what was available from domestic output and imports.

An employee walks past oil tanks at a Sinopec refinery in Wuhan, Hubei province, April 25, 2012. REUTERS/Stringer/File Photo

The call on inventories was smaller in July than in the previous two months, but this was more a reflection of weak refinery processing rates rather than any underlying boost to demand.

China, the world's biggest oil importer, appears to have taken about 223,700 barrels per day (bpd) from reserves in July, according to calculations based on official data.

The country doesn't disclose the volumes of crude flowing into strategic and commercial stockpiles. But an estimate can be made by deducting the total amount of crude available from imports and domestic output from the amount of crude processed.

Refiners processed 59.06 million tonnes in July, a 14-month low and down from a record 60.82 million in June, according to data released on Monday by the National Bureau of Statistics.

Domestic output was 16.87 million tonnes, while imports were 41.24 million, giving a total 58.11 million tonnes of crude available to refiners.

Subtracting the crude available from the processing volume leaves a deficit of 950,000 tonnes, which is equivalent to about 223,700 bpd, using standard conversion factors.

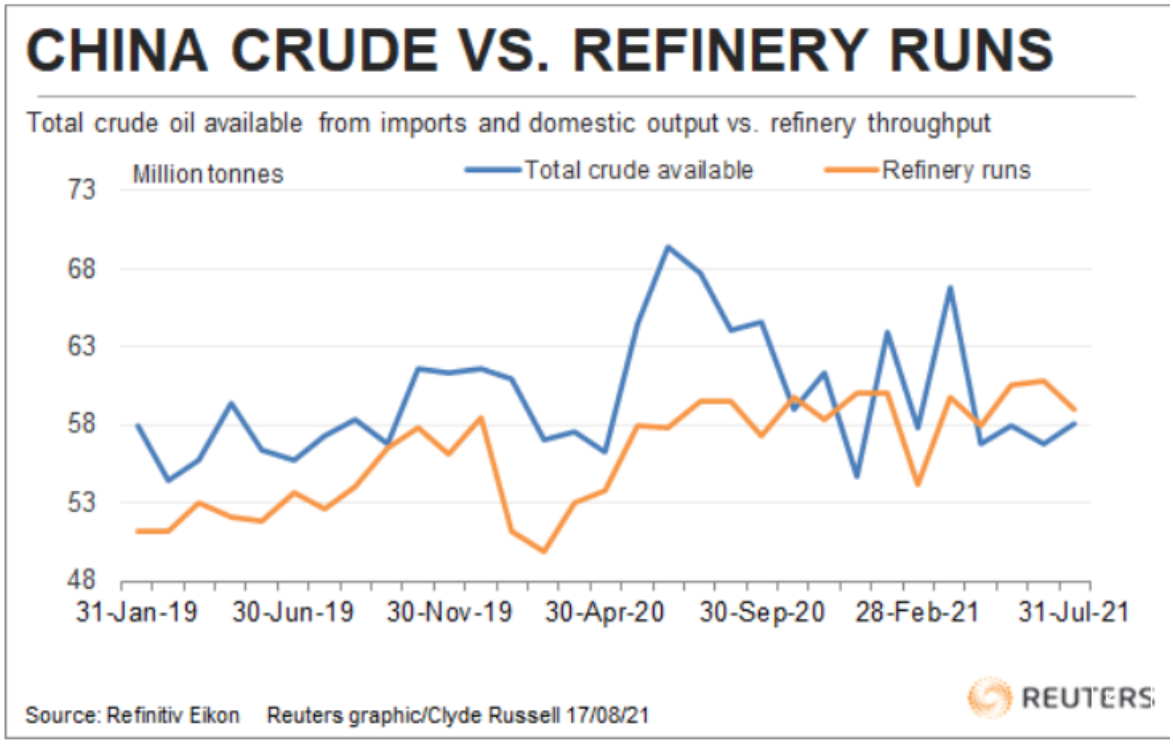
The small draw in stockpiles in July followed larger calls on inventories of around 980,000 bpd in June, 589,000 bpd in May and 280,000 bpd in April.

China has in recent years been rapidly building up its strategic petroleum reserve (SPR) and commercial stockpiles have also grown as new refineries come online and have to build up working inventories.

However, refiners started to draw on stockpiles in October last year, and have called on inventories in six of the last 10 months.

China snapped up large volumes of crude when prices plunged to two-decade lows during the coronavirus pandemic, which coincided with a brief price war between top exporters Saudi Arabia and Russia in March last year.

China imported so much crude in the middle part of last year that it resulted in long vessel queues outside ports, and it struggled to offload the cargoes.



CRUDE RALLY

Refiners appear to have taken the view that crude oil prices have risen too far too fast as the output restrictions by the OPEC+ group of exporters saw benchmark Brent futures surge some 387% from the pandemic and price war low in April last year to a 2021 high of $77.84 a barrel on July 6.

Since then crude prices have trended lower, with Brent ending at $69.51 a barrel on Monday as the market starts to retreat from its bullish view amid the reality of weak demand in China, and much of the rest of Asia as the top-importing region continues to battle the coronavirus pandemic.

It's not just high prices that are affecting China's crude oil imports and refinery throughput.

Processing rates at smaller, independent refiners were lower in July as they faced tightening quotas and increased taxes on what is known as bitumen blend, which had been a popular feedstock for some independent refiners.

The increased official scrutiny of imports and a renewed coronavirus outbreak in China may serve to keep crude imports and refinery processing muted in August.

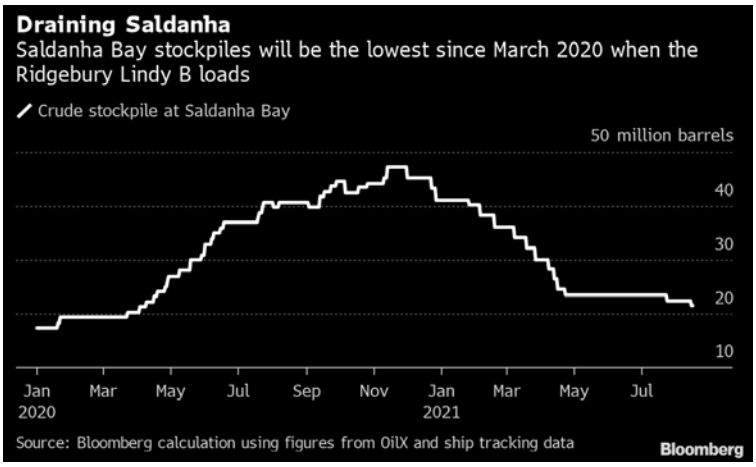
However, cheaper crude prices and the emergence of discounts on physical cargoes may be enough to tempt some major refiners to purchase more cargoes, although whether they will resume stockpile builds remains an open question.

The opinions expressed here are those of the author, a columnist for Reuters.

Editing by Michael Perry
Our Standards: *The Thomson Reuters Trust Principles.*

Saldanha Bay Crude Stockpile Set to Drop to Pre-Pandemic Level
2021-08-17 09:03:51.33 GMT

By Julian Lee
(Bloomberg) -- The volume of crude held at South Africa's Saldanha Bay storage terminal is set to fall to its lowest level since March 2020 once the Suezmax tanker Ridgebury Lindy B loads a cargo it is scheduled to pick up in the coming days.
* The vessel has been waiting off the terminal since Aug. 12, according to ship-tracking data monitored by Bloomberg
* The VLCC DHT Puma loaded a cargo of about 1m bbl on Aug. 15, the data show
* Click here to see a PDF table of tankers discharging at and loading from Saldanha Bay
* There is now about 21.5m bbl of crude stored at Saldanha Bay, according to Bloomberg calculations using standard cargo sizes
* That will drop to 20.5m bbl if the Ridgebury Lindy B loads a full cargo of 1m bbl



* * Storage levels at Saldanha Bay in March 2020 were 20.3m bbl, according to Bloomberg calculations based on crude movements into and out of the terminal; they stood at 34.2m bbl on March 18 of this year: OilX data
* NOTE: Saldanha Bay's location offers traders flexibility to quickly send cargoes to different geographical markets
** The terminal is also used to supply crude to the nearby 110k b/d Astron Energy refinery, although the plant has been shut since an explosion and fire in July 2020 and is not expected to restart until at least 2022

To contact the reporter on this story:
Julian Lee in London at jlee1627@bloomberg.net

OIL DEMAND MONITOR: Flying Recovery Falters as Infections Rise
2021-08-18 05:47:24 GMT

- Fewer Americans passing through airports, TSA data show
- Airline seat capacity rising again in South Africa, Australia

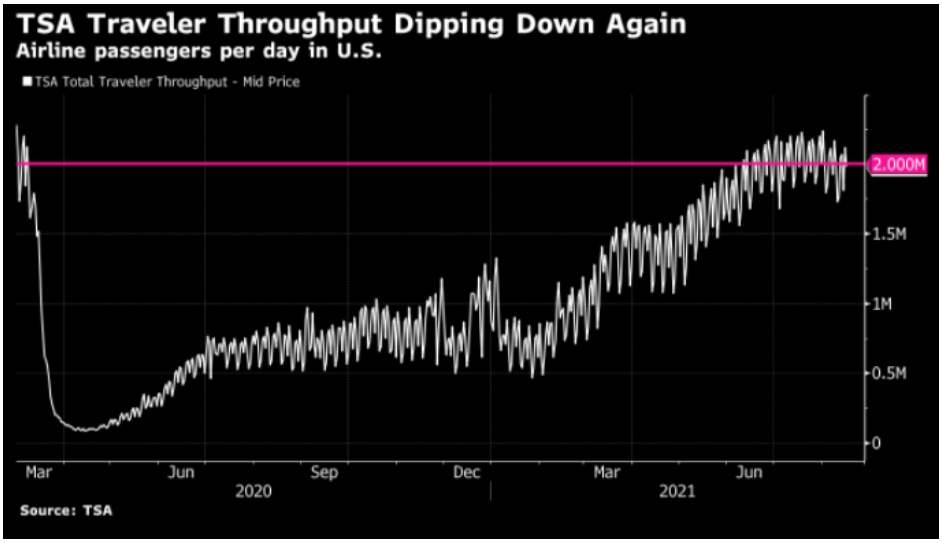
By Stephen Voss

(Bloomberg) -- Enthusiasm for air travel is waning in the U.S. and Japan as a renewed wave of infections fueled by the highly transmissible coronavirus delta variant crimps summer travel.

The largest week-over-week change in the number of seats offered by airlines was in the U.S. where capacity dropped by 2.1%, equivalent to just over 407,000 seats, according to estimates from OAG Aviation. Japan lost 293,000 seats, as the nation battles surging infections and expanded emergency restrictions already in place in Tokyo. Capacity rose in other places though.

The net result was little change in worldwide seat capacity, which is 35% below the same week of 2019, the OAG data show. Tracking by FlightRadar24 shows the global number of commercial flights slipped week-on-week and is now 28% below 2019, a wider margin than the 24% gap seen in mid-July.

The reduction of airline seats in the U.S. is corroborated by daily data from the Transportation Security Administration that shows the average number of passengers passing through the nation's airport security turnstiles dipping once more after generally holding up above 2 million per day for much of July and early August.



The TSA said in a statement on Tuesday that it is extending the mandate for people to cover their faces with masks on U.S. public transport until mid-January, including planes, buses and trains. Southwest Airlines Co. was among U.S. airlines in recent days to warn of reduced profits as fewer customers make bookings or cancel imminent flights. Elsewhere, airline seat capacity improved for the week starting Aug. 16 in former infection hotspots of Australia and South Africa, OAG said. Scheduled seat capacity in the U.K. finally overtook the number being offered in France and Germany, after lagging for many months.

China's capacity sank in the prior week of Aug. 9 as various provinces restricted travel though there is "some reversal of that this week with an additional 171,000 seats in the market, or 1.5% more capacity," according to OAG's latest report.

The U.S. and China are easily the world's largest airline markets ranked by seat capacity, with India, Spain and Japan currently competing for third place.

Toll Roads

Weekly data on toll road volumes from motorway-operator Atlantia Group show traffic getting busier week by week in Italy, France and Spain, and remaining above 2019 levels in Brazil, Chile and Mexico. Similar weekly data from government institutions in the U.S., U.K. and Poland show car passenger volumes within a few percentage points either side of 2019 levels. Because they cover a wider swathe of each country, such data points provide a more consistent measure of actual fuel demand than the more frequent hourly information on inner city congestion provided by location technology company TomTom NV.

The Bloomberg weekly oil-demand monitor uses a range of high-frequency data series to help identify trends that may become clearer later in more comprehensive monthly figures.

Following are the latest indicators, in the four tables below. The first two show fuel demand and mobility, the next shows air travel globally and the last is refinery activity:

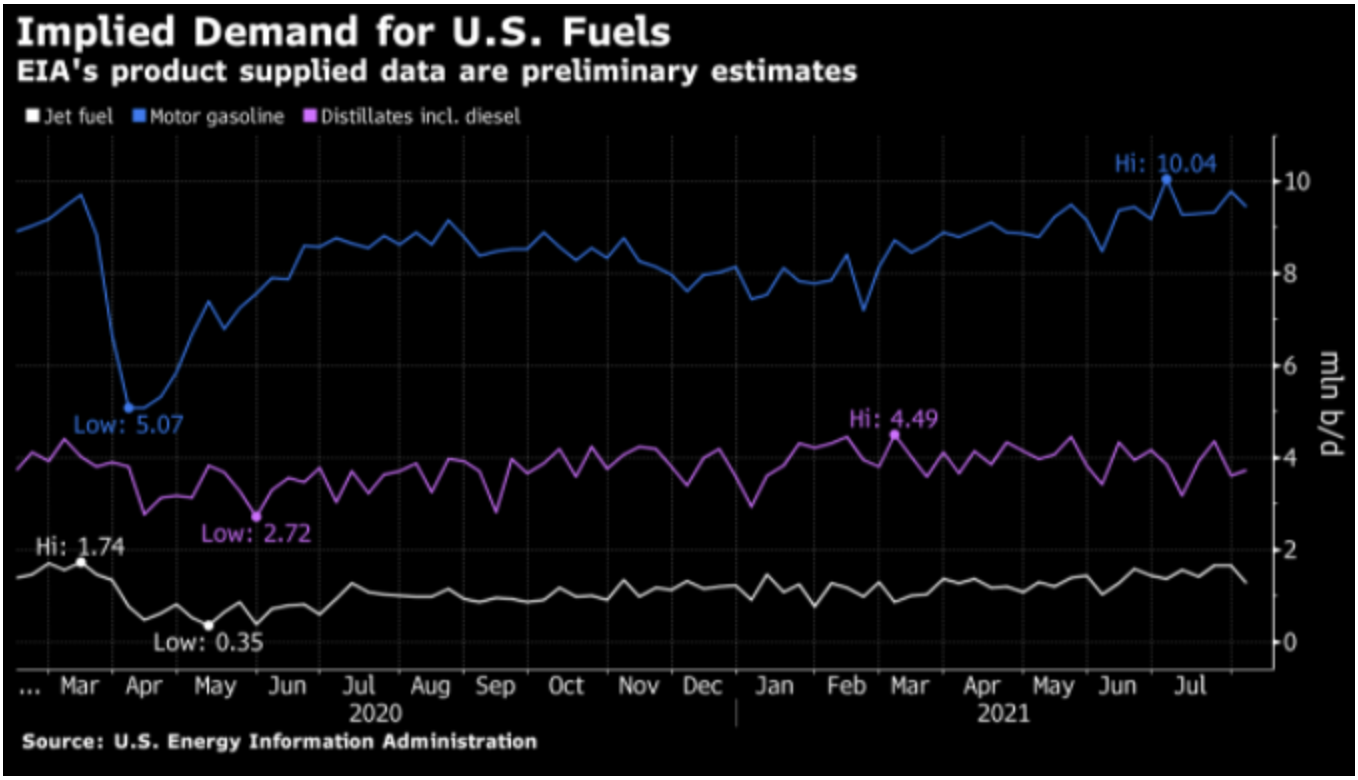
Measure	Location	% y/y	% vs 2019	% m/m	Freq.	Latest as of Date	Latest Value	Source
Gasoline demand	U.S.	+6.2	-5.1	+1.6	w	Aug. 6	9.43m b/d	EIA
Distillates demand	U.S.	-3.3	-3.2	+18	w	Aug. 6	3.73m b/d	EIA
Jet fuel demand	U.S.	+29	-37	-18	w	Aug. 6	1.28m b/d	EIA
Total oil products demand	U.S.	+0.7	-12	+1.1	w	Aug. 6	19.5m b/d	EIA
All vehicles miles traveled	U.S.		+1		w	Aug. 8	16.9b miles	DoT
Passenger car VMT	U.S.		-2		w	Aug. 8	n/a	DoT
Truck VMT	U.S.		+10		w	Aug. 8	n/a	DoT
All motor vehicle use index	U.K.	+5.4	-2	+4.3	d	Aug. 9	98	DfT
Car use	U.K.	+4.4	-6	+3.3	d	Aug. 9	94	DfT
Heavy goods vehicle use	U.K.	+4	+4	+1	d	Aug. 9	104	DfT

Gasoline (petrol) avg sales per filling station	U.K.	+8.3	-6	-2.2	m	Aug. 1	6,824 liters/d	BEIS
Diesel avg sales per station	U.K.	+4.4	-8.3	-2	m	Aug. 1	9,560 liters/d	BEIS
Total road fuels sales per station	U.K.	+6	-7.4	-2.1	m	Aug. 1	16,383 liters/d	BEIS
Gasoline	India		+3.7	-4.9	2/m	Aug. 1-15	986k tons	Bberg
Diesel	India		-7.9	-15	2/m	Aug. 1-15	2.11m tons	Bberg
LPG	India		-2.5	-2.7	2/m	Aug. 1-15	1.06m tons	Bberg
Jet fuel	India		-45	+25	2/m	Aug. 1-15	166k tons	Bberg
Total Products	India	+7.9	-6.5	+2.9	m	July 2021	16.83m tons	PPAC
Passenger car traffic	Poland	+6	+4	+4.4	w	Aug. 9-15	27,526	GDDKiA
Heavy goods traffic	Poland	+10	+30	-4.5	w	Aug. 9-15	4,446	GDDKiA

Heavy goods traffic	Poland	+10	+30	-4.5	w	Aug. 9-15	4,446	GDDKiA
Toll roads volume	Italy	+9.4	+4.3		w	Aug. 2-8	n/a	Atlantia
Toll roads volume	Spain	+22	-3.4		w	Aug. 2-8	n/a	Atlantia
Toll roads volume	France	-4.9	-1.7		w	Aug. 2-8	n/a	Atlantia
Toll roads volume	Brazil	+9.6	+3.1		w	Aug. 2-8	n/a	Atlantia
Toll roads volume	Chile	+104	+16		w	Aug. 2-8	n/a	Atlantia
Toll roads volume	Mexico	+19	+0.3		w	Aug. 2-8	n/a	Atlantia
All vehicles traffic	Italy	+7		+10	m	July	n/a	Anas
Heavy vehicle traffic	Italy	+4		+2	m	July	n/a	Anas
Gasoline	Spain	+13	+3.1		m	July	565k m3	Exolum
Diesel	Spain	+7.5	-4.8		m	July	2341k m3	Exolum
Jet fuel	Spain	+122	-45		m	July	422k m3	Exolum

The frequency column shows d for data updated daily, w for weekly, 2/m for twice a month and m for monthly.

* In DfT U.K. data, the column showing versus 2019 is actually showing the change versus the first week of February 2020, to represent the pre-Covid era.
** In BEIS U.K. data, the column showing versus 2019 is actually showing the change versus the average of Jan. 27-March 22, 2020, to represent the pre-Covid era.



City Congestion:

Measure	Location	% chg vs 2019	% chg m/m	Aug. 16	Aug. 9	Aug. 2	Jul. 26	Jul. 19	Jul. 12	Jul. 5	Jun. 28	Jun. 21	Jun. 14
		(Aug. 16)		Minutes of congestion at 8am local time									
Congestion	Tokyo	-69	-61	11	7	28	28	29	31	36	27	28	30
Congestion	Mumbai	-80	-20	7	7	9	7	9	5	6	5	5	4
Congestion	New York	-60	-13	13	17	16	16	14	18	0	16	16	22
Congestion	Los Angeles	-32	+33	24	17	16	16	18	17	3	17	16	19
Congestion	London	-60	-39	15	19	15	19	25	19	34	38	37	39
Congestion	Rome	-95	-90	2	7	16	22	23	23	35	13	36	34
Congestion	Madrid	-93	-71	2	2	5	5	8	13	14	16	18	22
Congestion	Paris	-80	-58	9	7	17	16	22	29	39	37	44	42
Congestion	Berlin	-14	+129	29	26	16	14	13	16	16	19	28	28
Congestion	Mexico City	-59	+3	20	19	20	19	20	22	23	24	21	26
Congestion	Sao Paulo	-43	+14	25	25	21	22	22	22	20	23	26	23

Source: TomTom. Note: M/m comparison is Aug 16 vs July 19. Japan had a public holiday on Aug 9. TomTom has been unable to provide Chinese data since late April.

Air Travel:

Measure	Location	% chg y/y	% chg vs 2019	% chg m/m	Freq.	Latest as of Date	Latest Value	Source
Airline passenger throughput	U.S.	+156	-14	-7.5	d	Aug. 16	1.98m people	TSA
Commercial flights	Worldwide	+30	-28	-5.5	d	Aug. 17	89,375	FlightRadar24
Air traffic (flights)	Europe		-30	+3.2	d	Aug. 16	24,579	Eurocontrol
Seat capacity	Worldwide	+28	-35		w	Aug. 16	76.34m	OAG
Seat cap.	China	-27	-33		w	Aug. 16	11.39m	OAG
Seat cap.	U.S.	+63	-15		w	Aug. 16	19.25m	OAG
Seat cap.	India	+92	-27		w	Aug. 16	2.9m	OAG
Seat cap.	Japan	-16	-51		w	Aug. 16	2.14m	OAG
Seat cap.	Australia	+63	-71		w	Aug. 16	595k	OAG
Seat cap.	Brazil	+118	-32		w	Aug. 16	1.7m	OAG
Seat cap.	France	+39	-31		w	Aug. 16	1.72m	OAG
Seat cap.	Germany	+45	-48		w	Aug. 16	1.71m	OAG
Seat cap.	Spain	+40	-25		w	Aug. 16	2.7m	OAG
Seat cap.	Mexico	+96	-4.9		w	Aug. 16	1.74m	OAG
Seat cap.	U.K.	+17	-56		w	Aug. 16	1.73m	OAG
Seat cap.	S. Africa	+286	-56		w	Aug. 16	259k	OAG

Refineries:

Measure	Location	y/y chg	vs 2019 chg	m/m chg	Latest as of Date	Latest Value	Source
Crude intake	U.S.	+10%	-6.4%	+0.6%	Aug. 6	16.2m b/d	EIA
Utilization	U.S.	+11 ppt	-3 ppt	unch	Aug. 6	91.8 %	EIA
Utilization	Gulf Coast U.S.	+13 ppt	-2.4 ppt	+1.7 ppt	Aug. 6	93.6 %	EIA
Utilization	East Coast U.S.	+20 ppt	+21 ppt	+7 ppt	Aug. 6	91.4 %	EIA
Utilization	Midwest U.S.	+2.7 ppt	-8.9 ppt	-6.4 ppt	Aug. 6	90.3 %	EIA
Apparent Oil Demand	China	-2.3%		-2.5%	July 2021	13.47m b/d	NBS
Indep. refs run rate	Shandong province, China	-6.6 ppt	+9 ppt	-7.1 ppt	Aug. 13	67 %	SCI99
State refs run rate	East China	+2.2 ppt	-1.9 ppt	-1.6 ppt	Aug. 13	80.6 %	SCI99
State refs run rate	South China	-0.9 ppt	+4.1 ppt	+1.3 ppt	Aug. 13	82 %	SCI99

NOTE: All of the refinery data is weekly, except for SCI99 state refineries, which is twice per month, and the NBS apparent demand, which is usually monthly.

https://www.spglobal.com/platts/en/market-insights/latest-news/shipping/081921-planned-two-week-panama-canal-maintenance-to-severely-impact-transit-capacity-acp

- SHIPPING
- 19 Aug 2021 | 17:18 UTC

Planned two-week Panama Canal maintenance to severely impact transit capacity: ACP

HIGHLIGHTS

Maintenance at Miraflores locks planned for Aug. 29-Sept. 10
Delays could extend to 14 days for non-booked ships: ACP
Tanker owners resist voyages through canal in long delay environments

- Editor
- Commodity
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Planned maintenance at the Panama Canal's Miraflores Locks from Aug. 29 to Sept. 10 could severely impact canal capacity and extend transit delays for "days, if not weeks after completion," the Panama Canal Authority has said.

The canal authority, or ACP, recommended shippers apply for an early transit booking to avoid delay in a message to its customers Aug. 18. It advised that booking availability would be limited, and that applying fewer than 25-30 days in advance could pose "significant risk, as it may already be too late to succeed in securing a booked slot."

The maintenance period would change the canal condition from condition 1 to 1.a, which decreases the estimated daily transit capacity to 13 transits/day from 15/d for super-class tankers with beam lengths of 91-107 feet (27.74-32.62 meters).

The ACP advised that during maintenance periods, non-booked ships have experienced delays of up to 14 days.

Current delays for tankers looking to transit from the Caribbean Sea through to the Pacific are around four days without pre-booking, according to clean tanker shipowners. At the last maintenance window from July 4-17, shipowners and shipbrokers estimated wait times stood between 10-11 days for non-booked ships, depending on the time of arrival at Panama.

The previous maintenance window July 4-17 at the east lane of the Gatun Locks had been extended an additional seven days from its previous expected outage from July 4 to July 10. During that outage, the canal transitioned to condition 2, with the number of transits for super-class ships having decreased to 10 slots daily from 13 at the older Panamax Locks.

Past transit delay increases at the canal have affected clean tanker freight levels for routes loading on the US Gulf Coast to West Coast South American discharge regions, whether by strengthening rates or maintaining a higher freight floor than long-haul voyages to East Coast South America or other destinations without requirements to transit the canal. As bunker prices

increase globally, shipowners show more resistance to making voyages through the canal during times of more delay days, opting rather for routes with higher daily earnings.

Current daily time charter equivalent earnings on the 38,000 mt USGC-Chile route stand around $5,500 per day at recently traded rates, according to a Medium Range tanker owner, assuming the current four days of expected delays at the canal. Daily operating costs for an MR stand around $7,000-$8,000/d, pushing earnings for an MR owner into the red on a roundtrip basis. The USGC-Chile route was last assessed at lump sum $1.195 million Aug. 18. On early Aug. 19, a traded rate on the route was reported lower at lump sum $1.175 million.

Google Translate version of Frankfurter Allgemeine Zeitung report https://zeitung.faz.net/fas/wirtschaft/2021-08-15/99f800c05cf6f44388cb5207a6cc1b0d/?GEPC=s3 Aug 15, 2021

Will green electricity get even more expensive, Mr. Bruch?

Siemens Energy builds wind turbines, gas-fired power plants and power grids. CEO Christian Bruch on the future of the energy supply and anger in his own company.

Siemens Energy wants to benefit from the energy transition: Onshore wind turbines are currently losing money for the company.

Mr. Bruch, renewable energies are the future, but your Siemens Gamesa wind division is delivering catastrophic results. What's wrong? Siemens Gamesa is at the forefront of the wind and participates in growth. The picture is only very mixed: the offshore and service sectors are doing very well, even better than planned. About two handfuls of projects in the onshore sector are not going well. Very annoying.

What exactly is so difficult about setting up wind turbines on land? It's not that management doesn't know how to install wind turbines on land. Currently, there are only three problems that can be solved, but cause additional costs: the introduction of a new product, the X.5 turbines, projects in Brazil under difficult conditions - keyword Covid - and the extreme price increase for the raw material, above all Steel and copper that affects the entire industry. The raw material consumption in the construction of wind turbines is high.

You criticize the lack of transparency in your wind division, which is based in Spain. Does Siemens in Munich and Berlin only notice problems when the child is in the well? We need to recognize such problems sooner. The conditions are clear: Siemens Gamesa is an independently listed company, we are represented on the supervisory board by three people.

Then they should have sounded the alarm earlier? You always have to see: there is the supervisory board and the operational management of a separate company, Siemens Gamesa, and they have to be clearly separated. Of course, I am not satisfied if we are surprised there with an ad hoc announcement of higher losses. Something like that is always unpleasant.

How much patience do you have with the new Gamesa boss, who has only been in office for a year? this is the wrong discussion. The new management around Andreas Nauen is working off old mistakes that it found. The CEO has replaced the executives in all areas, that now takes some time. The important thing for me now is: I want to understand the problems and see progress.

Will you join the Gamesa supervisory board yourself to show that the wind is now a top priority! No, that wouldn't change anything. Wind is already a matter for the boss. I absolutely believe in the future of wind energy; in the medium term, it offers us extremely good growth opportunities.

How much dry spell has to be survived beforehand? The turnaround in the onshore sector has been delayed, but it has to come. And again: In the other areas, the company earns money with wind, even more than expected.

The trouble in Spain has accompanied Siemens since joining Gamesa. Wouldn't it be time to take the company off the stock market to gain full access? The solution to the current problems has nothing to do with the size of our shares. Ownership is a strategic question: Can we generate more business and also more value if we hold more than 67 percent of Siemens Gamesa? Would 100 percent be better? First of all, operational performance has priority. In general, we stick to it: Siemens Energy wants to be the driver of the energy transition, wind is one of the pillars for this, but we also need transmission technology and gas-fired power plants as a transition technology. We work in all of these three fields.

Solar energy is not an issue? But. Simply because solar will play a major role in the future energy world. We just have to decide: In which position can we earn money with it? Certainly not as a manufacturer of solar modules, that's in Asian hands. But for example when integrating solar parks into the entire energy system. We are currently testing this with pilot projects.

Can solar energy play a key role for Siemens Energy alongside wind? Yes. The market is only just developing, there is still a lot of music in it.

That means: Are you looking for takeover targets? We look around, of course, but don't look for anything larger at first, at most smaller things. My motto is: first we want to stabilize Siemens Energy, then make it profitable - and then grow.

Do we need our own production facility for solar modules in Germany? Comparable to the battery production for e-mobility, which is now being set up by the car manufacturers? You have to at least think about how you want to achieve the expansion targets for solar energy. Especially when you look at the supply chains. It would be naive to believe that the procurement market will remain as it is. All states are pursuing their own interests, especially China.

Does China use the solar modules for power-political goals? Most of the modules come from Chinese suppliers. And as much as solar energy is to be expanded, in China and around the world, the question arises: How will the demand be met? Where are the modules delivered first? At the moment the prices for goods from China are rising massively, which will have consequences for the prices for solar power. Under these circumstances, it will not be possible to maintain the current low prices. It is similar with the wind. If raw material prices continue to rise, electricity prices will have to rise there too. We have to face that. So far the attitude has been: Renewable energies are getting cheaper and cheaper. It was the same in the past few years.

And not more in the future? If the underlying material cost continues to rise, that won't be possible. Society then has to decide: How will the energy transition continue under these conditions? What are renewables worth to us? Just setting goals will not be enough. To believe that we can quickly expand renewable energies and that electricity is becoming cheaper and cheaper, that doesn't go together. The energy transition will cost money.

So the energy transition will be even more expensive, even though we are already paying the highest electricity prices in Germany? The CO2-free energy generation is not available for free. The energy source that has grown the fastest worldwide in 2020 and 2021 is coal. You have to see that clearly. And there is a reason for this: Energy from coal is the cheapest, especially in emerging countries with corresponding coal resources. If we want to change our energy supply - and we have to - then we have to talk about the basic rules in this market.

They advocate the construction of new gas-fired power plants. Isn't that just self-interest because you want to keep selling your fossil fuel power plants? The demand for electricity in Germany will grow considerably, by 30, 40 or even 100 percent, as some say. The federal government recently increased its demand forecast, but I also think the new forecast is too low. If we are really serious about the change in mobility, industry and heating, then we will need a lot more electricity. Renewable energies form the backbone. But we will also need gas-fired power plants as a bridging technology for a transition phase. Not only for weather conditions with little wind and sun, but because otherwise we simply cannot meet the demand. The only alternative to this is to continue operating coal-fired power plants. And that is clearly worse. If you replace an old coal-fired power plant with a new gas-fired power plant, you reduce CO2 emissions by around two thirds. In Germany, with the phase out of nuclear and coal, almost 40 percent of electricity generation capacity will be lost. We need a replacement quickly for this.

But do new gas-fired power plants pay off economically? They are only intended for a transitional period and would have to be scrapped prematurely if Germany is to become climate neutral by 2045. Not necessarily. Gas turbines can already be operated with a share of 30 to 60 percent climate-neutral hydrogen. We are working to ensure that full hydrogen operation will also be possible in two years. So at least they will not become “stranded assets” that have to be written off prematurely.

The biggest problem with climate protection, however, is not the German power plants, but those in China and other emerging countries. Clear. China still has a 70 percent share of coal-fired electricity. In South Africa, a new coal-fired power plant with an output of 4800 megawatts went online this year. If we do not replace coal with gas in the emerging countries, we can forget about global climate protection goals. That is a question that must be discussed at the world climate summit in Glasgow in November. In the Paris climate protection agreement it is said that the rich countries support the other states in the energy transition. So far, this has not been done sufficiently. If we don't like the fact that emerging countries that have coal use it to generate electricity, then we have to be ready for financial transfers.

Do you seriously believe that developed countries will fund the shutdown of coal-fired power plants in China? At least a discussion between the two sides will be needed on how economic development and sustainability can be reconciled. If you are not ready for that, then I wonder why it was written into the Paris Agreement at the time. The fact is: there will be no solution to the CO2 problem without an intensive discussion with China.

Siemens Energy's coal phase-out was criticized as half-hearted. When will you consistently draw a line? We stopped building coal-fired power plants in November 2020. It was painful because it was a profitable business for us. However, we are maintaining maintenance and service because we are reducing emissions with our highly efficient technology. The power plants are up, so the aim is to reduce their emissions.

When will Siemens Energy book the last euro from the coal-fired power plant business? I cannot give you an appointment for this.

Siemens, on the other hand, withdrew from nuclear energy a long time ago. Will nuclear power become more important again because of climate change? Internationally, nuclear energy as a CO2-neutral power source is again being discussed more intensively. France is already betting very strongly on this. There is talk of small modular nuclear power plants in Canada and the United States. In Germany, however, the issue has been dealt with. You can't get out of such technologies and get back on again. Germany is facing completely different challenges that we urgently need to talk about.

Go ahead. What do you mean? The energy transition will fail without a much faster expansion of wind power, solar energy and power grids. If we want to prevent that, we need a new set of rules that will allow us to move faster. It will be a huge process for society. We have to discuss this intensively.

What exactly has to be faster? All. We have to talk about fundamental things. We have a federal system in Germany, there are lengthy objection procedures. The construction of a power line currently takes up to 13 years. But if I want an important energy project to be through in twelve months and not in five years, then I have to do it differently than before. Whoever provides the new federal government will have to deal with this challenge.

Does that mean a restriction of the rule of law? No, that's a normal legislative process. Sometimes you just have to take something old away when you want to build something new. That's change, but it's important. Politicians must be ready to hold this fundamental discussion.

Chinese planning law is difficult to enforce in Germany. It's not that black and white. “Business as usual” does not work. As Albert Einstein said: It is madness to do the same thing over and over again and expect different results. This also applies to the energy transition. I find the narrative that sustainability shouldn't cost anything is extremely difficult. The energy transformation will cost a lot of money. And of course we also have to think about how Germany can secure its prosperity at the same time. But if there is always an outcry of indignation that stifles any debate, then we will not be able to change anything.

Politicians have to be elected. That is why the question of who bears the costs is relevant. Yes absolutely. But we have to create a culture of discussion that enables such a debate. It is not just politics that is challenged, but society as a whole. The media too. What use is a politician to me who says: I cannot look into the future for more than one term? It must be clear to everyone: We are not just talking about a new technology here. We are talking about a fundamental restructuring of the system. The IPCC climate report speaks a clear language.

In your opinion, which party has the most convincing concept for this before the federal election? It is not my job to evaluate the individual party programs. What is important, however, is that all parties involved in government in the autumn must be aware of the size of this task. That is why I very much hope that we will quickly get a federal government capable of acting. The worst would be a long hang-out until a government is formed.

Your supervisory board boss Joe Kaeser is clear for the Green Annalena Baerbock. Then you can say that too, right? My supervisory board boss can speak for himself. In the end, the decision is in the hands of the voters.

The interview was conducted by Georg Meck and Marcus Theurer

https://www.washingtonpost.com/washington-post-live/2021/08/16/transcript-path-forward-future-energy-with-chevron-chair-ceo-michael-wirth/

Washington Post Live

Transcript: The Path Forward: The Future of Energy with Chevron Chair & CEO Michael Wirth

By Washington Post Live

August 16, 2021 at 5:39 p.m. EDT

MR. IGNATIUS: Welcome to Washington Post Live. I'm David Ignatius, a columnist for The Post. Today in our continuing series The Path Forward, we're joined by Mike Wirth, the CEO of Chevron, one of the world's largest oil companies. We're going to talk about the future of energy, his business. Welcome, Mike. We're pleased you could join us.

MR. WIRTH: David, it's a pleasure to be here.

MR. IGNATIUS: So we're going to talk about new technologies, the ways you're trying to get involved in carbon reduction in a moment. But I want to begin with some basics about the global energy market. Crude oil futures have roughly doubled since their lows last year. They're now just under $70 a barrel. And I'm curious whether you think that's a sustainable level. The International Energy Agency just recently talked about a softening of demand as the recovery continues. What are you expecting, from your perspective, about prices?

MR. WIRTH: David, we've got a market that is really not in a state of equilibrium. Demand is returning but unevenly, and with a lot of uncertainty as the effects of the pandemic still are evident in many of the markets around the world. We've seen strong recovery and demand for gasoline and diesel fuel in most places, aviation fuel less so, particularly with international air travel being at a very low level.

And then on the supply side, there's been a lot of investment withdrawn from projects that would deliver new supply, and the countries in OPEC and OPEC+ have pulled production back as well. And so there's supply that can come back into the market readily and has been coming back steadily here over the past number of months. And then on the demand side, we've seen a recovery but also uncertainty. And so it's a market really that is not in equilibrium, and I think it's a difficult one to make projections about, because you have to make assumptions about both supply and demand that are very difficult in an uncertain environment like this.

MR. IGNATIUS: It was interesting that last week the Biden administration decided to urge OPEC to increase production, obviously concerned about rising prices. That occasioned some criticism from your industry--from the American Petroleum Institute which represents your industry--I think arguing basically here the Biden administration has been trying to reduce domestic production and now it's calling for increased OPEC foreign production. What did you think about that announcement, and do you think that the Biden administration should be doing more to encourage production domestically?

MR. WIRTH: Well, I think, you know, like every other White House, this administration knows that affordable and reliable energy is essential to our economy. We've got a good recovery underway in the United States, and historically high energy prices have been a drag on the economy. And so I think what we saw was a recognition of that fact. Some of the discussion that you've seen does relate to the fact that the administration has fairly quickly implemented a number of policies on pipelines, on leasing, and has telegraphed an intent for more that would make it more difficult to invest in the U.S., to grow production. The U.S. had become the largest producer in the world in recent years. And I think the messages you heard were our industry is prepared to invest and create supply in this country. And so the call on other countries to meet our needs is one that we can meet ourselves, and I think that's really what you heard from API and from some others.

MR. IGNATIUS: And I take it that was the position that you and your company would support, that we ought to do more to get domestic production up before we encourage OPEC.

MR. WIRTH: Well, look. It's a global market, and so we need supply from all over the world to meet needs all over the world. But the--you know, the energy industry was a tremendous part of the recovery out of the last recession in 2008, has created a tremendous number of new jobs and economic strength. We're seeing investment in manufacturing and other industries that is predicated upon readily available and affordable domestic energy, and we think that's good policy for the United States.

MR. IGNATIUS: So as I say, I want to get to the energy alternatives to fossil fuels in a bit, but just staying with some traditional energy themes for the moment, I'm curious when you look at Chevron's portfolio of upstream investments, what makes sense to you in this world, and what increasingly doesn't? And I should mention that I just a few weeks ago was in Baghdad, Iraq, and talked to their oil minister, who said unhappily that he was seeing U.S. companies--ExxonMobil, Chevron, which had been investors in Iraq--reducing their commitments for the future. In your portfolio, what are you look for these days? What does your board of directors want you to be investing in?

MR. WIRTH: Well, look, we've got a strong and large traditional oil and gas business, and increasingly a growing new energies business, which I know we'll talk about in a little bit. When you look in our traditional business, we want to have positions that are--that are at large scale so we can have economies of scale and efficiencies. We look increasingly for low-carbon positions, and we understand the carbon impact of all of our upstream operations now. A decade ago, we had many positions that were characterized by long investment cycles and very large, you know, tens of billions of dollars of capital investment. Increasingly, we're looking for things that we can do in stages, that have flexibility in terms of capital investments. And certainly, in the United States with the shale and the Permian and other basins, they have tremendous flexibility in terms of ability to ramp up to meet needs but also, as we saw during the pandemic, to pull activity down to conserve cash. And so scale, flexibility, cost competitiveness, and low-carbon intensity are attributes that we look at in our portfolio around the world.

MR. IGNATIUS: So taking that final measure of low-carbon intensity, Chevron made an interesting announcement last month, that it was creating a new energy unit, as I read the news. And I'll quote what you said in announcing that: "We believe that the dedication of resources and a new organization will accelerate growth in multiple business lines that we expect to be part of a lower-carbon energy system. So walk us through what that new unit is going to look like, what the kinds of investments you think are particularly attractive. I'm curious especially about investments in hydrogen, which on one level is very attractive but there's been some skepticism recently about whether that's a good investment. Just walk us through that new line of business.

MR. WIRTH: Sure. We believe the future of energy is lower carbon, and so we're lowering carbon of intensity of operations in our traditional business and growing low carbon business lines. The announcement of Chevron New Energies is really intended to innovate from a position of strength, to invest in new technology aligned with skillsets that we have in our organization. We're working with people like Toyota and Cummins and other equipment manufacturers to try to build out new hydrogen value chains, particularly for heavy duty transport. We are now working with agricultural partners in renewable natural gas, dairy farmers to capture methane that otherwise goes into the atmosphere and displace fossil fuel natural gas. We're investing and now producing renewable diesel fuel in one of our refineries in Southern California, where we use soybean oil to produce renewable diesel and soon to be sustainable aviation fuel. And we're working across a number of different partnerships on carbon capture and storage to find ways to take CO2 out of the air, out of combustion streams, out of production streams, and store it in the earth to reduce emissions. So these are all the things you should expect us to do. In a lower-energy future where the system is diversifying, so are we.

MR. IGNATIUS: I read that you said recently that although you're making these significant new investments in alternative energies, that you expect that fossil fuels will continue to be in a kind of steady state of demand going forward. Am I reading that right, or expecting to see declines I'm thinking on the order of 2035 and beyond?

MR. WIRTH: Well, you know, the world runs on the energy system that we have today, and the entire global economy depends on the mix that we have today. And even as that mix changes, demand also increases. And if you look back at the history of energy beginning with biomass, wood, peat, going to coal, natural gas, oil and then as we introduced nuclear and hydro and wind and solar into the system, the system continues to grow, and there's a place for all of these, and there certainly historically has been. We've never really seen any of these sources go down in terms of absolute demand. We've seen them reduce as a percentage of a larger energy system. And so the reality is, as you look at any credible forecast for the future, we're going from 7 1/2 billion people on the planet to more than 9 billion over the next 20 years, energy demand likely to increase by 25 percent, and the traditional energies that we produce will be a large part of that system as it grows, even as we bring in these lower-carbon energies to diversify that system. So we do believe the demand for our products is growing slowly. It's not growing as fast as demand for wind and solar. But the current demand is quite large, and it's very difficult for economies to transition off of that as rapidly as some people would--you know, would suggest.

MR. IGNATIUS: So--and when you look at climate science documents and projections, is that essentially steady state continuing demand for fossil fuels consistent with the kinds of reduction in carbon emissions that are necessary to stabilize our global climate?

MR. WIRTH: Well, you know, there's a recent report out of the IPCC, their sixth assessment report, and it has a number of different scenarios in there. And some of those show continued growth in demand for our products, and others show reductions in demand. The scenarios are just that. They're modeled scenarios. And you have to look at what it will take in the real world to make those things happened. And it requires innovation. It requires technology development. It requires the mobilization of huge amounts of capital, and generally it will require significant policy actions by governments around the world--all of which we see signs of occurring, but not necessarily at the pace that some of the most aggressive carbon reduction scenarios would call for. And so it's why I think engagement with policy makers is important. It's why companies innovating and investing and trying to bring cost down is important. And it's why having

flexibility in your portfolio is important, because the future is uncertain, and we need to be prepared to meet the demand as it emerges. And nobody knows exactly what that pattern will look like.

MR. IGNATIUS: Let me ask about one particular part of your alternative new energy portfolio, and that's hydrogen-related businesses. I mentioned that there's a little skepticism emerging about that, and I'm thinking in particular of a report that was cited by The New York Times a week or so ago, that argued, if I understood it correctly, that hydrogen's advantages are really limited by the fact that you obtain hydrogen from natural gas and natural gas production is fossil fuel production, is not the direction that we really want to be heading when we think about reducing carbon testing. What about that criticism?

MR. WIRTH: Well, there are different ways to make hydrogen. Today hydrogen as manufactured generally is manufactured from natural gas, and it's an energy-intensive process. What is called blue hydrogen is a concept that would capture the CO2 emissions from that process and sequester them. So a lower greenhouse gas version of hydrogen than what is traditionally used today. And then there's technology that's referred to as green hydrogen, which would use water as the raw material and renewable power to use something called electrolysis to break apart the bonds of hydrogen and oxygen in the water and essentially create hydrogen and oxygen. It's expensive. It's not cost competitive today, but a lot of people are working hard to bring those costs down.

So these are examples of the kinds of things that people in academia, people in industry, people in startups with novel technology ideas all are working very hard at with the intent to make them lower greenhouse gas sources of affordable reliable energy. And I think it's unwise to dismiss any of these ideas prematurely, as we have smart people working hard at solving these problems. So, you know, there's no free lunch in here. The existing energy system is in place because it has met the needs of society in an affordable manner. And as we look for new technologies to displace that, they inevitably are going to bring with them greater costs and some tradeoffs. And I think we all need to be working together to evaluate those and try to find solutions that work for everyone.

MR. IGNATIUS: That's a helpful answer and thank you for that. I want to ask you if you'd evaluate the Biden administration's energy policies. Their position for curtailing oil and gas leasing is one key component. You mentioned earlier their position on the Keystone pipeline, another obvious one. Their commitment to the Paris Climate Accords process, getting ready for additional global agreements on climate is a third. Looking at that overall, what assessment would you make? What would you like to see more of? What would you like to see less of?

MR. WIRTH: Well, we'd like to see some increased engagement with our industry out of the administration. There had been some high-level discussions, but I think we need more. We bring tremendous experience and capabilities and expertise to these discussions. And for, you know, all of our company's history we've worked with administrations from both sides of the aisle to try to help meet their economic, energy, and environmental agendas. There are ways that we can help reduce greenhouse gas emissions. The Gulf--Deepwater Gulf of Mexico, emissions intensity of production there is some of the lowest in the world. I recently visited some of our operations in Eastern Colorado, which are even lower than that. And so there are ways to bring domestic energy into the market and have low greenhouse gas intensity associated with that, lower than with some of the energy that could be imported from around the world. So we'd like to engage in discussions about how we can work together to invest, to create jobs, to responsibly develop energy resources, and keep our country strong economically, strong from an energy security standpoint, and meet the objectives of the administration. So more engagements and I think a constructive view of how we can be part of the solution is what I'd like to see.

MR. IGNATIUS: I want to ask you about electric vehicles. On this series of programs, we had the president of General Motors not long ago talking about electric vehicles. They've made a huge commitment. They really see this as their future as a company. And I'm very curious what you think about the electric vehicle market, how quickly it will come on, what the obstacles are to rapid adoption of electric vehicles. And I'm curious, just on a very practical level, Chevron has gas stations, as we--as we lovingly refer to them. How are they doing in the charging business as we move toward electric vehicles, and are you planning to put more money into that so that a Chevron station's a place to charge up your vehicle, whether it's a Tesla or a GM vehicle? Speak us--speak to us about the EV market issues.

MR. WIRTH: Sure. So, you know, EVs are something that we're familiar with. It's an evolution, not really a revolution. This technology has been emerging for years. We've seen decades of policy support here in California where our company is headquartered and our planning would anticipate hundreds of millions of electric vehicles would be in use in the next 20 years, versus only about 10 million at the end of 2020. It's important to remember that only about 25 percent of a barrel of oil ends up in light-duty vehicle transportation in cars. The remainder, 75 percent ends up in heavy-duty transportation in trucks. It ends up in marine transportation, in ships. Aviation fuels for airflight, petrochemical production. So there's a whole range of products and contributions to the economy that come from our product, not just in vehicles. So even as we see electric vehicles penetrate--as I said earlier, the economies are growing and demand is growing overall. So I think there's room for all of the above.

When you get right down to what are some of the barriers, range has been a challenge, and cost has been a challenge. Now both of those have become much better here in recent times, and companies like GM and others continue to make progress on battery technology and scaling up their business. So these are--these are improving.

Refueling points, it's a little bit different than an internal combustion engine where you don't have a gas line that comes into your house, a gasoline line. And so much of the charging infrastructure has focused on people charging at home or charging at work, and that can meet much of the needs. But then you will need a network of charging for some top-ups, if you will, on electrons when people are in between. We've got charging at some of our stations today, and I think we'll see more of that as we move into the future. There are issues. The charging time is different than the refueling time for an internal combustion engine. You've got to think about how many vehicles you'll have on site. Where will they be? How does traffic flow? There's a lot of details at that level that need to be worked through. But we're not fundamentally opposed to EVs or putting chargers in our stations. We think there's room for all of that. We'd like to see, you know, kind of technology-neutral, economically competitive products offered to consumers, and consumers will make wise choices.

MR. IGNATIUS: Your company, I believe, is based in California where the governor, as I read it, outlawed gas cars by 2035. Is that position realistic? And what would that kind of legislative requirement--a ban, really--mean for your company?

MR. WIRTH: Well, you know, the governor's asked the California Air Resources Board--so the regulator in the state--to evaluate the technical and economic feasibility of an action like that. It's a process that will take time. There will be public consultation. I think there will be a lot of dialogue on just the topics you ask about, David. And the reality is, California today has had its challenges in providing enough electricity during certain times of the year to keep the lights on. And so we've had the beginning of rolling brownouts and outages, with today's demand for electricity. We've got another nuclear power plant in the state that is scheduled to be taken out of service, which provides a large contribution

to the state's electricity today. And adding that much demand at a time when grid stability and storage are still issues that are being worked and the--you know, the affordability of these vehicles for not people who have, you know, high incomes but really for people who do most of the work in the state is still a challenge. And so I think there's a number of both technical and economic issues that will emerge in this dialogue that will bring some reality to the ambition and I think inform ultimately what actions the state of California will take.

MR. IGNATIUS: Let me ask what may be a final question as we're near the end of our time. If you were talking to a young energy activist, somebody who feels passionately about climate change and who thinks that traditional energy companies like yours are the problem, what would your answer be to that person? Because there is a movement now to disinvest from companies like Chevron, like ExxonMobil. And I'm sure you feel the pressure from this movement as a big part of your business. How would you answer that criticism as CEO of Chevron?

MR. WIRTH: Well, I actually get the opportunity to do that. We have several hundred interns working for us this summer, many of whom have activist ideas and are like the young person you describe. And so I interact with them as part of their time with us. And my message to them is simple. There's never been a better time to join an industry like ours and to help create the energy future that we all desire, which is one where energy is affordable for people, it supports economic growth, it has less environmental impact. And we're investing, as we discussed earlier, in these new energy technologies. We're investing in finding ways to reduce the impact of the energy system today. We're looking at ways to take CO2 out of the air, which the most recent IPCC report has flagged as essential if we are going to reach the ambitions of the Paris Agreement.

And so we're an industry that has and we're a company that has a 140-year history. We have the financial strength, the engineering capability, the technology capability, the project management expertise of few organizations in the world. And we are committed to being part of a lower-carbon energy future. And so I implore young people to join us, to bring their ambition, their aspiration, and their creativity and skills to help us deal with these big challenges and create a better future. And that's what I would tell somebody who wasn't an intern, and it's certainly what I say to the young people that we have working with us this summer.

MR. IGNATIUS: Let me ask you a final question. It's one we put to just about every guest we've had on this series about the future, coming out of the pandemic, and that is, how has the pandemic changed your business? How will you be different as a company because of things you did to respond to this extraordinary health crisis and an economic crisis?

MR. WIRTH: Well, the last 18 months have really shown the--you know, the resilience and the importance of energy to the economy. We saw demand drop as the economy locked down, but then we've seen it really spring back. And so I think it reinforces how important energy is to the global economy. It's changed us in a few ways. I would say the biggest is it's accelerated digital innovation that was underway. But as we've been forced into working differently, some of our digital capabilities have really accelerated. I'll give you an example. In our Permian and other unconventional development, we drill down vertically into the earth, and then we turn the drill bit, and we drill horizontally for a couple of miles in a relatively narrow band. For a long time, all of that was controlled on the drill rig. A couple of years ago, we brought that into a central drilling support center, where we can help steer the drill bit and keep it in a very narrow range from a control center. Think--you know, it's in Houston, so think kind of mission control like. We've got people doing that now from their homes. We're using augmented reality to troubleshoot things on offshore platforms where an operator can be wearing a special set of lenses and a headset, and a subject matter expert halfway around the world can be talking to them and seeing the same things and solving things that we used to fly somebody out to an offshore

platform to solve. We're using drones to do inspections now that we used to bring people out and have them climb large structures or tanks or get out into the field, and we now have drone-mounted cameras and methane sensors that we're using to get high-quality data and to integrate it digitally in ways that we wouldn't have before. So I would say those are some of the examples of things that have changed us and will change our business going forward and I think make us much better.

MR. IGNATIUS: Those are fascinating examples. I want to thank you, Mike, for joining us, for helping us to see how the world looks from the eyes of the CEO of one of the world's largest energy companies. Thanks for being with us today.

MR. WIRTH: David, it's my pleasure. I appreciate your time.

MR. IGNATIUS: So thanks to everybody as always for watching Washington Post Live. To check out the interviews we have coming up, please head to WashingtonPostLive.com to register and find out more information. Thanks for joining us this afternoon. We'll see you soon.

[End recorded session]

https://www.gov.ca.gov/2021/07/30/governor-newsom-signs-emergency-proclamation-to-expedite-clean-energy-projects-and-relieve-demand-on-the-electrical-grid-during-extreme-weather-events-this-summer-as-climate-crisis-threatens-western-s/

Governor Newsom Signs Emergency Proclamation to Expedite Clean Energy Projects and Relieve Demand on the Electrical Grid During Extreme Weather Events This Summer as Climate Crisis Threatens Western States

Published: Jul 30, 2021

Taking on climate change, California is working to build a 100 percent clean electricity system that is equitable and delivers clean, safe, reliable and affordable power

Governor establishes contingency plan to increase electricity reliability this summer and fall

SACRAMENTO – In the face of extreme climate impacts across the West, Governor Gavin Newsom today outlined the state's goals to achieve a 100 percent clean electricity system that supports long-term clean energy reliability. The Governor also signed an emergency proclamation to free up energy supply to meet demand during extreme heat events and wildfires that are becoming more intense and to expedite deployment of clean energy resources this year and next year.

"California leads the nation with its ambitious clean energy goals, and with the climate crisis threatening communities across the West, we must take decisive action to scale up and speed up our transition to a 100 percent clean electricity system that meets the needs of the 22nd century and beyond," said Governor Newsom. "While we build toward a safe, affordable and reliable energy future that benefits all our communities, we're also taking action to meet the challenges caused by climate change that are already at our doorstep."

Governor Newsom's vision for the electricity system of the future will help take on the climate change impacts being felt in California and throughout the West, including extreme heat waves, drought and wildfires – which are becoming more frequent and intense, straining our electric grid.

The California Comeback Plan's roadmap to clean energy includes:

- Increasing the diversity of our clean energy, including solar, battery storage, onshore and offshore wind, geothermal, pumped storage and more.
- Modernizing our grid and incorporating distributed energy resources.
- Increasing long-duration energy storage projects.
- Grid hardening and resiliency to make transmission and distribution lines more fire resistant, increasing undergrounding of lines, better detection of faults and the strategic placement of remote grids in vulnerable communities.
- Reducing carbon emissions through electrification of our transportation systems, homes and businesses.

As California works toward a 100 percent clean electricity system, Governor Newsom is taking action through an emergency proclamation to safeguard the state's energy system this summer by launching contingency programs that will reduce demand and increase supply, and to expedite clean energy projects to meet the challenge of the rapid acceleration of intensity and duration of record-breaking temperatures and severe drought conditions across the West that threaten our energy supply and limit the state's ability to import additional energy. The action comes amid unprecedented climate change impacts being experienced throughout the U.S. and around the globe and better positions the state to meet potential extreme heat, drought and fire impacts next year.

The proclamation suspends certain permitting requirements to allow greater energy production and creates incentives so that large energy users can move to back-up power generation, freeing up energy capacity on the grid for everyone

else, during critical times when extreme heat events or the interruption of transmission lines from wildfires or other causes threaten energy supply this summer. The proclamation also provides for mitigation to offset impacts from any additional emissions and commits state agencies to tracking emissions from any emergency measures requiring additional emissions.

The proclamation includes actions to accelerate the state's transition to clean electricity by streamlining permitting and other processes to bring new resources on-line as fast as possible this summer and by next summer, particularly battery storage projects to capture abundant renewable generation available during the day. This rapid procurement and deployment of clean energy production will help end the vicious cycle in which generating energy contributes to the very climate-impact emergencies that threaten energy supply.

The text of the proclamation can be found here.

California has made tremendous strides toward realizing the electricity system of the future.

- California met its interim target of 33 percent of electricity from renewable sources by 2020, two years ahead of schedule.
- When the percentage of renewables is combined with other sources of carbon-free energy, such as large hydroelectric generation and nuclear power, the total percentage of clean energy is 63 percent.
- During the afternoon of April 24, 2021, the state's renewable generation hit a new all-time high, with 94 percent of California's electricity coming from solar, wind and other clean energy sources.
- In May 2021, California announced a historic agreement with the federal government to advance offshore wind along the California coast.
- California has mandated that all new car and delivery and short-haul truck sales will be zero-emission by 2035, and all big-rig truck sales 100 percent zero-emission by 2045.
- California is exploring pathways to achieve carbon neutrality by 2035.

The state budget includes $812 million over two years to accelerate California's progress on meeting its clean energy goals and better position California as a leader in advancing clean technologies and as a key partner to the federal administration in tackling climate change and stimulating the economy. This includes $735 million General Fund over two years, pursuant to subsequent legislation, which the Administration has proposed investing in pre-commercial long duration storage projects that are critical to the success of California's efforts to decarbonize the electricity system, energy efficiency in the industrial sector, reducing energy use at food production facilities and green hydrogen production.

WHEREAS under the provisions of Government Code section 8558, subd. (b), I find that conditions of extreme peril to the safety of persons and property exist throughout California due to the combined effects of drought, wildfire, and extreme heat on the State's energy system; and

WHEREAS under the provisions of Government Code section 8558, subd. (b), I further find that conditions of extreme peril to the safety of persons and property exist due to rapid, unforeseen, sudden, and severe energy shortages throughout California caused by these climate events; and

WHEREAS under the provisions of Government Code section 8558, subd. (b), I find that responding to the sudden and severe energy shortages requires extraordinary measures beyond the authority vested in the California Public Utilities Commission; and

WHEREAS under the provisions of Government Code section 8625, subd. (c), I find that local authority is inadequate to cope with the magnitude and impacts of the conditions of extreme peril; and

WHEREAS under the provisions of Government Code section 8571, I find that strict compliance with various statutes, regulations, and orders specified in this proclamation would prevent, hinder, or delay appropriate actions to prevent and mitigate the effects of the conditions of extreme peril.

NOW, THEREFORE, I, GAVIN NEWSOM, Governor of the State of California, in accordance with the authority vested in me by the State Constitution and statutes, including the California Emergency Services Act, and in particular, Government Code sections 8567, 8571, 8625, and 8627, **HEREBY PROCLAIM A STATE OF EMERGENCY** to exist in California.

IT IS HEREBY ORDERED THAT:

1. All agencies of state government shall use and employ state personnel, equipment, and facilities or perform any and all activities consistent with the direction of the Governor's Office of Emergency Services and the State Emergency Plan. Also, all residents are to obey the direction of emergency officials with regard to this emergency in order to protect their safety.

2. All energy agencies shall act immediately to achieve energy stability during this emergency, and the California Public Utilities Commission is requested to do the same. In particular, the California Energy Commission is directed, and the California Public Utilities Commission and the CAISO are requested, to work with the State's load serving entities on accelerating plans for the construction, procurement, and rapid deployment of new clean energy and storage projects to mitigate the risk of capacity shortages and increase the availability of carbon-free energy at all times of day.

3. To provide incentives for large energy users to reduce their electricity demand when an extreme heat event, a sudden and

severe reduction in transmission capacity (including reductions due to wildfire), or both, are projected to result in acute energy shortages this summer, the Department of Finance is directed to provide payments to fund electrical demand reduction programs to be established by California utilities, in accordance with the requirements below. Payment shall be made to any investor-owned utility or publicly owned utility for the eligible costs of an incentive payment program, including reasonable administrative costs, that the Department of Finance, in consultation with the CAISO, the California Energy Commission, and the California Public Utilities Commission, determines, based on documentation submitted by the utility, satisfies the following requirements:

a. The utility must operate the program through and no later than October 31, 2021;

b. The utility must require that its participating customers, as a condition of receiving incentive payments from the utility under the program, commit to reduce their electricity demand by a preset minimum number of kilowatts per hour for all periods of time as to which the CAISO publishes notice that load reduction under such programs is necessary, which periods shall be only within the time of a CAISO Grid Warning or Grid Emergency;

c. The utility must permit participating customers to shift to back up generation (including any method of generation permitted by Paragraphs 4.a and 4.b of this proclamation) during the period specified in subparagraph (b) of this Paragraph;

d. The utility must pay participating customers $2 per kilowatt hour reduced during the period specified in subparagraph (b);

e. The utility must pay participating customers $0.75 per kilowatt hour committed if the CAISO has issued a day-ahead Alert and the utility has directed participating customers to prepare to reduce their load under the program, but then the CAISO does not ultimately publish notice that load reduction under such programs is necessary;

f. The utility must prohibit participating customers from participating in both the Emergency Load Reduction Program and this program, and participating customers may only participate with respect to an amount of reduced electricity demand that is incremental to an obligation to reduce load that the participating customer has agreed to under another demand response program providing compensation for reducing load;

g. The utility must require that participating customers, upon enrollment, report to the utility how much (if any) backup

generation they intend to use during the periods of load reduction specified in subparagraph (b), and if available, information on whether the backup generation is portable or stationary, and the federal emissions tier for each generator;

h. The utility must provide to the California Air Resources Board the information collected under subparagraph (g), plus an estimate of total load reduction achieved by ZIP code, each month; and

i. The utility must provide to the Department of Finance documentation establishing the utility's procedures for verifying the amount of load reduced by participating customers for purposes of calculating payments as specified in subparagraph (d), and for confirming that participating customers are not also receiving compensation under the Emergency Load Reduction Program or other demand response program as specified in subparagraph (f), and the utility must agree that determination of the sufficiency of the documentation required by this subparagraph shall be in the sole discretion of the Department of Finance, in consultation with the CAISO, the California Energy Commission, and the California Public Utilities Commission; and

j. The utility must agree to provide, upon request of the Department of Finance, necessary documentation evidencing the claimed costs of the incentive program for which the utility seeks payment.

To the extent it would otherwise apply to actions under this Paragraph, Chapter 3.5 (commencing with section 11340) of Part 1 of Division 3 of Title 2 of the Government Code, is suspended.

4. Through October 31, 2021, on any day for which the CAISO issues a Grid Warning or Emergency notice based on its determination that, despite its reliance on all available resources, an imminent shortfall is projected because of an extreme heat event, a sudden and severe reduction in transmission capacity (including reductions due to wildfire), or both, the following subparagraphs shall be in effect. Beginning August 15, 2021, application of subparagraphs (a), (b), and (f) shall become limited to participants in a program instituted by a utility under Paragraph 3, and participants in the California Public Utilities Commission's Emergency Load Reduction Program, Base Interruptible Program, and Agricultural & Pumping Interruptible Program.

   a. For purposes of regulations concerning stationary generators, use of stationary generators shall be deemed an "emergency use" under California Code of Regulations (CCR), title 17, section 93115.4, subd. (a)(30)(A)(2) during a period running from two hours before the beginning of the

effective time of the CAISO Grid Warning or Emergency notice to one hour after the end of that effective time.

b. For purposes of regulations concerning portable generators, the period running from two hours before the beginning of the effective time of the CAISO Grid Warning or Emergency notice to one hour after the end of that effective time shall be an "emergency event" under CCR, title 17, section 93116.1, subd. (b)(14), and a loss of electrical service shall be deemed "beyond the reasonable control of the owner or operator" under CCR, title 17, section 93116.2, subd. (a)(12)(A)(2). In addition, the period running from two hours before the beginning of the effective time of the CAISO Grid Warning or Emergency notice to one hour after the end of that effective time shall be an "emergency event" under CCR, title 13, section 2452, subd. (j), and interruptions caused during those times shall be deemed an "unforeseen interruption of electrical power from the serving utility" under CCR, title 13, section 2453, subd. (m)(4)(E)(1).

c. Restrictions on the use of prohibited resources adopted by the California Public Utilities Commission under Decision 16-09-056, Ordering Paragraphs 3 and 4[b], and as implemented in the tariffs of regulated energy utilities, are suspended for any non-residential customer who is enrolled in the Base Interruptible Program or Agricultural & Pumping Interruptible Program.

d. The provisions of Water Code section 13385, subd. (i)(1)(A) as they pertain to daily average and instantaneous temperature limitations in waste discharge requirements for thermal power plants are suspended for any thermal power plant that maintains operations to abate the effects of this emergency. Any exceedance of the daily average or instantaneous temperature limitations resulting from maintaining operations during this time shall not constitute a violation for purposes of calculating mandatory minimum penalties under Water Code section 13385, subd. (i).

e. Permitting requirements or conditions of certification adopted by the Energy Commission pursuant to Public Resources Code, sections 25216.5, subd. (a) and 25500 et seq., as well as permitting requirements adopted by local air quality management districts, shall be suspended to the extent they restrict the amount of power that a facility may generate, restrict the amount of fuel that a facility may use, or impose air quality requirements that prevent the facility from generating additional power, for use in California, during the period running from two hours before

the beginning of the effective time of the CAISO Grid Warning or Emergency notice to one hour after the end of that effective time.

f. Any other permit, regulation or law prohibiting, restricting or penalizing the use of stationary or portable generators during the period running from two hours before the beginning of the effective time of the CAISO Grid Warning or Emergency notice to one hour after the end of that effective time is suspended.

g. Any other permit, regulation or law prohibiting, restricting or penalizing any other conduct allowed by this Paragraph, other than conduct described in subparagraph (f), is suspended.

5. Through October 31, 2021, when the CAISO issues a Grid Warning or Emergency notice based on its determination that, despite its reliance on all available resources, an imminent shortfall is projected because of an extreme heat event, a sudden and severe reduction in transmission capacity (including reductions due to wildfire), or both, and when the Governor's Office of Emergency Services also publishes notice that this Paragraph shall become effective, then:

   a. In regulations concerning the use of auxiliary engines by ocean-going vessels berthed in California ports, the Grid Warning or Emergency notice shall establish an "emergency event" under CCR, title 17, section 93118.3, subd. (c)(14).

   b. This proclamation, the CAISO's issuance of Grid Warning or Emergency notice, and the notice published by the Governor's Office of Emergency Services shall together be deemed to provide notice to reduce use of grid-based electrical power under CCR, title 17, section 93118.3, subd. (c)(14)(C). Expiration of the Grid Warning or Emergency notice, the CAISO's issuance of a Cancellation notice, or notice of an end to the "emergency event" from the Governor's Office of Emergency Services shall be deemed to provide notice under that same section that reduction is no longer necessary. Ships that are berthed in California ports while the CAISO Grid Warning or Emergency notice is in effect shall not be required to use shore power until 11:59 p.m. on the third day following the last consecutive day on which the CAISO issued a Grid Warning or Emergency notice.

   c. A ship operating on auxiliary engines pursuant to an "emergency event" under subparagraph (a) shall be deemed to qualify for an exemption under CCR, title 17, section 93118.3, subd. (d)(1)(E)(1)(a), and any visit

occurring during the period described in subparagraph (b) shall be counted towards compliance under CCR, title 17, section 93118.3, subd. (d)(1)(F)(1).

d. Any other permit, regulation or law prohibiting, restricting or penalizing the use of auxiliary ship engines or other conduct allowed by this Paragraph is suspended.

6. Any facility that operates in excess of permitting requirements or conditions of a certificate suspended by Paragraph 4.e shall:

   a. notify the relevant local air quality management district, the California Energy Commission, and the California Air Resources Board of its actions within 48 hours; and

   b. report additional fuel use, additional hours of operation and times of operation, and energy produced by that additional use and operation to the relevant local air quality management district, the California Energy Commission, and the California Air Resources Board within 30 days of operation under this proclamation.

7. In order to help address any exceedances in emissions permitted under federal law and other federal obligations that result from acts taken under this proclamation, and to avoid jeopardizing public health or safety as a result of those acts, the California Air Resources Board shall develop by November 15, 2021, and then promptly implement, a State-funded plan to mitigate the effects of additional emissions authorized by this proclamation beyond ordinarily permitted levels. The mitigation plan shall include plans to invest in programs to improve air quality in communities, with a particular focus on disadvantaged communities, and to reduce risk to sensitive populations. To the extent it would otherwise apply to actions under this Paragraph, Chapter 3.5 (commencing with section 11340) of Part 1 of Division 3 of Title 2 of the Government Code, is suspended.

8. As necessary to assist state agencies, local governments, utility companies, contractors, and others, the Department of Water Resources and the California Energy Commission shall enter into contracts to arrange for the procurement of materials, goods, and services necessary for projects likely to be online by October 31, 2021, that would expand energy supply and storage to respond to energy supply shortages caused by climate change. For contracts first executed through October 31, 2021, applicable provisions of the Government Code and the Public Contract Code, including but not limited to travel, advertising, and competitive bidding requirements, are suspended to the extent necessary to effectuate this Paragraph and Paragraphs 9 and 10.

9. With respect to all post certification petitions for changes in power plant project design, operation, performance, including geothermal generation and integrating solar generation and

battery storage with appurtenant facilities on an existing site, the following statutes and regulations are suspended to the extent the California Energy Commission determines that the petitioned-for change should be granted and would reduce the energy shortfall resulting from this emergency by October 31, 2021:

a. California Environmental Quality Act in Public Resources Code, Division 13 (commencing with section 21000) and regulations adopted pursuant to that Division;

b. California Coastal Act in Public Resources Code, Division 20 (commencing with section 30000) and regulations adopted pursuant to that Division; and

c. Title 20, section 1769, of the California Code of Regulations.

10. With respect to new emergency and temporary power generators of 10 megawatts or more that the California Energy Commission determines will deliver net peak energy before October 31, 2021, the provisions of Public Resources Code, Division 13 (commencing with Section 21000) and regulations adopted pursuant to that Division, are suspended to the extent that the California Energy Commission determines that such generators should be licensed and that:

    a. generation will be located in a previously disturbed site;

    b. generation will use natural gas as soon after construction as practicable;

    c. there is a secure water supply for the project; and

    d. there is an available grid interconnection.

    Public Resources Code section 25500 shall apply to the issuance of a license under this Paragraph (notwithstanding the 50-megawatt limitation in Public Resources Code section 25120).

11. With respect to new, and expansions of, battery storage systems of 20 megawatts or more that the California Energy Commission determines are capable of discharging for at least two hours and will deliver net peak energy by October 31, 2022, the provisions of Public Resources Code, Division 13 (commencing with Section 21000) and regulations adopted pursuant to that Division, are suspended to the extent that the Energy Commission determines that such systems should be licensed. Public Resources Code section 25500 shall apply to the issuance of a license under this Paragraph (notwithstanding the 50-megawatt limitation in Public Resources Code section 25120). The California Energy Commission shall implement the provisions in this Paragraph in consultation with local jurisdictions and state agencies.

12. The California Energy Commission shall establish a process to expedite all actions described in Paragraphs 9 through 11. The California Energy Commission's implementation of and actions taken under Paragraphs 9 through 11 shall not be subject to the provisions of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code, and the California Energy Commission may delegate its authority under Paragraphs 9 through 11 to the Executive Director of the California Energy Commission. The California Energy Commission shall maintain on its website a list of all activities or approvals for which it has relied on suspensions under this proclamation.

13. The California Public Utilities Commission is requested to exercise its powers to expedite Commission actions, to the maximum extent necessary to meet the purposes and directives of this proclamation, including by expanding and expediting approval of demand response programs and storage and clean energy projects, to ensure that California has a safe and reliable electricity supply through October 31, 2021, to reduce strain on the energy infrastructure, and to ensure increased clean energy capacity by October 31, 2022. In particular, for purposes of expediting Commission actions, these emergency circumstances may be deemed an unforeseen emergency situation under Public Utilities Code section 311, subd. (d) & (g) and section 306, subd. (b); an event necessary for the preservation of the public health and safety or general welfare under Public Utilities Code section 311, subd. (h); an emergency situation involving matters upon which prompt action is necessary due to the disruption or threatened disruption of public facilities, allowing for an emergency meeting under Government Code section 11125.5, subd. (a-b); and a circumstance in which the failure of the Commission to adopt a decision before the expiration of the 30-day review and comment period would cause significant harm to public health or welfare under the Commission's Rules of Practice and Procedure 14.6, subd. (c)(10).

14. The CAISO is requested to take all actions available and use best efforts, including seeking waivers to its existing tariff processes, to expedite the interconnection to the transmission grid of resources specified by the California Energy Commission for purposes of meeting the intent of this proclamation.

15. The California Energy Commission, in consultation with the California Air Resources Board, the CAISO, and the California Public Utilities Commission, shall identify and prioritize action on recommendations in the March 2021 Senate Bill 100 Joint Agency Report, and any additional actions, that would accelerate the State's transition to carbon-free energy. The California Energy Commission shall report its recommendations to me within 60 days.

This proclamation is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

https://www.powermag.com/california-will-add-gas-fired-units-to-increase-power-supply/

Aug 20, 2021

by Darrell Proctor

California Will Add Gas-Fired Units to Increase Power Supply

The California Energy Commission (CEC) has approved licenses for gas-fired power units to help the state cope with continued electricity shortages. The move comes after Gov. Gavin Newsom earlier declared a state of emergency for California's power grid.

The state's Dept. of Water Resources is procuring what it called five temporary gas-fueled generators, each with generation capacity of 30 MW, to install at existing power plants. The CEC on Aug. 17 approved licenses, good for up to five years, for the generators.

Newsom's order, issued in July, is designed to free up additional energy capacity in the state. It came during a major heat wave and was partly in response to the Bootleg Fire in Oregon, which threatened the regional power transmission system and California's power supply. The governor's order suspends certain permitting requirements, and allows the use of backup power generation, with a goal of alleviating heat-related supply demands on the power grid.

'Act Immediately to Achieve Energy Stability'

"Governor Newsom's emergency proclamation makes it very clear that all of our energy agencies have to act immediately to achieve energy stability during this emergency as well as accelerating plans for construction, procurement and rapid deployment of new clean-energy and storage projects," CEC commissioner Karen Douglas said at Tuesday's meeting where the licenses for the gas-fired units were approved.

State regulators earlier this year expressed concern about adding new thermal power generation, saying it was at odds with California's goals to decarbonize its power supply. The state in recent years has retired natural gas-fired power plants as part of a plan to have a carbon-neutral grid by 2045.

Heat waves in 2020 and again this year—along with concerns about electrical equipment sparking wildfires that have ravaged the state—have led California utilities to preemptively institute blackouts in order to protect the grid. The supply of power has been further threatened this year due to historic drought conditions that have reduced the state's supply of hydroelectric generation.

Preferred Portfolio

Tuesday's move by the CEC came one day prior to a ruling from a California Public Utilities Commission (CPUC) administrative law judge that recommended the state adopt a preferred electricity resource portfolio. That ruling said the power generation sector should work to limit its annual greenhouse gas emissions to 38 million metric tons by 2030. That has led to an increased focus on renewable energy and energy storage projects in the state.

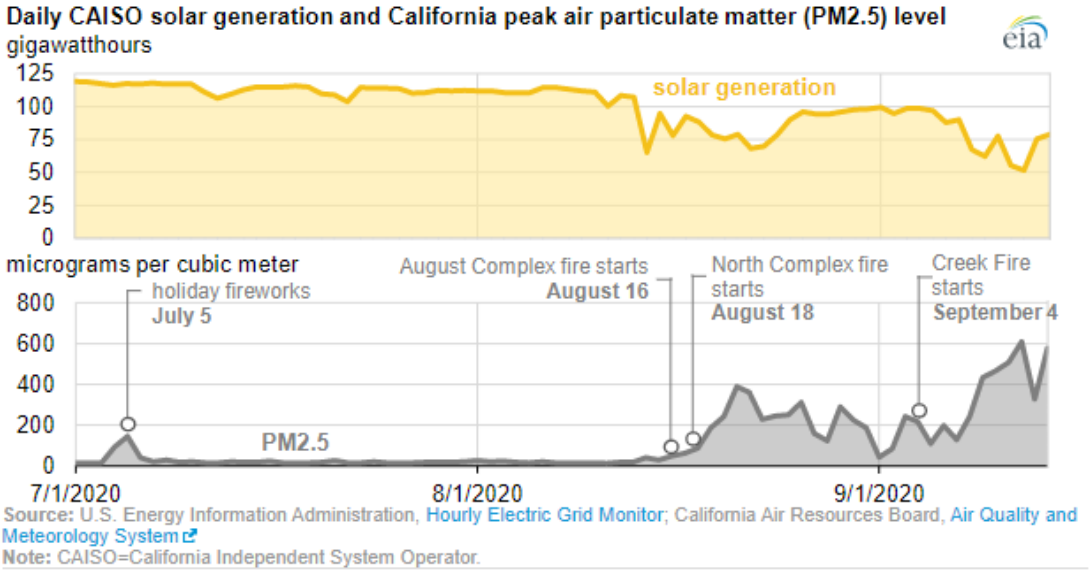
The CPUC earlier in August said California faces potential energy shortfalls of up to 3,500 MW in the coming weeks, and as much as 5,000 MW next summer should extreme heat and drought conditions persist. The agency said the ongoing drought has cut 1,000 MW of hydroelectric power capacity this year, while wildfires continue to threaten transmission lines in the region.

—***Darrell Proctor*** *is a senior associate editor for POWER (@POWERmagazine).*

https://www.eia.gov/todayinenergy/detail.php?id=45336

SEPTEMBER 30, 2020

Smoke from California wildfires decreases solar generation in CAISO

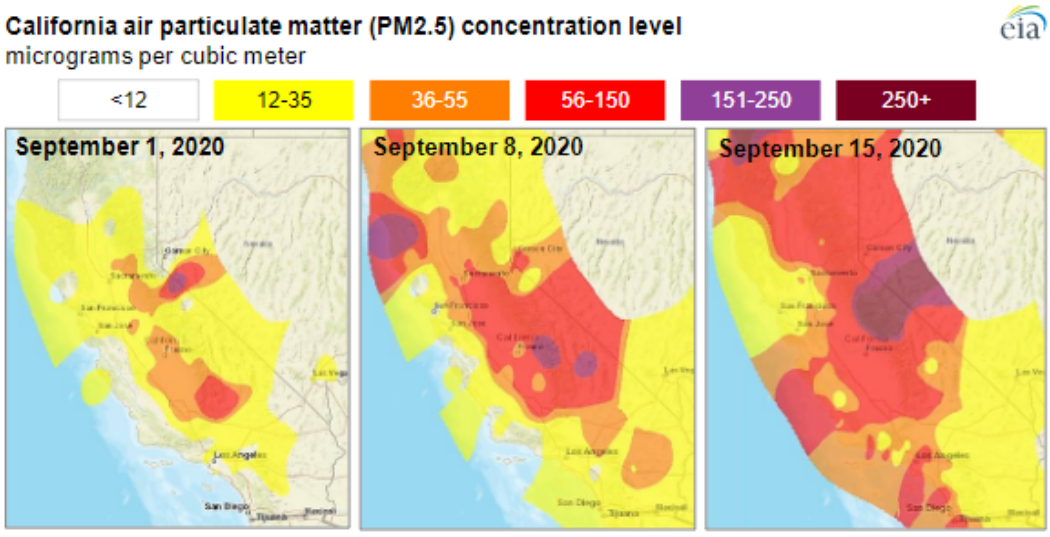


Source: U.S. Energy Information Administration, Hourly Electric Grid Monitor; California Air Resources Board, Air Quality and Meteorology System

Note: CAISO=California Independent System Operator.

In the first two weeks of September 2020, average solar-powered electricity generation in the California Independent System Operator (CAISO), which covers 90% of utility-scale solar capacity in California, declined nearly 30% from the July 2020 average as wildfires burned across the state. Wildfire smoke contains small, airborne particulate matter particles that are generally 2.5 micrometers or smaller (referred to as PM2.5). This matter reduces the amount of sunlight that reaches solar panels, decreasing solar-powered electricity generation. As of September 28, California wildfires have burned an estimated 3.6 million acres in 2020, an area about the size of Connecticut.

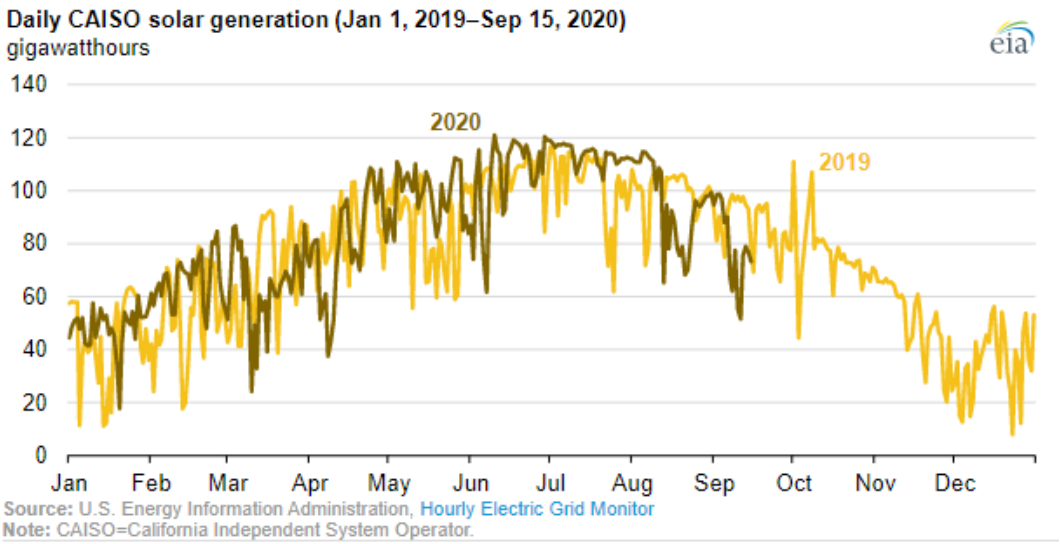
According to data from the California Air Resources Board, peak California PM2.5 pollution began increasing in mid-August and reached a record high of 659 micrograms per cubic meter (µg/m3) on September 15, the highest level since record keeping began in 2000. Peak PM2.5 pollution is measured as the daily average value at the testing site that has the highest measured particulate matter concentration on a given day.



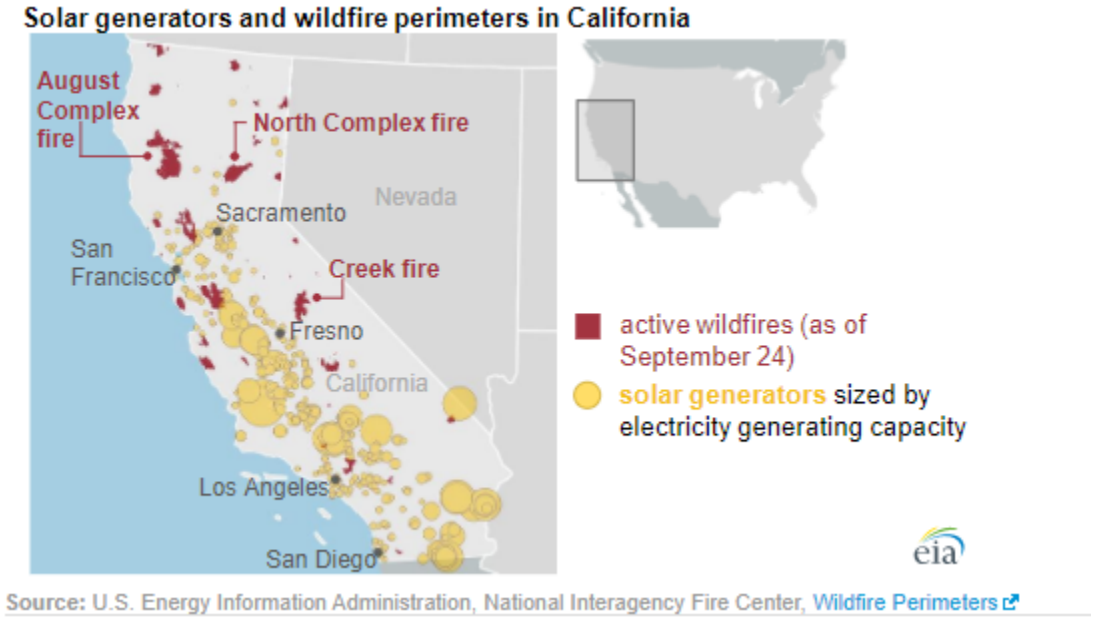
Source: U.S. Environmental Protection Agency, AirNow

In July 2020, daily solar-powered electricity generation, which includes generation from solar photovoltaic and solar thermal electric generators, ranged from 104 gigawatthours (GWh) to 119 GWh, averaging 113 GWh for the entire month. Daily solar-powered generation began declining as large wildfires broke out in mid-August, reaching a low of 68 GWh on August 22 before returning to

approximately 100 GWh by the end of the month. Solar-powered generation began declining again as wildfire activity rose in September, falling as low as 50 GWh on September 11 as PM2.5 smoke pollution increased.



In the first two weeks of September 2020, solar-powered generation in CAISO was 13.4% lower than at the same time a year ago, despite growth in installed solar generating capacity in California. Since September 2019, California has added 659 megawatts (MW) of utility-scale solar-powered generation capacity, increasing total solar capacity by 5.3% to more than 13,000 MW as of June 2020. Although small-scale distributed solar photovoltaic capacity (such as rooftop solar panels) is not included in the Hourly Electric Grid Monitor solar generation data, small-scale solar accounts for a large share of total solar capacity in California. Small-scale solar capacity in California also increased in the past year, rising 11% to 9,800 MW.



Although most solar capacity in California is in the southern half of the state and the largest wildfires are currently concentrated in the northern and central parts of the state, offshore winds push wildfire smoke into Southern California. As of September 28, Cal Fire reports that the August Complex Fire, the largest wildfire in California history, was 45% contained. Other large, ongoing fires, such as the North Complex Fire and the Creek Fire, were 78% and 39% contained, respectively.

Principal contributor: Stephen York

Tags: generation, electricity, solar, California, states, map

https://www.reuters.com/business/energy/eu-solar-power-generation-hits-record-high-2021-08-17/
August 17, 20215:11 PM MDTLast Updated 3 hours ago

EU solar power generation hits record high

By Forrest Crellin
3 minute read

PARIS, Aug 18 (Reuters) - Solar power supply in the European Union during June and July rose to a record high in 2021, accounting for 10% of total electricity produced in the region, a report by independent climate think-tank Ember said on Wednesday.

The 27 countries in the bloc generated nearly 39 terawatt hours (TWh) of power from solar panels during June and July, up 10.9 TWh from 2018, data from Ember showed.

New records were also set in eight EU countries, including Spain and Germany, the report said, as the production and use of panels increased.

"There are exciting green shoots in core solar markets where solar is taking off, but overall it is not growing fast enough," analyst for Ember Charles Moore said.

Total generation from solar panels lagged the electricity supply from coal, which stood at 14% for the region in June and July of 2021, the report said.

As part of a package of climate policies, the European Commission has proposed an overhaul of renewable energy rules, which decide how quickly the bloc must increase the use of sources such as wind, solar and biomass energy produced from burning wood pellets or chips.

It has set an interim target for the EU to raise the share of such renewable energy to 40% of final consumption by 2030, up from roughly 20% in 2019. read more

The Ember data showed Germany maintained the largest share of solar power production in the region, going from 11.5 TWh to 13.4 TWh, which accounted for 17% of overall electricity produced in the country during the summer period in 2021.

Spain had the largest growth for the summer period over four years, more than doubling from 3.1 TWh in 2018 to 6.4 TWh in 2021, which accounted for 16% of total electricity produced in the country in 2021, the data showed.

The Netherlands showed the second largest growth over four years, nearly tripling production from solar panels to 3.2 TWh from 1.1 TWh in 2018, expanding the country's total power share by 10% to 17%.

The substantial increase in power production in both countries was a "reflection" of ambitious legislation, Charles said.

Italy was the third largest producer of energy from solar panels in 2021 but did not see substantial growth over the same period, going from 5.7 TWh to nearly 6 TWh, the data showed.

Solar supply in the EU-27 rose by an average 14 TWh per year in 2019 and 2020 and is expected to do the same in 2021, but will need to over double to 30 TWh per year to meet 2030 climate targets, the report said.

Reporting by Forrest Crellin; Editing by Alison Williams
Our Standards: The Thomson Reuters Trust Principles.

Electricity Generation*

Terawatt-hours	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Growth rate per annum 2020	2009-19	Share 2020
Total North America	**5088.1**	**5276.8**	**5293.8**	**5243.5**	**5283.1**	**5314.2**	**5318.4**	**5331.1**	**5287.7**	**5452.5**	**5382.4**	**5243.6**	**-2.8%**	**0.6%**	**19.5%**
Total S. & Cent. America	**1083.0**	**1140.5**	**1181.1**	**1231.4**	**1267.6**	**1287.3**	**1296.6**	**1305.6**	**1306.8**	**1330.9**	**1339.0**	**1282.8**	**-4.5%**	**2.1%**	**4.8%**
Total Europe	**3894.7**	**4065.8**	**4019.4**	**4053.1**	**4022.2**	**3939.2**	**3982.7**	**4021.4**	**4061.3**	**4065.5**	**3992.1**	**3871.3**	**-3.3%**	**0.2%**	**14.4%**
Total CIS	**1226.2**	**1284.0**	**1308.5**	**1330.4**	**1323.7**	**1337.9**	**1340.9**	**1369.3**	**1383.0**	**1416.4**	**1428.8**	**1397.1**	**-2.5%**	**1.5%**	**5.2%**
Total Middle East	**807.9**	**873.7**	**889.7**	**948.6**	**982.4**	**1051.4**	**1109.7**	**1143.7**	**1190.5**	**1207.4**	**1253.6**	**1265.2**	**0.6%**	**4.5%**	**4.7%**
Total Africa	**627.5**	**672.3**	**689.4**	**721.1**	**744.0**	**767.9**	**788.4**	**796.5**	**824.8**	**847.2**	**863.4**	**843.9**	**-2.5%**	**3.2%**	**3.1%**
Total Asia Pacific	**7537.5**	**8257.7**	**8875.1**	**9278.1**	**9812.3**	**10333.7**	**10433.9**	**10947.6**	**11569.8**	**12339.3**	**12741.6**	**12919.3**	**1.1%**	**5.4%**	**48.2%**
Total World	**20264.9**	**21570.7**	**22257.0**	**22806.3**	**23435.2**	**24031.7**	**24270.5**	**24915.2**	**25623.9**	**26659.1**	**27001.0**	**26823.2**	**-0.9%**	**2.9%**	**100.0%**
of which: OECD	10640.3	11062.8	11014.3	11023.7	11015.6	10956.6	11005.0	11082.8	11119.5	11312.8	11168.4	**10880.8**	-2.8%	0.5%	40.6%
Non-OECD	9624.6	10507.9	11242.7	11782.6	12419.7	13075.2	13265.5	13832.4	14504.4	15346.4	15832.5	**15942.4**	0.4%	5.1%	59.4%
European Union #	2847.6	2982.6	2931.3	2932.3	2912.9	2851.1	2899.1	2920.1	2952.4	2937.5	2892.5	**2770.6**	-4.5%	0.2%	10.3%

Source: bp Statistical Review of World Energy 2021

Electricity generation from coal*

Terawatt-hours	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Growth rate per annum 2020	2009-19	Share 2020
Total North America	**2011.4**	**2114.9**	**1987.7**	**1742.5**	**1814.3**	**1813.7**	**1564.2**	**1442.9**	**1401.0**	**1330.1**	**1131.7**	**898.6**	**-20.8%**	**-5.6%**	**9.5%**
Total S. & Cent. America	**39.3**	**44.3**	**48.6**	**56.9**	**72.7**	**75.1**	**75.1**	**77.9**	**70.0**	**70.4**	**74.4**	**76.4**	**2.5%**	**6.6%**	**0.8%**
Total Europe	**1004.3**	**1016.1**	**1062.4**	**1113.0**	**1085.3**	**1013.2**	**989.7**	**921.7**	**887.8**	**852.4**	**689.5**	**574.8**	**-16.9%**	**-3.7%**	**6.1%**
Total CIS	**225.4**	**235.0**	**237.7**	**239.9**	**235.6**	**230.4**	**227.1**	**236.1**	**246.4**	**255.6**	**254.9**	**229.4**	**-10.2%**	**1.2%**	**2.4%**
Total Middle East	**34.7**	**34.6**	**35.6**	**39.2**	**32.6**	**30.7**	**29.7**	**24.7**	**22.7**	**21.3**	**22.6**	**19.7**	**-13.3%**	**-4.2%**	**0.2%**
Total Africa	**247.7**	**257.3**	**260.0**	**255.5**	**251.4**	**251.9**	**247.0**	**246.9**	**252.1**	**258.8**	**255.7**	**236.0**	**-7.9%**	**0.3%**	**2.5%**
Total Asia Pacific	**4552.6**	**4932.2**	**5444.2**	**5660.7**	**6085.2**	**6337.5**	**6269.6**	**6472.3**	**6836.4**	**7308.1**	**7397.4**	**7386.4**	**-0.4%**	**5.0%**	**78.4%**
Total World	**8115.4**	**8634.5**	**9076.2**	**9107.7**	**9577.1**	**9752.4**	**9402.4**	**9422.4**	**9716.2**	**10096.7**	**9826.2**	**9421.4**	**-4.4%**	**1.9%**	**100.0%**
of which: OECD	3616.9	3733.0	3602.0	3465.2	3534.8	3466.3	3208.1	2993.0	2938.0	2828.7	2450.2	**2067.8**	-15.8%	-3.8%	21.9%
Non-OECD	4498.6	4901.5	5474.2	5642.5	6042.3	6286.1	6194.3	6429.4	6778.2	7268.0	7376.0	**7353.6**	-0.6%	5.1%	78.1%
European Union #	733.3	738.5	761.2	773.3	759.4	722.4	732.5	688.2	669.0	625.7	475.1	**373.4**	-21.6%	-4.2%	4.0%

Source: bp Statistical Review of World Energy 2021

Nuclear: Generation*

Terawatt-hours	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Growth rate per annum 2020	2009-19	Share 2020
Total North America	**940.9**	**945.3**	**934.8**	**912.8**	**945.1**	**955.3**	**951.8**	**959.4**	**958.8**	**959.3**	**963.9**	**940.4**	**-2.7%**	**0.2%**	**34.8%**
Total S. & Cent. America	**21.1**	**21.7**	**22.1**	**22.4**	**21.7**	**20.9**	**21.8**	**24.1**	**21.8**	**22.5**	**24.6**	**26.0**	**5.4%**	**1.5%**	**1.0%**
Total Europe	**1004.7**	**1032.0**	**1024.2**	**998.4**	**986.5**	**992.7**	**968.3**	**942.2**	**936.1**	**936.1**	**930.0**	**837.4**	**-10.2%**	**-0.8%**	**31.0%**
Total CIS	**166.1**	**172.9**	**175.5**	**179.8**	**174.9**	**183.2**	**198.3**	**199.0**	**205.8**	**206.7**	**211.2**	**218.0**	**3.0%**	**2.4%**	**8.1%**
Total Middle East	**-**	**-**	**0.1**	**1.5**	**4.3**	**4.1**	**3.5**	**6.5**	**7.0**	**6.9**	**6.4**	**8.0**	**23.7%**	**n/a**	**0.3%**
Total Africa	**12.8**	**13.5**	**12.9**	**13.0**	**14.1**	**13.8**	**12.2**	**15.0**	**14.2**	**11.6**	**13.6**	**15.6**	**14.1%**	**0.6%**	**0.6%**
Total Asia Pacific	**553.4**	**582.9**	**483.1**	**342.9**	**344.1**	**371.4**	**419.7**	**467.7**	**493.6**	**553.6**	**646.9**	**654.8**	**0.9%**	**1.6%**	**24.3%**
Total World	**2699.0**	**2768.5**	**2652.7**	**2470.8**	**2490.5**	**2541.4**	**2575.6**	**2613.9**	**2637.2**	**2696.6**	**2796.6**	**2700.1**	**-3.7%**	**0.4%**	**100.0%**
of which: OECD	2258.0	2302.3	2158.3	1962.1	1975.9	1988.5	1974.7	1973.2	1959.8	1966.0	1994.6	**1876.7**	-6.2%	-1.2%	69.5%
Non-OECD	440.9	466.2	494.3	508.7	514.6	552.9	600.9	640.7	677.4	730.6	802.0	**823.4**	2.4%	6.2%	30.5%
European Union #	825.2	854.2	838.0	812.2	806.5	812.8	787.0	768.2	759.7	762.2	765.5	**687.9**	-10.4%	-0.7%	25.5%

Source: bp Statistical Review of World Energy 2021

Renewables: Renewable power generation*

Terawatt-hours	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Growth rate per annum 2020	2009-19	Share 2020
Total North America	**173.7**	**201.7**	**231.9**	**261.9**	**301.5**	**335.3**	**372.2**	**431.9**	**479.3**	**525.0**	**563.1**	**642.1**	**13.3%**	**11.8%**	**20.4%**
Total S. & Cent. America	**39.1**	**50.9**	**54.0**	**64.1**	**73.8**	**88.6**	**107.1**	**126.4**	**142.6**	**159.4**	**181.4**	**192.9**	**5.7%**	**15.9%**	**6.1%**
Total Europe	**270.3**	**313.6**	**379.5**	**449.9**	**509.2**	**549.7**	**627.5**	**640.2**	**719.7**	**759.9**	**840.0**	**921.0**	**8.9%**	**11.4%**	**29.3%**
Total CIS	**0.6**	**0.6**	**0.7**	**0.6**	**0.7**	**1.0**	**1.4**	**1.8**	**2.1**	**2.5**	**3.8**	**8.1**	**112.2%**	**20.2%**	**0.3%**
Total Middle East	**0.3**	**0.4**	**0.7**	**0.9**	**1.1**	**1.8**	**2.4**	**3.8**	**5.0**	**7.7**	**13.8**	**18.6**	**34.3%**	**44.6%**	**0.6%**
Total Africa	**5.2**	**6.3**	**6.9**	**7.6**	**8.8**	**12.5**	**19.7**	**23.6**	**27.0**	**31.2**	**38.0**	**42.3**	**10.5%**	**21.2%**	**1.3%**
Total Asia Pacific	**146.5**	**187.6**	**234.5**	**282.9**	**350.4**	**425.2**	**504.0**	**623.6**	**804.3**	**992.9**	**1149.2**	**1322.0**	**14.3%**	**22.2%**	**42.0%**
Total World	**635.8**	**761.2**	**908.2**	**1067.9**	**1245.5**	**1414.0**	**1634.4**	**1851.3**	**2180.2**	**2478.6**	**2789.2**	**3147.0**	**12.1%**	**15.3%**	**100.0%**
of which: OECD	491.0	569.3	672.8	778.7	886.7	977.4	1113.9	1197.9	1347.8	1456.6	1599.3	**1788.6**	11.1%	11.9%	56.8%
Non-OECD	144.7	191.9	235.4	289.2	358.8	436.6	520.5	653.4	832.4	1022.0	1189.9	**1358.4**	13.4%	22.7%	43.2%
European Union #	240.8	279.7	336.0	396.7	439.7	466.8	521.3	527.0	583.2	599.9	658.5	**710.4**	7.2%	9.9%	22.6%

Source: bp Statistical Review of World Energy 2021

Electricity generation from gas*

Terawatt-hours	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Growth rate per annum 2020	2009-19	Share 2020
Total North America	**1172.5**	**1257.1**	**1302.4**	**1533.4**	**1433.6**	**1448.0**	**1688.7**	**1737.8**	**1645.6**	**1849.2**	**1962.4**	**1992.4**	**1.3%**	**5.3%**	**31.8%**
Total S. & Cent. America	**139.8**	**177.0**	**166.7**	**204.1**	**231.3**	**247.9**	**261.5**	**250.5**	**251.6**	**244.6**	**246.6**	**233.5**	**-5.6%**	**5.8%**	**3.7%**
Total Europe	**847.5**	**886.1**	**832.0**	**710.4**	**635.4**	**597.4**	**612.3**	**716.7**	**788.3**	**732.9**	**774.2**	**759.1**	**-2.2%**	**-0.9%**	**12.1%**
Total CIS	**587.2**	**642.1**	**647.7**	**661.7**	**668.5**	**684.2**	**679.9**	**675.3**	**673.9**	**693.8**	**692.3**	**657.9**	**-5.2%**	**1.7%**	**10.5%**
Total Middle East	**469.5**	**529.4**	**504.5**	**534.4**	**548.4**	**634.7**	**692.6**	**750.5**	**815.4**	**799.2**	**813.7**	**836.1**	**2.5%**	**5.7%**	**13.3%**
Total Africa	**189.9**	**216.7**	**234.6**	**258.8**	**265.4**	**273.7**	**289.5**	**303.5**	**327.3**	**335.7**	**337.5**	**332.2**	**-1.8%**	**5.9%**	**5.3%**
Total Asia Pacific	**1045.4**	**1164.2**	**1240.7**	**1319.4**	**1317.4**	**1367.7**	**1378.5**	**1404.5**	**1439.6**	**1478.7**	**1497.1**	**1456.9**	**-3.0%**	**3.7%**	**23.2%**
Total World	**4451.8**	**4872.6**	**4928.6**	**5222.0**	**5099.9**	**5253.6**	**5603.1**	**5838.8**	**5941.7**	**6134.1**	**6323.8**	**6268.1**	**-1.2%**	**3.6%**	**100.0%**
of which: OECD	2476.8	2646.3	2692.6	2863.8	2714.3	2710.7	2928.6	3073.0	3067.5	3229.0	3358.6	**3360.0**	-0.2%	3.1%	53.6%
Non-OECD	1975.1	2226.3	2236.0	2358.2	2385.6	2542.9	2674.5	2765.8	2874.2	2905.1	2965.2	**2908.1**	-2.2%	4.1%	46.4%
European Union #	566.6	589.2	554.8	482.6	414.3	357.2	396.6	467.4	526.2	491.2	566.7	**552.9**	-2.7%	♦	8.8%

Source: bp Statistical Review of World Energy 2021

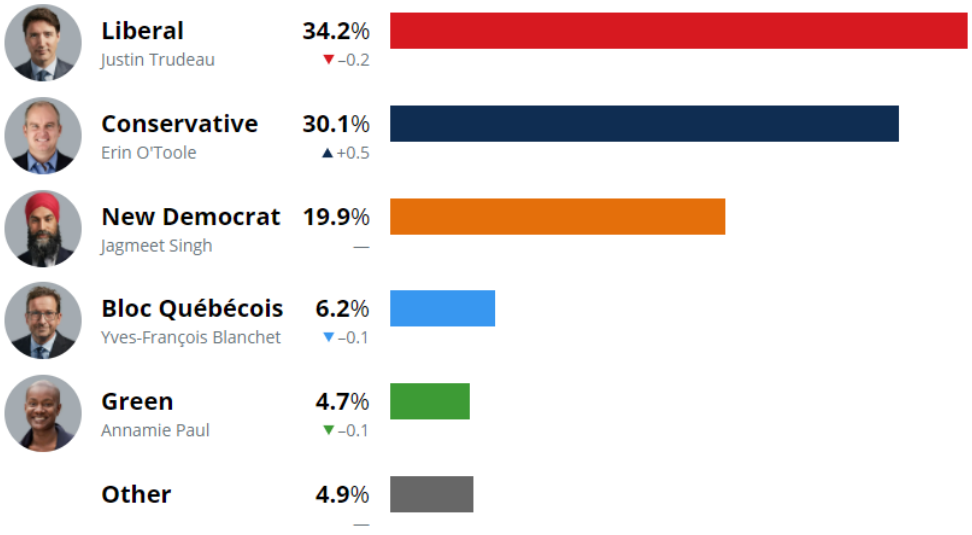
https://newsinteractives.cbc.ca/elections/poll-tracker/canada/

Éric Grenier'sPoll Tracker

Last Updated: Aug 21, 2021 11:39 a.m.

Liberal support softening as majority moves further away

The Liberals continue to hold a lead over the Conservatives in national polling and would likely gain seats if an election were held today, but are slipping further away from being within reach of the 170 seats needed for a majority government. The Conservatives are trailing in second and slowly closing the gap on the Liberals. The NDP also has some momentum and is poised to gain seats. The Bloc Québécois and Greens are holding steady but at lower levels of support than in the 2019 election. The People's Party sits at 3.6 per cent.



Arrows indicate change in party support since Aug. 20, 2021.

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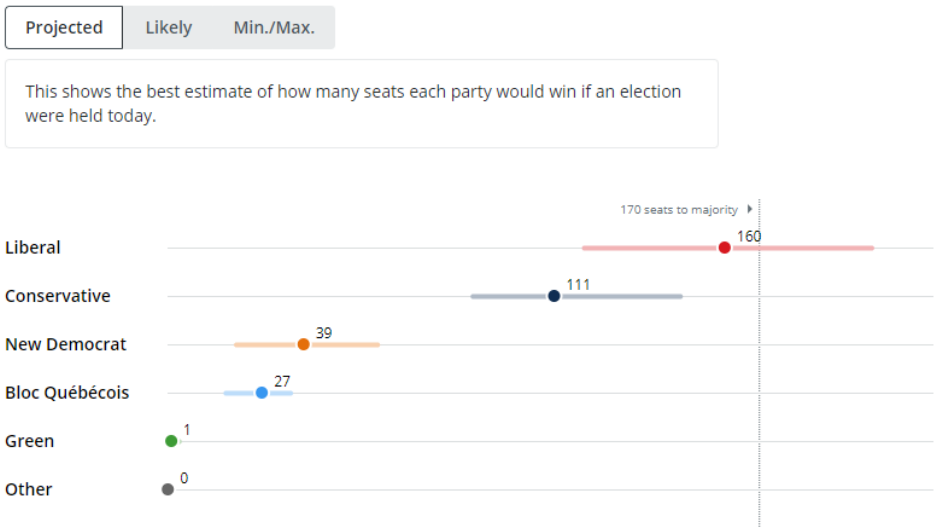
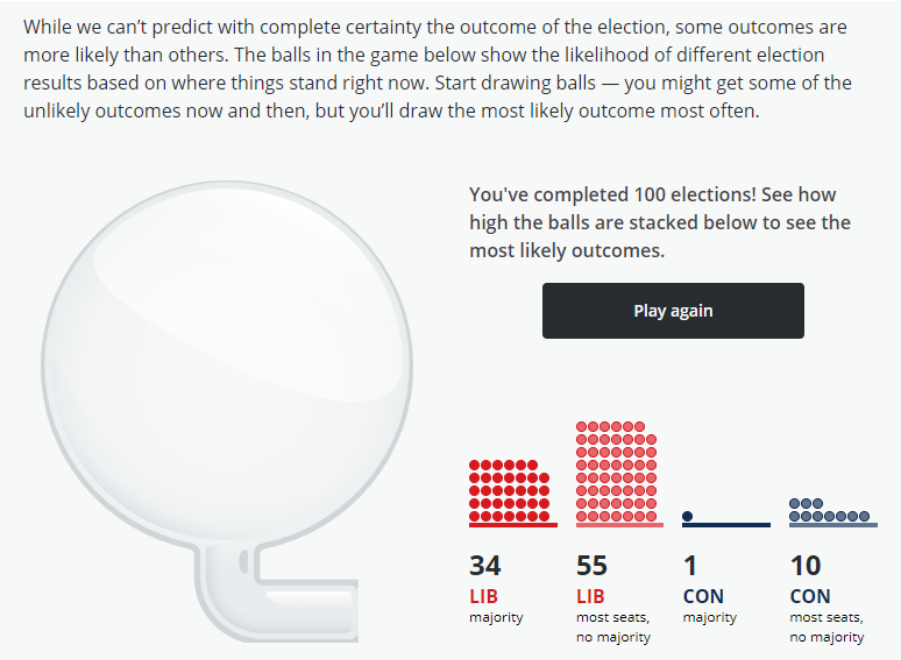
How many seats could each party win

The Liberals would likely gain seats if an election were held today but the odds are higher that they would be returned with another minority government rather than win a majority victory. Most of their gains would come at the expense of the Conservatives, who trail the Liberals in the seat count by a wide margin, as well as the Bloc. The New Democrats could increase their caucus by more than half and emerge as the third party in the House of Commons, ahead of the Bloc Québécois.



What are the chances of each party winning

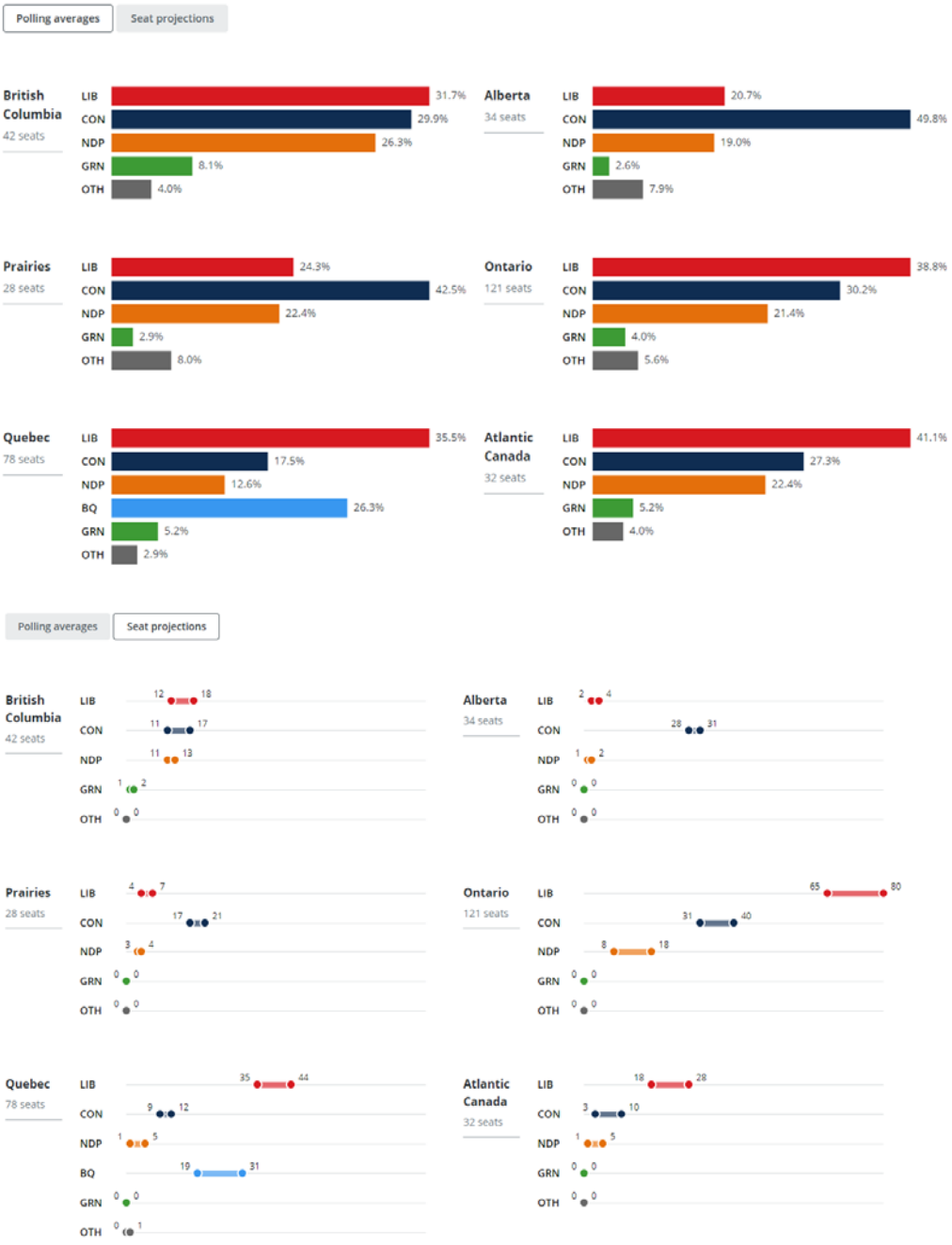
Probability of the **Liberals** winning a **majority**	**34%**
Probability of the **Liberals** winning the **most seats but not a majority**	**55%**
Probability of the **Conservatives** winning the **most seats but not a majority**	**10%**
Probability of the **Conservatives** winning a **majority**	**1%**



How the probabilities are calculated

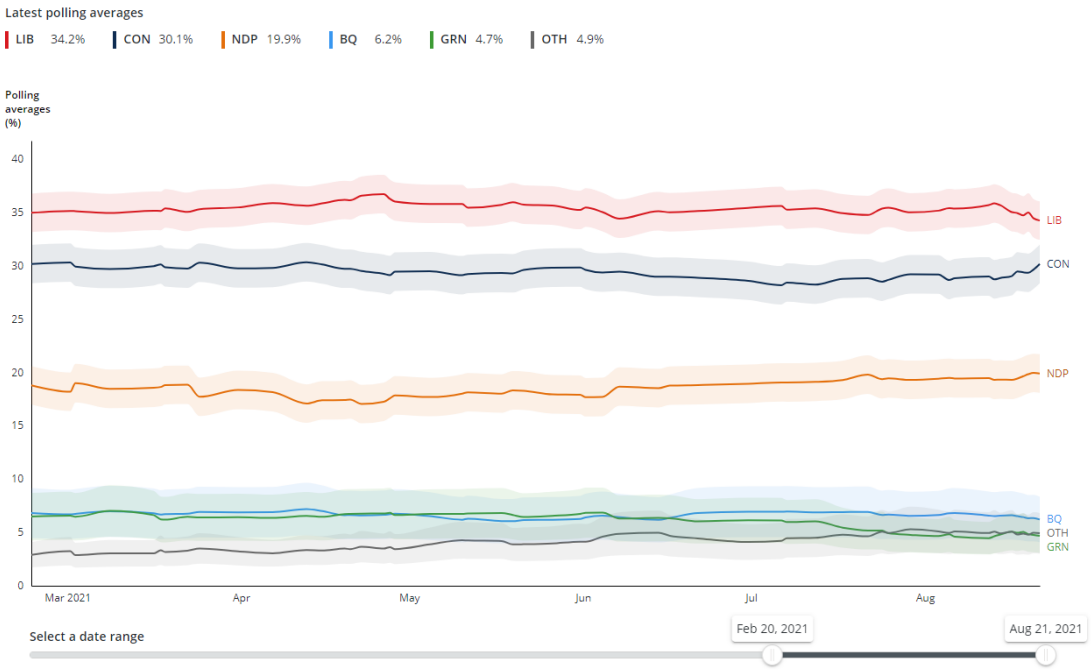
How support breaks down across the country

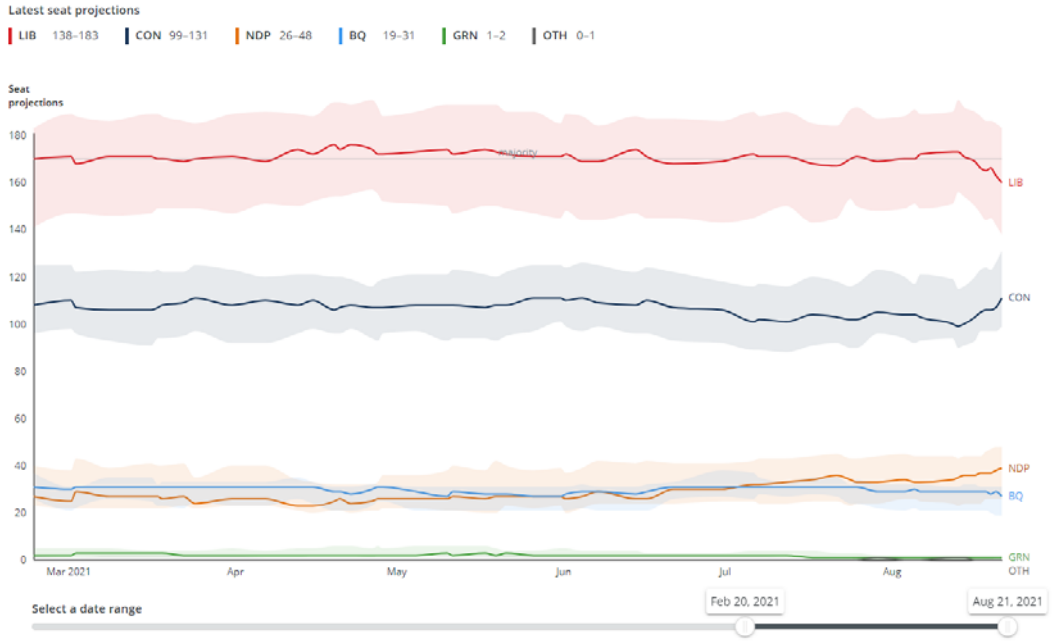
The Liberals are leading in Atlantic Canada, Ontario, Quebec and British Columbia, though their advantages in B.C. and Atlantic Canada are slipping. The Conservatives are only leading in Alberta, Saskatchewan and Manitoba and their support throughout Western Canada is rising, as well as in Atlantic Canada and Quebec. The New Democrats still have their best numbers in B.C. and are gaining ground in Quebec. The Bloc is ensconced in second in Quebec but is slowly slipping back, while the Greens are below double-digits throughout the country. At 4.7 per cent, the PPC has its best results in both Alberta and the Prairies.



How has support changed over time?

The Liberals have held a lead in the polls for over a year and are still holding an advantage over the Conservatives, who have lifted themselves above their traditional floor of 30 per cent. The trend line is not heading in the right direction for the Liberals. The NDP has gained some momentum heading into the campaign and most polls are showing them on the rise. The Greens could be recovering from a collapse in their support with better numbers in B.C., while the Bloc has been sliding.





Individual Polls

All national opinion polls used in the Poll Tracker are listed below in reverse-chronological order. Click on the poll to view the full detailed report of the poll or the original source.

Poll dates	Poll	LIB	CON	NDP	BQ	GRN	OTH	Sample	Weight	Method
Aug 18–Aug 20, 2021	NEW Mainstreet / iPolitics	34	33	19	5	4	5	1,449	8	IVR
Aug 18–Aug 20, 2021	NEW Nanos / CTV-Globe & Mail	34	32	20	6	4	3	1,200	8	TEL
Aug 16–Aug 19, 2021	NEW EKOS Research	33	32	19	6	5	6	1,426	7	IVR
Aug 16–Aug 18, 2021	Counsel Public Affairs	30	29	22	8	5	7	3,499	7	NET
Aug 15–Aug 18, 2021	EKOS Research	33	32	20	6	5	5	1,281	2	IVR
Aug 15–Aug 18, 2021	Mainstreet / iPolitics	33	33	20	5	4	5	1,571	4	IVR
Aug 14–Aug 17, 2021	Angus Reid Institute	36	30	20	6	4	5	1,614	6	NET
Aug 14–Aug 16, 2021	EKOS Research	34	29	21	5	6	5	840	2	IVR
Aug 13–Aug 16, 2021	Ipsos / Global News	36	31	20	6	5	2	2,001	6	T/N
Aug 12–Aug 16, 2021	Abacus Data	33	28	22	7	5	4	1,500	5	NET

https://asia.nikkei.com/Business/Markets/Commodities/Japan-defends-rare-earths-industry-from-unwanted-foreign-takeovers

Japan defends rare-earths industry from unwanted foreign takeovers

Tokyo beefs up economic security for strategically important metals

Recycled cobalt sulfate is seen at an urban mining plant in South Korea. The metal, along with rare earths, will receive more investment scrutiny in Japan © Reuters

Nikkei staff writers August 19, 2021 06:56 JST

TOKYO -- Rare-earth metals were added on Wednesday to Japan's list of industries subject to tougher restrictions on foreign investment, as Tokyo attempts to shield a potential weak point in its supply chains.

The measure covers 34 materials, including other strategically important metals such as cobalt and titanium. Foreign investors will be required to notify the government before investing in a variety of connected fields, including mining, building survey ships, component analysis, and construction of ports on remote islands.

Japan imports the bulk of its rare earths, and there have long been concerns about risks to its supply in the event of a conflict. These materials, used in electric motors and other high-tech applications, have only grown in importance in recent years with trends such as the pivot away from fossil fuels. Consequently, Tokyo sees a need to protect companies involved in tapping its domestic resources from possibly problematic investment.

Japan's foreign exchange law requires advance notice of foreign purchases of stakes in companies that are important to national security. Legislation passed in November 2019 slashed the threshold to 1% from 10%.

Tokyo initially designated 12 areas as "core" industries subject to the tightest restrictions, including weapons, nuclear power, rail and cybersecurity. Pharmaceuticals and medical devices were added to the list last year in response to the coronavirus pandemic.

The government and the ruling Liberal Democratic Party have been exploring ways to defend key industries from unwanted takeovers by the likes of China. On top of the advance notice, the LDP is proposing a monitoring system that will allow the government to closely watch companies after foreign investment.

The LDP wants the government to prepare a national strategy for economic security and for parliament to pass comprehensive legislation that puts such a defense mechanism in place.

In the transition to clean energy, critical minerals bring new challenges to energy security

An energy system powered by clean energy technologies differs profoundly from one fuelled by traditional hydrocarbon resources. Building solar photovoltaic (PV) plants, wind farms and electric vehicles (EVs) generally requires more minerals than their fossil fuel-based counterparts. A typical electric car requires six times the mineral inputs of a conventional car, and an onshore wind plant requires nine times more mineral resources than a gas-fired power plant. Since 2010, the average amount of minerals needed for a new unit of power generation capacity has increased by 50% as the share of renewables has risen.

The types of mineral resources used vary by technology. Lithium, nickel, cobalt, manganese and graphite are crucial to battery performance, longevity and energy density. Rare earth elements are essential for permanent magnets that are vital for wind turbines and EV motors. Electricity networks need a huge amount of copper and aluminium, with copper being a cornerstone for all electricity-related technologies.

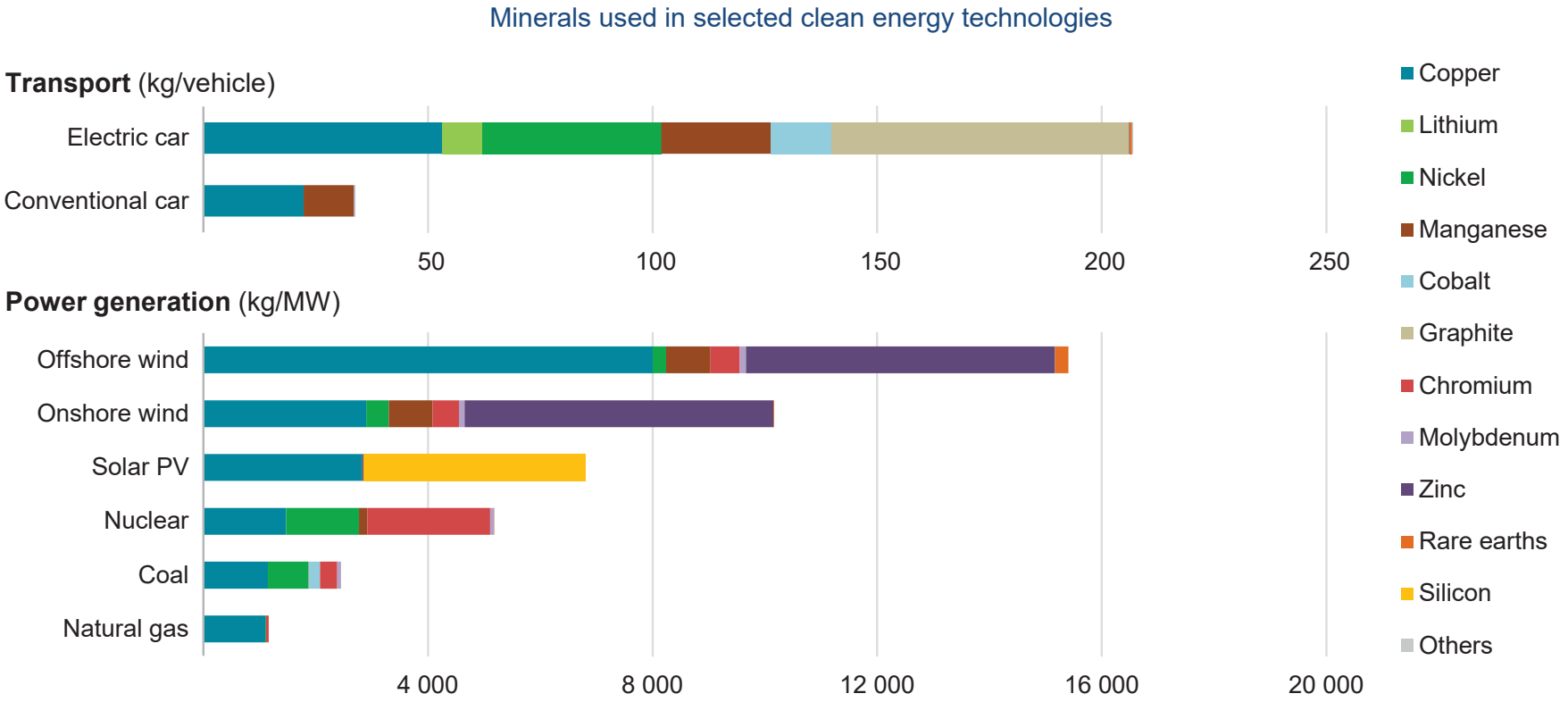
The shift to a clean energy system is set to drive a huge increase in the requirements for these minerals, meaning that the energy sector is emerging as a major force in mineral markets. Until the mid-2010s, the energy sector represented a small part of total demand for most minerals. However, as energy transitions gather pace, clean energy technologies are becoming the fastest-growing segment of demand.

In a scenario that meets the Paris Agreement goals, clean energy technologies' share of total demand rises significantly over the next two decades to over 40% for copper and rare earth elements, 60-70% for nickel and cobalt, and almost 90% for lithium. EVs and battery storage have already displaced consumer electronics to become the largest consumer of lithium and are set to take over from stainless steel as the largest end user of nickel by 2040.

As countries accelerate their efforts to reduce emissions, they also need to make sure their energy systems remain resilient and secure. Today's international energy security mechanisms are designed to provide insurance against the risks of disruptions or price spikes in supplies of hydrocarbons, particularly oil. Minerals offer a different and distinct set of challenges, but their rising importance in a decarbonising energy system requires energy policy makers to expand their horizons and consider potential new vulnerabilities. Concerns about price volatility and security of supply do not disappear in an electrified, renewables-rich energy system.

This is why the IEA is paying close attention to the issue of critical minerals and their role in clean energy transitions. This report reflects the IEA's determination to stay ahead of the curve on all aspects of energy security in a fast-evolving energy world.

The rapid deployment of clean energy technologies as part of energy transitions implies a significant increase in demand for minerals



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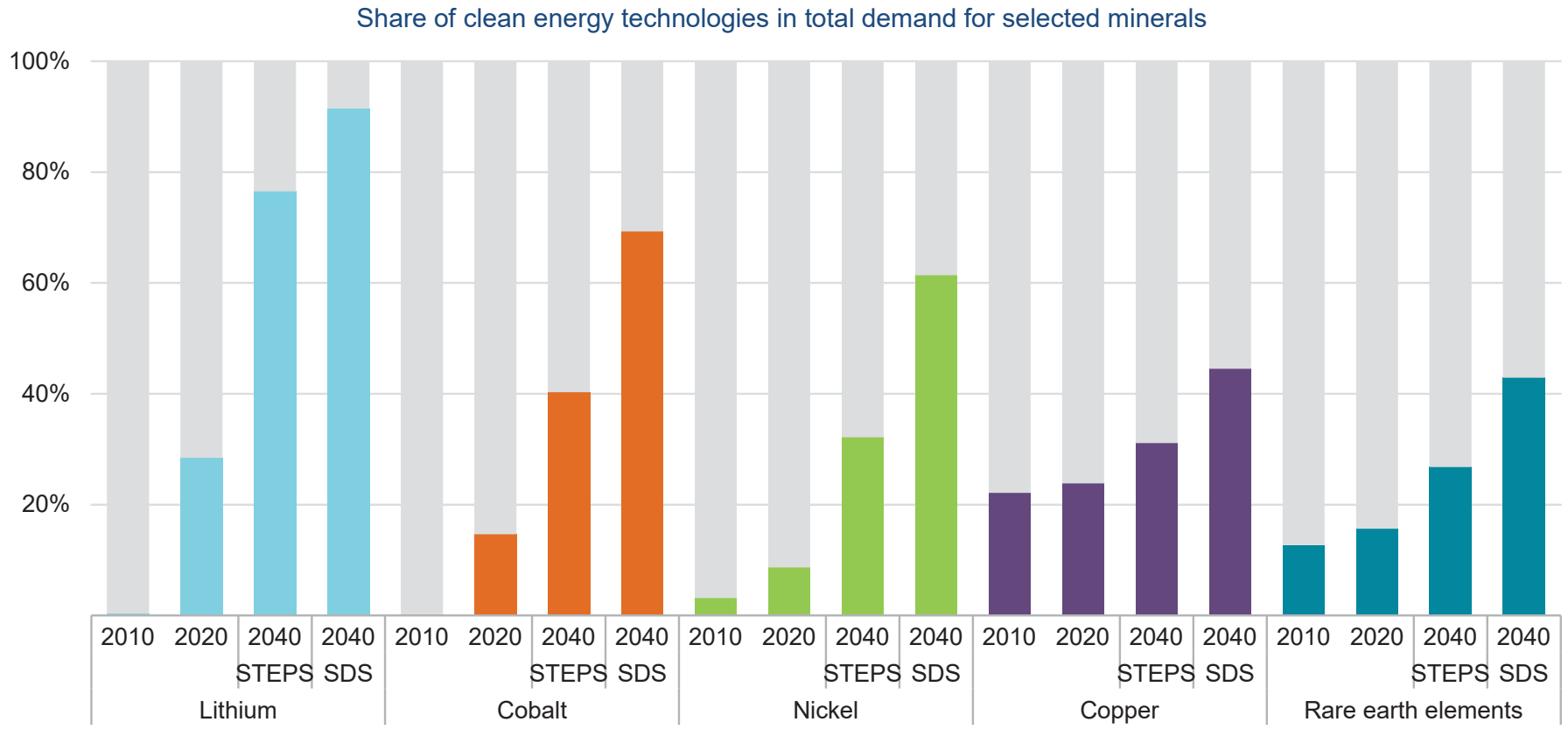
Notes: kg = kilogramme; MW = megawatt. Steel and aluminium not included. See Chapter 1 and Annex for details on the assumptions and methodologies.

The energy sector becomes a leading consumer of minerals as energy transitions accelerate



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Notes: Demand from other sectors was assessed using historical consumption, relevant activity drivers and the derived material intensity. Neodymium demand is used as indicative for rare earth elements. STEPS = Stated Policies Scenario, an indication of where the energy system is heading based on a sector-by-sector analysis of today's policies and policy announcements; SDS = Sustainable Development Scenario, indicating what would be required in a trajectory consistent with meeting the Paris Agreement goals.

Clean energy transitions will have far-reaching consequences for metals and mining

Our bottom-up assessment suggests that a concerted effort to reach the goals of the Paris Agreement (climate stabilisation at "well below 2°C global temperature rise", as in the IEA Sustainable Development Scenario [SDS]) would mean a quadrupling of mineral requirements for clean energy technologies by 2040. An even faster transition, to hit net-zero *globally* by 2050, would require six times more mineral inputs in 2040 than today.

Which sectors do these increases come from? In climate-driven scenarios, mineral demand for use in EVs and battery storage is a major force, growing at least thirty times to 2040. Lithium sees the fastest growth, with demand growing by over 40 times in the SDS by 2040, followed by graphite, cobalt and nickel (around 20-25 times). The expansion of electricity networks means that copper demand for power lines more than doubles over the same period.

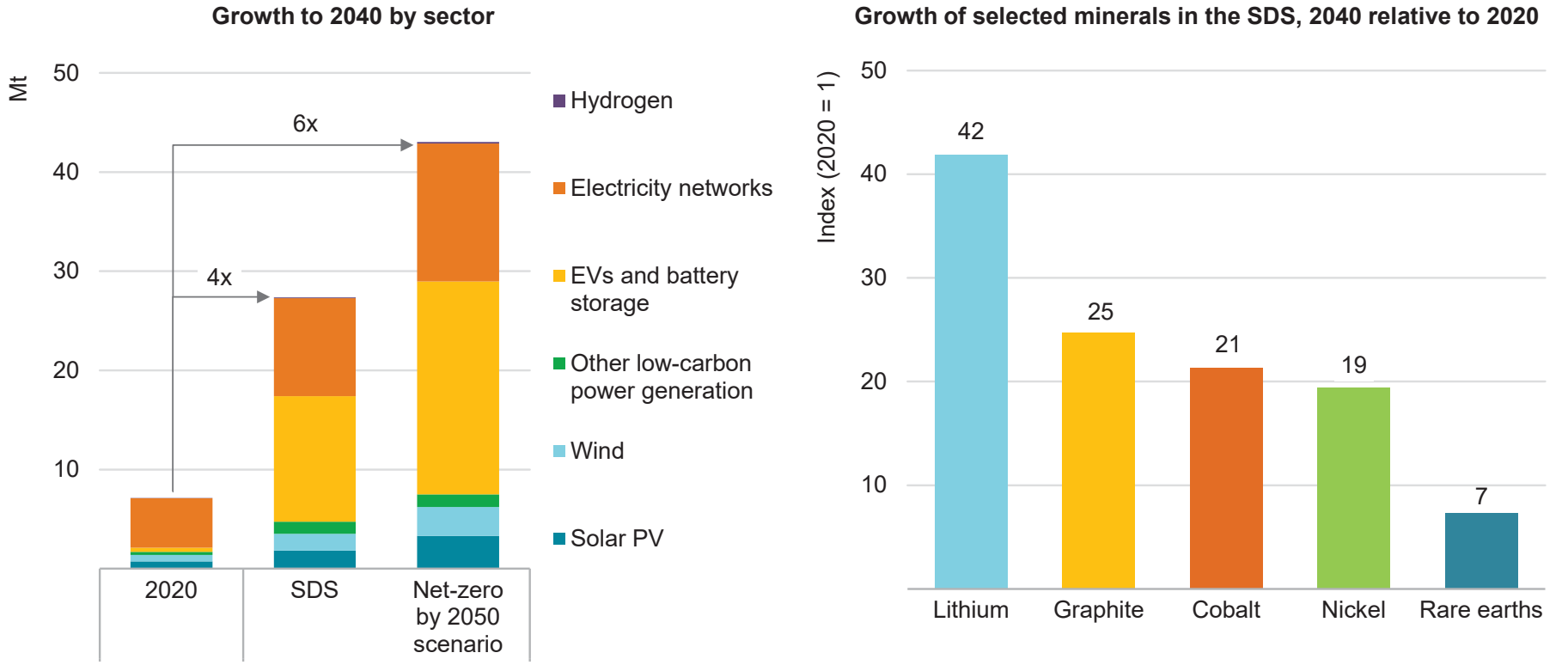
The rise of low-carbon power generation to meet climate goals also means a tripling of mineral demand from this sector by 2040. Wind takes the lead, bolstered by material-intensive offshore wind. Solar PV follows closely, due to the sheer volume of capacity that is added. Hydropower, biomass and nuclear make only minor contributions given their comparatively low mineral requirements. In other sectors, the rapid growth of hydrogen as an energy carrier underpins major growth in demand for nickel and zirconium for electrolysers, and for platinum-group metals for fuel cells.

Demand trajectories are subject to large technology and policy uncertainties. We analysed 11 alternative cases to understand the impacts. For example, cobalt demand could be anything from 6 to 30 times higher than today's levels depending on assumptions about the evolution of battery chemistry and climate policies. Likewise rare earth elements may see three to seven times higher demand in 2040 than today, depending on the choice of wind turbines and the strength of policy support. The largest source of demand variability comes from uncertainty around the stringency of climate policies. The big question for suppliers is whether the world is really heading for a scenario consistent with the Paris Agreement. Policy makers have a crucial role in narrowing this uncertainty by making clear their ambitions and turning targets into actions. This will be vital to reduce investment risks and ensure adequate flow of capital to new projects.

Clean energy transitions offer opportunities and challenges for companies that produce minerals. Today revenue from coal production is ten times larger than those from energy transition minerals. However, there is a rapid reversal of fortunes in a climate-driven scenario, as the combined revenues from energy transition minerals overtake those from coal well before 2040.

Mineral demand for clean energy technologies would rise by at least four times by 2040 to meet climate goals, with particularly high growth for EV-related minerals

Mineral demand for clean energy technologies by scenario



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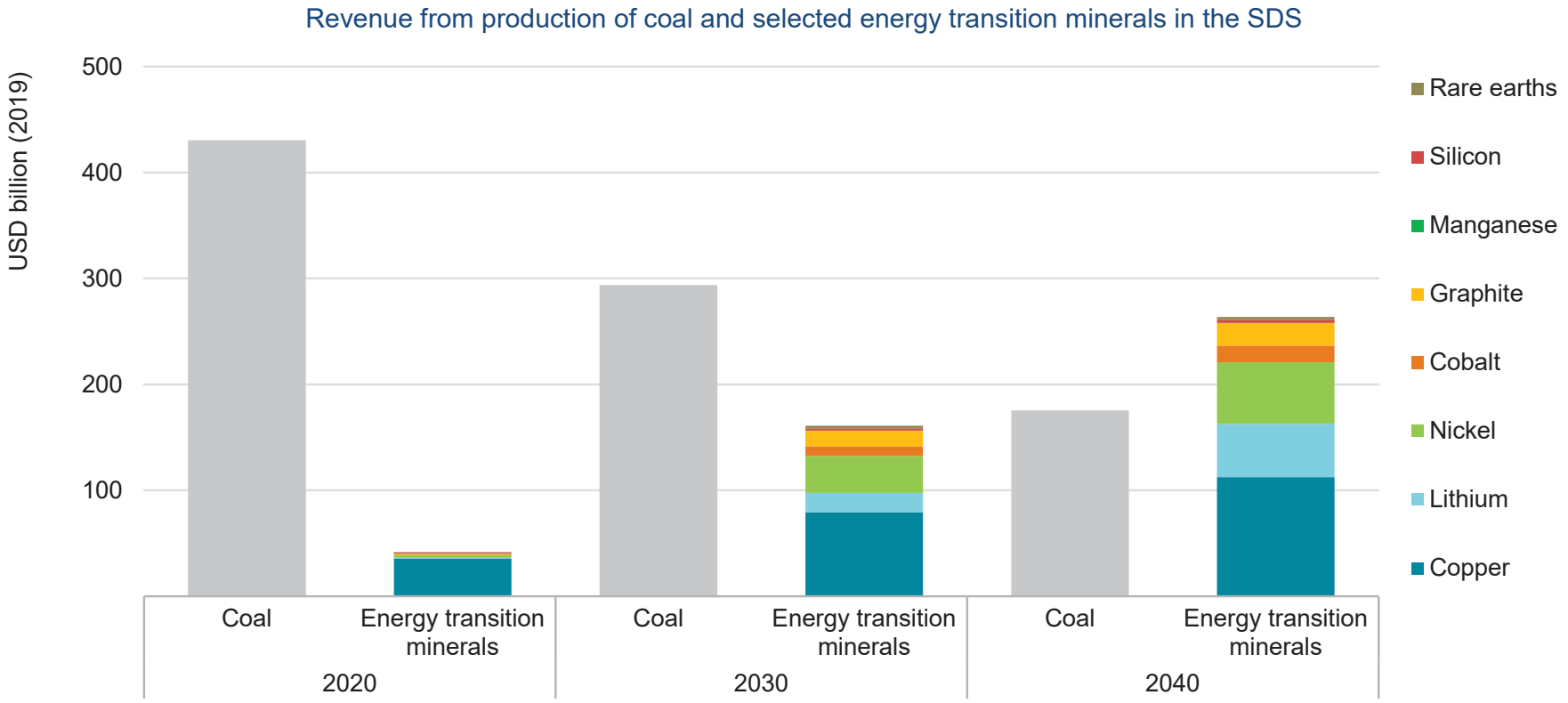
Notes: Mt = million tonnes. Includes all minerals in the scope of this report, but does not include steel and aluminium. See Annex for a full list of minerals.

Changing fortunes: Coal vs energy transition minerals



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Notes: Revenue for energy transition minerals includes only the volume required in clean energy technologies, not total demand. Future prices for coal are projected equilibrium prices in *WEO 2020* SDS. Prices for energy transition minerals are based on conservative assumptions about future price trends (moderate growth of around 10-20% from today's levels).

Today's mineral supply and investment plans fall short of what is needed to transform the energy sector, raising the risk of delayed or more expensive energy transitions

The prospect of a rapid increase in demand for critical minerals – well above anything seen previously in most cases – raises huge questions about the availability and reliability of supply. In the past, strains on the supply-demand balance for different minerals have prompted additional investment and measures to moderate or substitute demand. But these responses have come with time lags and have been accompanied by considerable price volatility. Similar episodes in the future could delay clean energy transitions and push up their cost. Given the urgency of reducing emissions, this is a possibility that the world can ill afford.

Raw materials are a significant element in the cost structure of many technologies required in energy transitions. In the case of lithium-ion batteries, technology learning and economies of scale have pushed down overall costs by 90% over the past decade. However, this also means that raw material costs now loom larger, accounting for some 50-70% of total battery costs, up from 40-50% five years ago. Higher mineral prices could therefore have a significant effect: a doubling of lithium or nickel prices would induce a 6% increase in battery costs. If both lithium and nickel prices were to double at the same time, this would offset all the anticipated unit cost reductions associated with a doubling of battery production capacity. In the case of electricity networks, copper and aluminium currently represent around 20% of total grid investment costs. Higher prices as a result of tight supply could have a major impact on the level of grid investment.

Our analysis of the near-term outlook for supply presents a mixed picture. Some minerals such as mined lithium and cobalt are expected to be in surplus in the near term, while lithium chemical products, battery-grade nickel and key rare earth elements (e.g. neodymium and dysprosium) might face tight supply in the years ahead. However, looking further ahead in a scenario consistent with climate goals, expected supply from existing mines and projects under construction is estimated to meet only half of projected lithium and cobalt requirements and 80% of copper needs by 2030.

Today's supply and investment plans are geared to a world of more gradual, insufficient action on climate change (the STEPS trajectory). They are not ready to support accelerated energy transitions. While there are a host of projects at varying stages of development, there are many vulnerabilities that may increase the possibility of market tightness and greater price volatility:

- **High geographical concentration of production:** Production of many energy transition minerals is more concentrated than that of oil or natural gas. For lithium, cobalt and rare earth elements, the world's top three producing nations control well over three-

quarters of global output. In some cases, a single country is responsible for around half of worldwide production. The Democratic Republic of the Congo (DRC) and People's Republic of China (China) were responsible for some 70% and 60% of global production of cobalt and rare earth elements respectively in 2019. The level of concentration is even higher for processing operations, where China has a strong presence across the board. China's share of refining is around 35% for nickel, 50-70% for lithium and cobalt, and nearly 90% for rare earth elements. Chinese companies have also made substantial investment in overseas assets in Australia, Chile, the DRC and Indonesia. High levels of concentration, compounded by complex supply chains, increase the risks that could arise from physical disruption, trade restrictions or other developments in major producing countries.

- **Long project development lead times:** Our analysis suggests that it has taken on average over 16 years to move mining projects from discovery to first production. These long lead times raise questions about the ability of suppliers to ramp up output if demand were to pick up rapidly. If companies wait for deficits to emerge before committing to new projects, this could lead to a prolonged period of market tightness and price volatility.

- **Declining resource quality:** Concerns about resources relate to quality rather than quantity. In recent years, ore quality has continued to fall across a range of commodities. For example, the average copper ore grade in Chile declined by 30% over the past 15 years. Extracting metal content from lower-grade ores requires more energy, exerting upward pressure on production costs, greenhouse gas emissions and waste volumes.

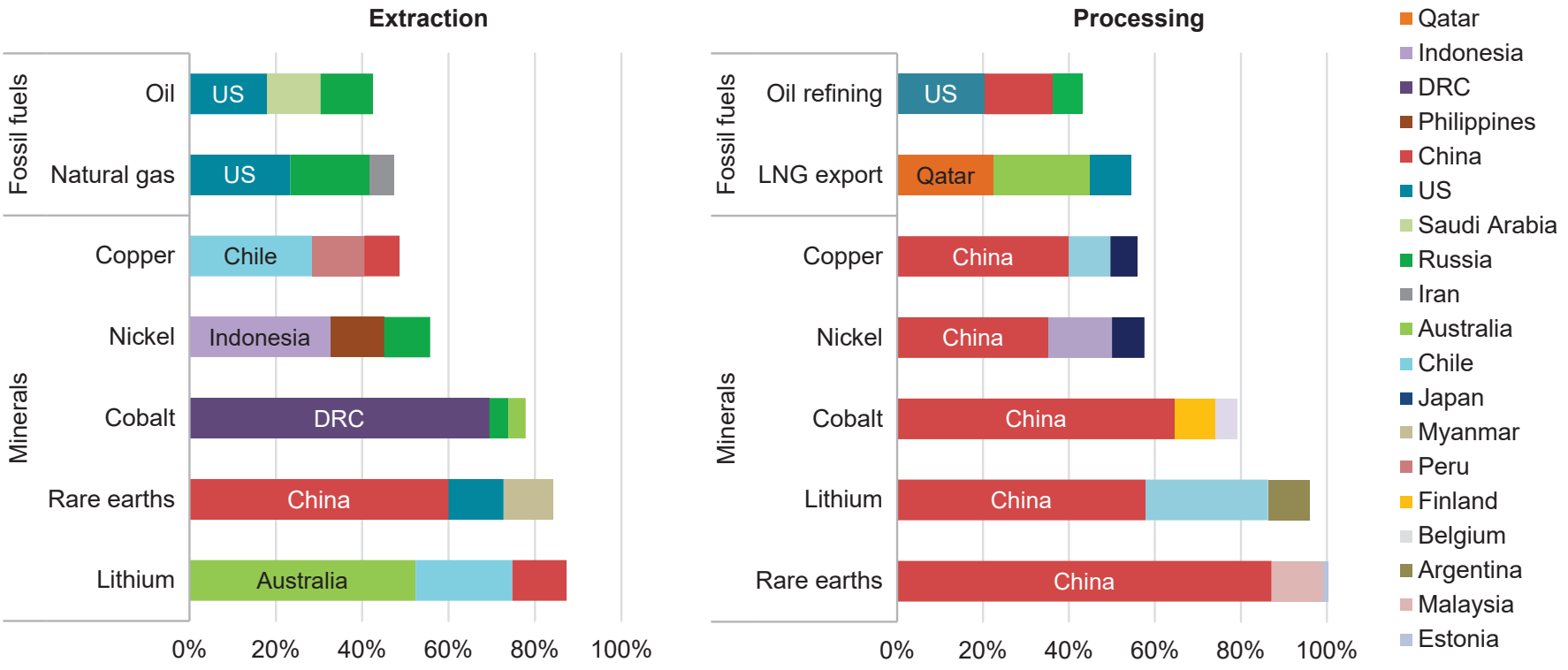
- **Growing scrutiny of environmental and social performance:** Production and processing of mineral resources gives rise to a variety of environmental and social issues that, if poorly managed, can harm local communities and disrupt supply. Consumers and investors are increasingly calling for companies to source minerals that are sustainably and responsibly produced. Without broad and sustained efforts to improve environmental and social performance, it may be challenging for consumers to exclude minerals produced with poor standards as higher-performing supply chains may not be sufficient to meet demand.

- **Higher exposure to climate risks:** Mining assets are exposed to growing climate risks. Copper and lithium are particularly vulnerable to water stress given their high water requirements. Over 50% of today's lithium and copper production is concentrated in areas with high water stress levels. Several major producing regions such as Australia, China, and Africa are also subject to extreme heat or flooding, which pose greater challenges in ensuring reliable and sustainable supplies.

These risks to the reliability, affordability and sustainability of mineral supply are manageable, but they are real. How policy makers and companies respond will determine whether critical minerals are a vital enabler for clean energy transitions, or a bottleneck in the process.

Production of many energy transition minerals today is more geographically concentrated than that of oil or natural gas

Share of top three producing countries in production of selected minerals and fossil fuels, 2019



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Notes: LNG = liquefied natural gas; US = United States. The values for copper processing are for refining operations.
Sources: IEA (2020a); USGS (2021), World Bureau of Metal Statistics (2020); Adamas Intelligence (2020).

New and more diversified supply sources will be vital to pave the way to a clean energy future

As energy transitions gather pace, security of mineral supply is gaining prominence in the energy security debate, a realm where oil has traditionally occupied a central role.

There are significant differences between oil security and mineral security, notably in the impacts that any disruption may have. In the event of an oil supply crisis, all consumers driving gasoline cars or diesel trucks are affected by higher prices. By contrast, a shortage or spike in the price of a mineral affects only the supply of *new* EVs or solar plants. Consumers driving existing EVs or using solar-powered electricity are not affected. In addition, the combustion of oil means that new supply is essential to the continuous operation of oil-using assets. However, minerals are a component of infrastructure, with the potential to be recovered and recycled.

Nonetheless, experience from oil markets may offer some valuable lessons for an approach to mineral security, in particular to underscore that supply-side measures need to be accompanied by wide-ranging efforts encompassing demand, technology, supply chain resilience and sustainability.

Rapid, orderly energy transitions require strong growth in investment in mineral supplies to keep up with the pace of demand growth. Policy makers can take a variety of actions to encourage new supply projects: the most important is to provide clear and strong signals about energy transitions. If companies do not have confidence in countries' energy and climate policies, they are likely to make investment decisions based on much more conservative expectations. Given the long lead times for new project developments, this could create bottlenecks when deployment of clean energy technologies starts to grow rapidly. Diversification of supply is also crucial; resource-owning governments can support new project development by reinforcing national geological surveys, streamlining permitting procedures to shorten lead times, providing financing support to de-risk projects, and raising public awareness of the contribution that such projects play in the transformation of the energy sector.

Reducing material intensity and encouraging material substitution via technology innovation can also play major roles in alleviating strains on supply, while also reducing costs. For example, 40-50% reductions in the use of silver and silicon in solar cells over the past decade have enabled a spectacular rise in solar PV deployment. Innovation in production technologies can also unlock sizeable new supplies. Emerging technologies, such as direct lithium extraction or enhanced metal recovery from waste streams or low-grade ores, offer the potential for a step change in future supply volumes.

A strong focus on recycling, supply chain resilience and sustainability will be essential

Recycling relieves the pressure on primary supply. For bulk metals, recycling practices are well established, but this is not yet the case for many energy transition metals such as lithium and rare earth elements. Emerging waste streams from clean energy technologies (e.g. batteries and wind turbines) can change this picture. The amount of spent EV batteries reaching the end of their first life is expected to surge after 2030, at a time when mineral demand is set to still be growing rapidly. Recycling would not eliminate the need for continued investment in new supplies. But we estimate that by 2040, recycled quantities of copper, lithium, nickel and cobalt from spent batteries could reduce combined primary supply requirements for these minerals by around 10%. The security benefits of recycling can be far greater for regions with wider deployment of clean energy technologies due to greater economies of scale.

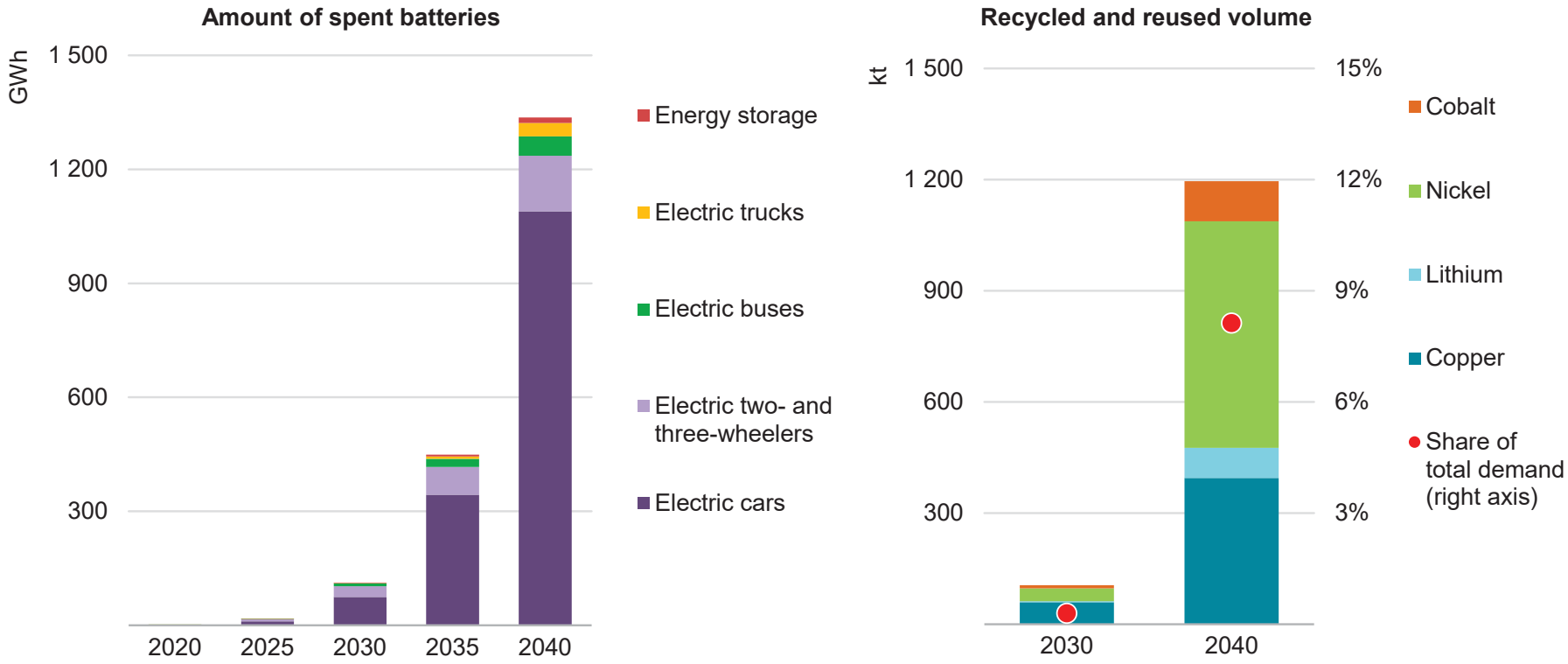
Regular market assessments and periodic stress tests, coupled with emergency response exercises (along the lines of the IEA's existing emergency response programmes), can help policy makers identify possible weak points, evaluate potential impacts and devise necessary actions. Voluntary strategic stockpiling can in some cases help countries weather short-term supply disruptions. Such programmes need to be carefully designed, and based on a detailed review of potential vulnerabilities. Some minerals with smaller markets have low pricing transparency and liquidity, making it difficult to manage price risks and affecting investment decisions. Establishing reliable price benchmarks will be a crucial step towards enhancing transparency and supporting market development.

Tackling the environmental and social impacts of mineral developments will be essential, including the emissions associated with mining and processing, risks arising from inadequate waste and water management, and impacts from inadequate worker safety, human rights abuses (such as child labour) and corruption. Ensuring that mineral wealth brings real gains to local communities is a broad and multi-faceted challenge, particularly in countries where artisanal and small-scale mines are common. Supply chain due diligence, with effective regulatory enforcement, can be a critical tool to identify, assess and mitigate risks, increasing traceability and transparency.

Emissions along the mineral supply chain do not negate the clear climate advantages of clean energy technologies. Total lifecycle greenhouse gas emissions of EVs are around half those of internal combustion engine cars on average, with the potential for a further 25% reduction with low-carbon electricity. While energy transition minerals have relatively high emission intensities, a large variation in the emissions footprint of different producers suggests that there are ways to minimise these emissions through fuel switching, low-carbon electricity and efficiency improvements. Integrating environmental concerns in the early stages of project planning can help ensure sustainable practices throughout the project life cycle.

The projected surge in spent battery volumes suggests immense scope for recycling

Amount of spent lithium-ion batteries from EVs and storage and recycled and reused minerals from batteries in the SDS



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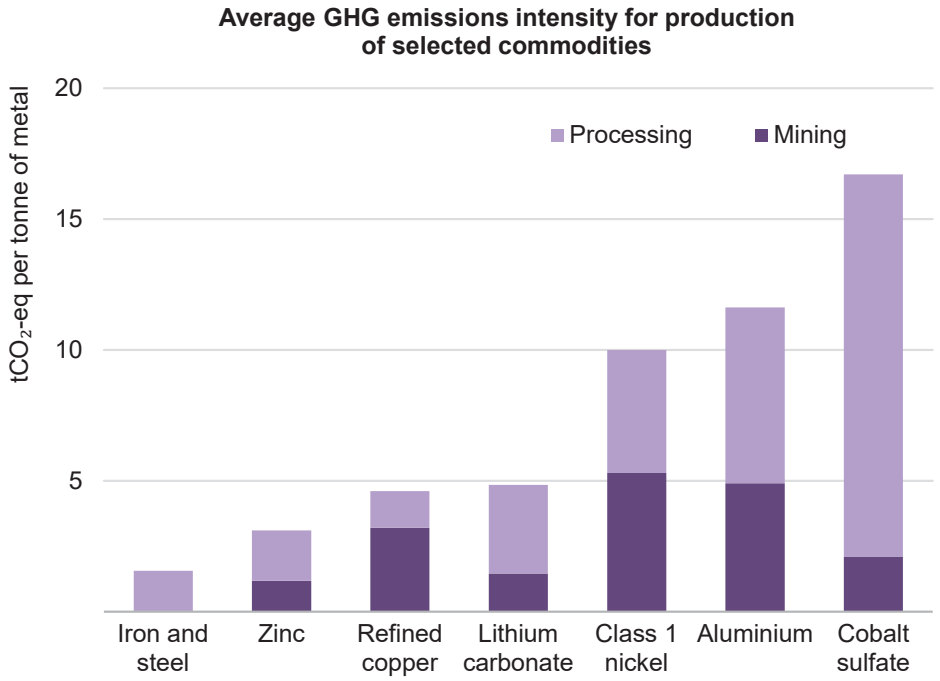
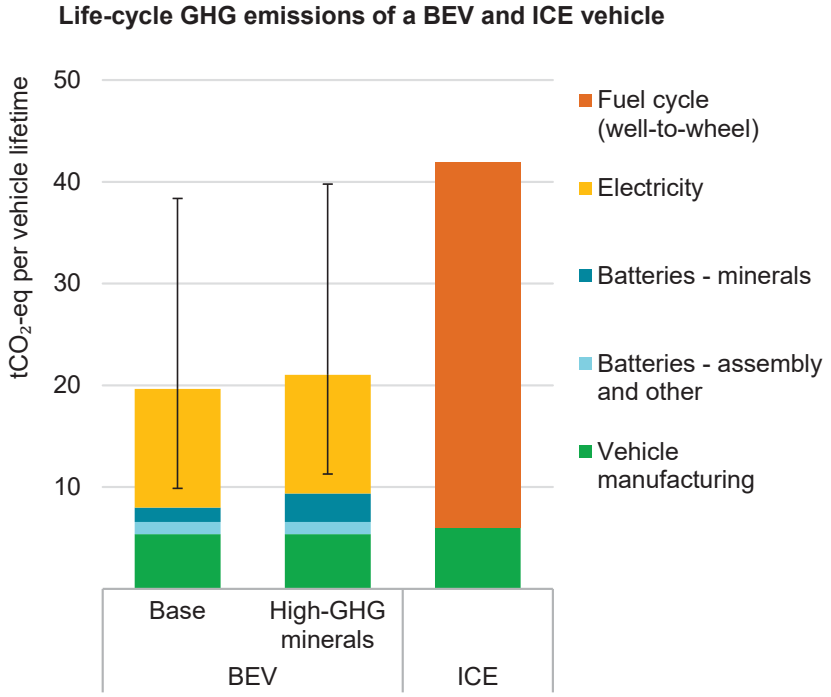
Note: GWh = gigawatt hour.

Stronger actions are required to counter the upward pressure on emissions from mineral production, but the climate advantages of clean energy technologies remain clear





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Notes: BEV = battery electric vehicle; ICE = internal combustion engine. The "High-GHG minerals" case assumes double the GHG emissions intensity for battery minerals. Includes both Scope 1 and 2 emissions of all GHG from primary production. See Chapter 4 for more detailed assumptions.

Source: IEA analysis based on IEA (2020a); IEA (2020b); Kelly et al. (2020); Argonne National Laboratory (2020); Argonne National Laboratory (2019); Rio Tinto (2020); S&P Global (2021); Skarn Associates (2021); Marx et al. (2018).

IEA's six key recommendations for a new, comprehensive approach to mineral security

1. **Ensure adequate investment in diversified sources of new supply.** Strong signals from policy makers about the speed of energy transitions and the growth trajectories of key clean energy technologies are critical to bring forward timely investment in new supply. Governments can play a major role in creating conditions conducive to diversified investment in the mineral supply chain.

2. **Promote technology innovation at all points along the value chain.** Stepping up R&D efforts for technology innovation on both the demand and production sides can enable more efficient use of materials, allow material substitution and unlock sizeable new supplies, thereby bringing substantial environmental and security benefits.

3. **Scale up recycling.** Policies can play a pivotal role in preparing for rapid growth of waste volumes by incentivising recycling for products reaching the end of their operating lives, supporting efficient collection and sorting activities and funding R&D into new recycling technologies.

4. **Enhance supply chain resilience and market transparency.** Policy makers need to explore a range of measures to improve the resilience of supply chains for different minerals, develop response capabilities to potential supply disruptions and enhance market transparency. Measures can include regular market assessments and stress tests, as well as voluntary strategic stockpiles in some instances.

5. **Mainstream higher environmental, social and governance standards.** Efforts to incentivise higher environmental and social performance can increase sustainably and responsibly produced volumes and lower the cost of sourcing them. If industry players with strong environmental and social standards are rewarded in the marketplace, this can also bring new suppliers to a more diversified market.

6. **Strengthen international collaboration between producers and consumers**. An overarching international framework for dialogue and policy co-ordination among producers and consumers can play a vital role, an area where the IEA's energy security framework could usefully be leveraged. Such an initiative could include actions to (i) provide reliable and transparent data; (ii) conduct regular assessments of potential vulnerabilities of supply chains and potential collective responses; (iii) promote knowledge transfer and capacity building to spread sustainable and responsible development practices; and (iv) strengthen environmental and social performance standards to ensure a level playing field.

https://home.treasury.gov/news/press-releases/jy0323

Treasury Announces Fossil Fuel Energy Guidance for Multilateral Development Banks

August 16, 2021

WASHINGTON – Today, the U.S. Department of the Treasury issued Fossil Fuel Energy Guidance for Multilateral Development Banks (MDBs), which is key Guidance in response to President Biden's Executive Order 14008 on Tackling the Climate Crisis At Home and Abroad announced earlier this year. In its Guidance, Treasury advocates for MDB investments prioritizing clean energy, innovation, and energy efficiency, which will help achieve a clean and sustainable future consistent with the development goals of the Paris Agreement. U.S. Secretary of the Treasury Janet L. Yellen previewed Treasury's MDB Guidance at the April 2021 G7 Leaders Summit on Climate and more recently discussed this with Heads of the MDBs in July 2021.

"Today, the United States takes bold, proactive steps to address the climate crisis by working with our international partners to establish a clear path to end Multilateral Development Banks' support for fossil fuels except in exceptional circumstances while helping developing countries build a strong and sustainable future," said Secretary Yellen.

Addressing the climate crisis is no longer business as usual and requires significant investments in clean energy. As the largest shareholder across the MDB system, the United States takes a leadership role with the new Treasury Guidance that advocates for MDB staff to assess options for clean energy, innovation, and energy efficiency, and to only consider fossil fuels if less carbon-intensive options unfeasible. The Guidance advocates for non-fossil fuel energy projects financed by the MDBs, while maintaining some flexibility for developing countries to support limited fossil fuel projects critical to their development objectives if certain criteria are met.

During the July meeting with MDB Heads, Secretary Yellen requested MDBs to rapidly align MDB portfolios with the Paris Agreement, prioritize innovation and impact to match the scale of the climate crisis, develop ambitious capital mobilization rates consistent with broader climate goals, develop targets for green bonds, "green" the partnerships with financial intermediaries, double the current $40 billion pledge for private sector financing focused upon climate adaptation, and align policy based operations with climate goals. The Treasury Guidance will help MDBs meet these targets.

By ending its support for direct investment in coal and oil projects and encouraging cleaner energy options, Treasury's Guidance supports poor and vulnerable countries, conflict-affected states, and small-island developing states in meeting their development goals while applying rigorous standards to reduce overall emissions and achieve the goals of the Paris Agreement. The United States looks forward to working with MDB shareholders, Management, and staff to bring clean and sustainable energy to the developing world.

For more information, please see an FAQ.

https://home.treasury.gov/faq-for-new-fossil-fuel-energy-guidance-for-the-multilateral-development-banks

FAQ for New Fossil Fuel Energy Guidance for the Multilateral Development Banks

- What did the U.S. Department of the Treasury announce today? As part of President Biden's first executive order on climate announced earlier this year, Treasury is releasing its Fossil Fuel Energy Guidance for Multilateral Development Banks (MDBs). In its guidance, Treasury is advocating for MDB investments that prioritize clean energy, innovation, and energy efficiency, to achieve a clean and sustainable future that is consistent with their development goals and the goals of the Paris Agreement. The guidance directs MDBs to oppose oil and coal projects, and to support natural gas investments only if certain strict criteria are met. Treasury developed this policy through an extensive interagency process and via consultations with various stakeholders and will continue to advocate for MDB staff to assess options for clean energy, innovation and energy efficiency first, and to only consider fossil fuels if less carbon-intensive options are unfeasible.
- Why was the Fossil Fuel Energy Guidance developed? The MDB Fossil Fuel Guidance is a result of President Biden's first executive order on climate (Executive Order 14008), which directs Treasury and other agencies to "identify steps through which the United States can promote ending international financing of carbon-intensive fossil fuel-based energy while simultaneously advancing sustainable development and a green recovery."
- Is this policy the same as the National Security Council and White House Guidance? The National Security Council asked agencies to develop their own policies that are either consistent with or more stringent than the White House level Guidance. This is Treasury's policy for the MDBs.
- How will this Guidance help countries achieve Paris Alignment? We expect that the United States will advocate for clean energy and energy efficiency approaches that will help countries ultimately achieve Paris Alignment.
- What is the view on coal? We will strongly oppose coal energy projects across the entire coal value chain (e.g., mining, transport, and power generation).
- What is the view on oil? We will also oppose oil energy projects across the oil value chain, including the processing of transport fuels, e.g., a diesel refinery. We would only make exceptions to our opposition to oil projects in rare circumstances, such as in humanitarian crises or as backup generation for clean off-grid energy systems.
- What is the view on natural gas? We will oppose "upstream" natural gas projects (e.g., gas exploration), but can support midstream and downstream natural gas projects, provided certain specific criteria are all met:
    - The project supports poor and vulnerable developing countries -- which we define as IDA-eligible countries (including IDA-blend countries), fragile and conflict-affected states, and small-island developing states.

    - The project is accompanied by a credible analysis that demonstrates that there is neither an economically nor technically feasible alternative, including renewable energy, nor means of achieving the objectives of the project through other means (e.g., through energy efficiency). An example would be that there is no economically competitive way to provide baseload power, which remains the case in some circumstances.
    - The project has a significant positive impact on energy security, energy access, or development.
    - The project is aligned with the goals of the Paris Agreement.

- Will the Guidance support other technologies to reduce emissions from existing facilities? We are open to supporting abatement technologies, including methane abatement and carbon capture utilization and storage (CCUS) or efficiency improvements for existing oil and gas assets, provided that they a) do not expand the asset's generation capacity and b) do not extend its life.
- Will the Guidance support coal decommissioning projects? Yes, we are encouraging the MDBs to explore potential projects for coal decommissioning.
- How is the Guidance applied to heat generation projects? We recognize that coal plays a significant role as a heating source in some regions and the substantial harm caused by dirty cooking fuels. We are open to supporting oil and gas projects as coal alternatives for household cooking and heating. We may also consider oil and gas projects for other heat generation purposes (e.g., industrial uses) where there are no other feasible alternatives.
- How does the Guidance apply to indirect financing through policy-based operations and financial intermediaries? These types of projects represent a large portion of MDB financing and are included in our approach.
    - For policy-based operations, we intend to oppose projects where the policy reforms are targeted towards and likely to expand the fossil fuel sector (excluding gas in IDA-eligible countries).
    - For financial intermediaries, we will determine our position based on how the bank or other intermediary is likely to use the specific MDB funds relative to our overarching guidance.
- How are middle income countries supposed to transition away from coal if you do not support MDB financing of natural gas? Some countries may use natural gas as they transition from dirtier fuels to cleaner fuels. However, middle income countries generally have better market access than poorer economies and could finance natural gas investments independently, consistent with their domestic climate plans. In addition, we want to focus our limited development assistance on helping countries invest in a clean technology future.

https://www.g7uk.org/uk-secures-historic-g7-commitments-to-tackle-climate-change-and-halt-biodiversity-loss-by-2030/

UK secures historic G7 commitments to tackle climate change and halt biodiversity loss by 2030

Published 21 May 2021

- G7 Environment and Climate ministers commit to protect land and ocean to bend the curve of biodiversity loss by 2030.
- They also commit to phase out new direct government support for international fossil fuels
- Securing meaningful action from leading economies to tackle climate change is a priority for the UK's G7 presidency, ahead of COP26 in November

The Climate and Environment Ministers of the G7, under UK leadership, have today (Friday 21 May) secured historic commitments which will put climate, biodiversity and the environment at the heart of worldwide COVID-19 recovery.

COP26 President-Designate, Alok Sharma and Defra Secretary of State George Eustice, convened the Ministers ahead of the G7 leaders summit in June, including the guest countries of India, Australia, South Africa and South Korea.

All G7 members signed up to the global '30x30' initiative to conserve or protect at least 30 per cent of the world's land and at least 30 per cent of the world's ocean by 2030, and committed to '30x30' nationally.

This year is already the first ever 'net zero G7', with all countries committed to reaching net zero carbon emissions by 2050 at the latest, with deep emissions reduction targets in the 2020s.

Taking this further by supporting the transition to green energy overseas, the group also agreed to phase out government funding for fossil fuel projects internationally – following a leading commitment made by the UK in December.

As a first step the G7 countries will end all new finance for coal power by the end of 2021, matched by increased support for clean energy alternatives like solar and wind. It was also agreed to accelerate the transition away from unabated coal capacity and to an overwhelmingly decarbonised power system in the 2030s.

The G7 has agreed to increase the quantity of finance for climate action, including for nature, in order to meet the $100bn per annum target to support developing countries.

In addition to this, the G7 have committed to champion a range of ambitious and effective global biodiversity targets, including the agreement of an ambitious and effective global biodiversity framework at CBD COP15 later this year.

Measures to tackle global deforestation were also secured, with the G7 committing to increase support for sustainable supply chains that decouple agricultural production from deforestation and forest degradation, including production stemming from illegal land conversion.

In this crucial year for global action on the environment and climate, the UK has placed tackling climate change and biodiversity loss at the centre of its G7 agenda.

Speaking after the event the Environment Secretary George Eustice said:

For the first time, the G7 has committed to halting and reversing the loss of biodiversity by 2030.

"This is a major step forward before we host the G7 in Cornwall next month and is a sign of the dedication to accelerate action within the G7 - and beyond - to tackle the twin challenges of climate change and biodiversity loss.

"We have seen tremendous progress this week and it has been great to see countries working together to raise our ambition and lead by example, each playing our part."

COP26 President-Designate said:

We are the first net zero G7. Under the UK's Presidency, the G7 is showing great leadership in tackling climate change and making sure those who are worst affected by it are better protected.

"As we recover from the pandemic we are focused on building back greener - creating jobs and prosperity, without harming the planet.

"We know we need to consign coal to history and the G7 has taken a major step towards a decarbonised power system. We are acting abroad as we're doing at home by agreeing to phase out international fossil fuel finance, starting with coal - another key milestone in this crucial year for climate action.

"I look forward to continuing this work as we make progress ahead of COP26 in Glasgow later this year and keep 1.5 degrees within reach.

ENDS

· Please find a link to the Communique here: https://www.gov.uk/government/publications/g7-climate-and-environment-ministers-meeting-may-2021-communique

21/05/2021

https://www.g7uk.org/g7-climate-and-environment-ministers-communique/

G7 Climate and Environment: Ministers' Communiqué

Published 21 May 2021

Joint commitments

We, the G7 Ministers responsible for Climate and Environment, met virtually on 20 -21 May 2021.

As we continue to address the ongoing pandemic, we acknowledge with grave concern that the unprecedented and interdependent crises of climate change and biodiversity loss pose an existential threat to nature, people, prosperity and security. We recognise that some of the key drivers of global biodiversity loss and climate change are the same as those that increase the risk of zoonoses, which can lead to pandemics. We highlight that urgent and concrete action is needed to move towards global sustainability, further mitigate and adapt to climate change, as well as halt and reverse biodiversity loss and environmental degradation. We recognise that climate change and the health of the natural environment are intrinsically linked and will ensure that the actions we take maximise the opportunities to solve these crises in parallel.

We will do this by building back better from the pandemic, and we stress our determination to put climate, biodiversity, and the environment at the heart of our COVID-19 recovery strategies and investments. In doing so, we will transform our economies to promote sustainable development, deliver decent green jobs and build resilience. We will also accelerate the clean energy transition, improve resource efficiency, including by reducing food loss and waste and promoting a circular economic approach, transition to sustainable supply chains and mainstream nature, including biodiversity, and climate into economic decision-making. We will help set the world on a nature positive and climate-resilient pathway to bend the curve of biodiversity loss by 2030 and to keep a limit of 1.5°C temperature rise within reach by making our 2030 ambitions consistent with the aim of achieving net zero emissions as soon as possible and by 2050 at the latest.

We recognise these are global challenges which require urgent and ambitious global action at all levels. We reaffirm our commitment to international cooperation and multilateralism, and will work collectively to implement fully our national and international commitments. In this critical year of action we

recognise the need to increase global ambition and enhance collaboration, underpinned by the most ambitious sub-national, national and international action. We call on all countries to join us in action.

The COVID-19 crisis has reinforced the importance of science and evidence in government policies and decision-making. Recent assessments by the Intergovernmental Panel on Climate Change (IPCC), the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the International Resource Panel (IRP), and the UN Environment Programme (UNEP) have documented that rapid and far-reaching transformations across all sectors of society and the economy are necessary to tackle climate change, environmental degradation and biodiversity loss. Recalling the outcomes of previous G7 meetings on Earth observation systems, we recognise the important role of research and systematic observation to provide information on the state of the planet and support and guide action to address climate change and conserve, protect and restore essential and biodiverse ecosystems. We will ensure our domestic action and international commitments are informed by the best available science and will support others wishing to enhance their evidence-based policy-making processes by sharing our experiences and best practices.

Tackling the twin crises of Climate Change and Biodiversity Loss

We recognise the critical role the ocean and seas play for biodiversity and in regulating the Earth's climate, absorbing over 90 percent of all excess heat in the Earth's system and between 20-30 percent of all anthropogenic carbon dioxide emissions since the 1980s, providing a home to up to 80 percent of all life on Earth, and a healthy ocean is central to the livelihoods of more than three billion people. We therefore commit to increase efforts at international, regional and national level, to conserve and sustainably use the ocean, thus increasing its resilience.

We recognise the critical role of our world's forests as home to most of the world's terrestrial biodiversity, reducing our vulnerability to climate change impacts, improving our adaptability and resilience, and acting as key carbon sinks with tropical forests capturing and storing up to 1.8 $GtCO_2$ from the atmosphere every year. We recognise deforestation and forest degradation as a significant cause of climate change. We commit to urgent action to conserve, protect and restore natural ecosystems including forests and habitat connectivity and promote sustainable forest management. We also commit to implement

decarbonisation pathways that do not cause further biodiversity loss or deforestation.

We recognise the crucial role of Nature-based Solutions in delivering significant multiple benefits for climate mitigation and adaptation, biodiversity, and people and thereby contributing to the achievement of various Sustainable Development Goals (SDGs). Such benefits include, among others, improving air quality, water quality and availability, soil health, storm and flood protection, disaster risk reduction, and alleviating and preventing land degradation. Nature-based Solutions can also provide sustainable livelihoods through protecting and supporting a wide range of ecosystem services on which the world's most vulnerable and poorest people disproportionately rely. We therefore commit to strengthen their deployment and implementation. We stress that Nature-based Solutions do not replace the necessity for urgent decarbonisation and reduction of emissions, but are needed alongside these efforts. In addition to action on the ocean and forests, we commit to take urgent action across ecosystems, including soils, grasslands, savannah, drylands, wetlands, coral reefs, rivers, lakes, coastal dunes, peatland, seagrass beds, mangroves and saltmarshes, whilst ensuring that relevant safeguards are in place.

We reiterate that achieving our collective ambitions will require all sources of finance: public and private, domestic and international, including innovative sources. We commit to using all relevant sources, tools and approaches, including Official Development Assistance and other sources of finance, to support and accelerate global action to tackle climate change and conserve, protect, restore and sustainably manage nature and the environment. We underscore the importance of a predictable investment environment and clear public policies and strategies in facilitating the alignment of global and national financial flows with these objectives, and as such, welcome the UK's incoming United Nations Framework Convention on Climate Change (UNFCCC) COP26 Presidency's ambitious efforts as they relate to mobilising private and public finance. We are each working intensively to increase the quantity of finance for climate mitigation and adaptation actions, including for Nature-based Solutions, and are committed to increasing its effectiveness, accessibility, and where possible its predictability, and call on others to join us in these efforts. In conjunction with these efforts, we are working intensively towards increasing the quantity of finance to nature and Nature-based Solutions. We reaffirm our commitment to the collective developed country climate finance goal to jointly mobilise US$100 billion annually by 2020 through to 2025 from a wide variety of

sources, and welcome the commitments already made by some of the G7 to increase climate finance and look forward to new commitments from others well ahead of COP26 in Glasgow. We will promote enabling environments to mobilise private finance towards these efforts while also enhancing action from the international community to support the poorest and those most vulnerable to climate change, biodiversity loss, and environmental degradation. We are committed to further enhance synergies between finance for climate and biodiversity and to promote funding that has co-benefits for climate and nature.

We call upon Multilateral Development Banks (MDBs), bilateral Development Finance Institutions (DFIs), multilateral funds, public banks, and export credit agencies to ensure that financial flows from these institutions are aligned with the goals of the Paris Agreement and support the objectives of international biodiversity conventions including the Convention on Biological Diversity (CBD) and the post-2020 global biodiversity framework, by increasing finance for nature and climate, and leveraging further private capital, in particular for developing countries and emerging markets. We call on MDBs, bilateral DFIs and other support providers to mobilise finance at scale by delivering on their climate finance objectives and targets, and nature finance objectives, making them more ambitious, and mainstreaming climate and nature into their analysis, policy advice, decision-making and financing. We further call on all MDBs to publish, before the UNFCCC COP26, a plan and date by which their operations will be aligned with and support the goals of the Paris Agreement, and encourage them to sign a joint statement committing them to mainstream nature across their operations as appropriate. We also urge the MDBs to commit their private sector arms to pilot and scale up private finance programmes for nature and climate, in particular in under-funded sectors like adaptation and resilience and Nature-based Solutions.

In the context of building back better and achieving a global green recovery from COVID-19, we acknowledge the particularly significant impacts faced by developing countries and that increasing debt burdens can constrain fiscal space and the ability to provide stimulus for a green recovery alongside other development objectives, including access to clean and sustainable energy for all. We recognise that macro and fiscal policies, a free, fair and rules-based multilateral trading system, international initiatives and domestic efforts to create an enabling environment to mobilise private finance, offer a powerful tool to both transforming and revitalising economies. We thank Professor Lord Stern for his work and note with interest his paper on “G7 Leadership for Sustainable,

Resilient and Inclusive Growth and Recovery" as commissioned by the UK G7 Presidency. We welcome the discussions of Finance Ministers on supporting a global recovery and their role in enabling a smooth transition to net zero, addressing biodiversity loss, and mobilising the private sector.

Leaving no-one behind

We recognise the disproportionate impacts of climate change, biodiversity loss, and environmental degradation on the most vulnerable communities, people living in poverty and those already facing intersecting inequalities and discrimination, including women and girls, Indigenous Peoples, people with disabilities and other marginalised groups. We will increase our efforts to address environmental justice issues in order to make their voices heard and support their full, equal and meaningful participation in decision-making, recognising their critical role as leaders and agents of change, and adapting new and existing policies to support social justice, economic empowerment and achieving gender equality. We further recognise the need to protect the rights of Indigenous Peoples, as acknowledged in national law and international instruments, and respect and value their knowledge and leadership in tackling climate change and biodiversity loss. We are steadfastly committed to addressing barriers to accessing finance for climate and nature faced by women, marginalised people, and underrepresented groups and increasing the gender-responsiveness and inclusivity of finance. We reaffirm our commitment to implementing the 2030 agenda for sustainable development and its associated SDGs and taking action in support of the UNFCCC, CBD and the UN Convention to Combat Desertification (UNCCD) Gender Action Plans.

We will ensure that the transition to a net zero emissions and nature positive economy happens in a fair and inclusive way. This transition must go hand in hand with policies and support for a just transition for affected workers, and sectors so that no person, group or geographic region is left behind.

Climate change

A G7 committed to accelerating progress under the Paris Agreement

We reaffirm our strong and steadfast commitment to strengthening implementation of the Paris Agreement and to unleashing its full potential. To this end we will make ambitious and accelerated efforts to reduce emissions to keep a limit of 1.5°C temperature rise within reach, strengthen adaptation to the impacts of climate change, scale-up finance and support, protect, restore and

sustainably manage nature, and enhance inclusive and gender-responsive action. We affirm our commitment to work with these objectives in mind towards a successful COP26 in Glasgow and beyond.

A net zero G7 leading a step change in mitigation

There is a global imperative to pursue efforts to limit the increase in the global average temperature to 1.5°C above pre-industrial levels, recognising that the avoided climate impacts are greater at 1.5°C than 2°C, as stated in the IPCC's 2018 Special Report on Global Warming of 1.5°C. This will require meaningful action by all countries, in particular the major emitting economies, pursuant to continuous improvement in climate and environmental action to align with a pathway that keeps 1.5°C within reach. We, G7 members, will lead by example and each commit to achieve net zero greenhouse gas (GHG) emissions as soon as possible and by 2050 at the latest.

We affirm the importance of taking domestic action to phase down hydrofluorocarbons (HFCs) and of pursuing further actions to enhance the benefits of the Montreal Protocol in ozone layer protection and tackling climate change, and call upon all countries who have not already done so to ratify the Kigali Amendment to the Montreal Protocol.

Short-term action – building back better and more resilient through a net zero pathway

Accelerating the transformation of the global economy towards a net zero pathway will depend upon securing a green, sustainable, resilient, inclusive and gender-responsive recovery from COVID-19 in a manner consistent with the 2030 Agenda for Sustainable Development, leaving no one behind. To accelerate progress towards achieving our Paris Agreement goals, we need to harness the significant opportunities for sustainable development – including green jobs and sustainable, resilient growth – by making investments in the recovery from COVID-19 that are aligned with pathways towards our respective enhanced Nationally Determined Contributions (NDCs) and 2050 net zero commitments, recognising the risk of stranded assets associated with high carbon investments.

Medium and long-term action – guided by net zero aligned NDCs and LTSs

We highlight with deep concern the findings from the IPCC Special Report 2018, and recognise the need to reduce the global level of annual GHG emissions to

25-30 Gt of carbon dioxide equivalent or lower by 2030 to put the world on track to limit global warming to 1.5°C above pre-industrial levels, in order to reduce the risk of catastrophic consequences of climate change. We commit to submitting long-term strategies (LTSs) that set out concrete pathways to net zero GHG emissions by 2050 as soon as possible, making utmost efforts to do so by COP26. We commit to updating them regularly, including to reflect on the latest science, as well as technological and market developments. We also note with concern the initial version of the NDC Synthesis Report prepared by the UNFCCC Secretariat which highlights that many parties are yet to submit new and updated NDCs. NDCs communicated by 2020 collectively fall far short of the ranges found in pathways identified by the IPCC, which limit global warming to 1.5°C or well below 2°C. We welcome the significantly enhanced ambition reflected in 2030 targets announced by all G7 members, which put us on clear and credible pathways towards our respective 2050 net zero GHG emission reduction targets. We note the important contribution these commitments make towards keeping 1.5°C within reach and in providing an unequivocal direction of travel for business, investors and society at large. Those of us who have not already done so commit to submitting our enhanced NDCs to the UNFCCC as soon as possible ahead of COP26.

The G7 members cannot tackle climate change alone. The G7 calls on all countries, in particular other major emitting economies, to join the growing numbers that have made 2050 net zero commitments, to present specific and credible strategies for achieving them – including LTSs – and to enhance their NDCs accordingly to keep 1.5°C within reach, highlighting the importance of parties who have not already done so submitting their increased ambition NDCs to the UNFCCC as soon as possible ahead of COP26.

We reaffirm our commitment that our successive NDCs will represent a progression and reflect the highest possible level of ambition, in alignment with the Paris Agreement. Both our NDCs and LTSs will remain informed by the global stocktake outcomes and the best available science – particularly IPCC reports (including the forthcoming 6th Assessment Report), as well as IPBES reports. In preparing and implementing our NDCs, we reaffirm our commitment to public participation. We highlight the important and active role of all levels of government as well as businesses, workers, local communities, non-governmental organisations (NGOs), academia, Indigenous Peoples, youth and other non-state actors in driving ambitious climate action, including in a gender-responsive manner. We call for an enhanced Marrakech Partnership for Global

Climate Action (MPGCA) to accelerate and broaden climate ambition and action in this regard, with improved tracking of its initiatives. We recognise the benefits of enhanced international collaboration in driving action in all sectors as part of an economy-wide effort.

More people protected from climate impacts

We acknowledge with grave concern the impacts of climate change already being experienced worldwide, particularly by those most vulnerable to them. We commit to enhance, accelerate and scale up adaptation actions, including Nature-based Solutions, and to support the most vulnerable to adapt to and cope with the impacts of climate change and biodiversity loss, identified by plans at local, national and sub-national levels, including ambitious National Adaptation Plans (NAPs). We reaffirm our commitment to Article 9.4 of the Paris Agreement, which calls for the provision of scaled-up financial resources to aim to achieve a balance between adaptation and mitigation, taking into account country-driven strategies. This includes continuing to scale-up finance contributing to adaptation action. We highlight the important role of businesses, workers, investors, cities, women, Indigenous Peoples and civil society in mobilising action to support vulnerable communities. Finally, we call on all states and non-state actors to cooperate to enhance adaptation and resilience, including through the Adaptation Action Coalition, InsuResilience Global Partnership, and National Adaptation Plans Global Network, and for non-state actors to join the Race to Resilience Campaign to strengthen the resilience of 4 billion people in vulnerable communities by 2030, and to participate in the adaptation activities undertaken within the Marrakech Partnership for Global Climate Action. Recognising the importance of adaptation in our own national planning, we G7 members commit to submitting Adaptation Communications as soon as possible, and if feasible by COP26. We further affirm our commitment to a diverse and inclusive, gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems in the delivery of adaptation policies, plans, strategies and actions. As Climate and Environment Ministers, we acknowledge and fully support the work of the Foreign and Development Ministers' track to increase action on adaptation and protect more people from climate impacts, including the commitment to continue scaling up finance contributing to adaptation action.

Mobilising and aligning finance to support the green recovery

We, the G7, reaffirm our commitment to the collective developed country goal of jointly mobilising US$100 billion annually through to 2025, from a wide variety of sources, public and private, bilateral and multilateral and in the context of meaningful mitigation actions and transparency on implementation. We welcome the commitments already made by some of the G7 to increase climate finance and look forward to new commitments from others well ahead of COP26 in Glasgow. We underline G7 commitments to further strengthen the Green Climate Fund (GCF) as an effective tool in implementing the Paris Agreement. Further, we highlight the Paris Agreement's recognition that mobilising finance requires a global effort. In this context, we encourage all potential contributors of official finance, including emerging economies, to join existing providers in supporting climate action in developing countries. We underline the urgent need to scale up efforts to mobilise the private sector if we are to achieve a global green recovery and net zero emissions by 2050, recognising the critical role that innovative financing vehicles, bilateral and multilateral finance institutions, blended finance, policies, risk pools and enabling environments play in this regard.

We affirm the crucial importance of making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development, as reflected in Article 2.1.c of the Paris Agreement and in line with the SDGs. As part of our efforts towards this objective, we commit to making official finance flows consistent with the goals of the Paris Agreement and call on all countries, as well as MDBs, DFIs, multilateral funds, public banks and export credit agencies to join us in this effort. We emphasise the transformative role of the policies and actions of all governments, but also public and private stakeholders in creating the right enabling environments to support climate action and in integrating climate change into economic and financial decision-making processes. We also urge businesses and investors to join the Race to Zero, align their portfolios with the goals of the Paris Agreement and set science-based net zero targets of 2050 at the latest.

We recognise the potential of carbon markets and carbon pricing to foster cost-efficient reductions in emission levels, drive innovation and boost the breakthrough of technologies that enable a transformation to net zero. We affirm the fundamental importance of environmental integrity and sustainable development in the design of high integrity carbon market mechanisms, including those used for voluntary purposes, which should be based on robust rules and accounting that ensure avoidance of all forms of double counting. They should require the use of conservative emissions and emissions reductions estimations

and assumptions, as well as safeguards to mitigate carbon leakage risks, avoid negative social and biodiversity impacts, and to address potential reversals. We further note that such mechanisms can mobilise private finance and help to close the ambition gap for limiting global warming to 1.5°C.

Unleashing the full potential of the Paris Agreement

We are steadfast in our commitment to achieving an ambitious set of outcomes from COP26 in line with the objectives set out above. We emphasise the importance of finalising the outstanding mandates relating to the Paris Rulebook – including the adoption of common tables and formats for the enhanced transparency framework, decisions on cooperative approaches (Article 6), and common time frames for NDCs – in a manner that promotes transparency and accountability and ensures environmental integrity. We will address mandates and deliver on our commitments across the three pillars of the Paris Agreement – on mitigation, adaptation, and support – and enhance international collaboration to accelerate global implementation ahead of COP26 and beyond. We will have a continued focus on supporting those most vulnerable to the impacts of climate change and will continue to support developing country partners as they pursue green, sustainable, resilient, inclusive and gender-responsive recoveries from COVID-19. This includes providing support with the preparation and implementation of national plans and commitments (including NDCs, LTSs, NAPs and Adaptation Communications) bilaterally, through our contributions to multilateral funds and through the NDC Partnership and other such initiatives. We welcome the creation by the OECD of the 'International Programme for Action on Climate' as part of the 'Horizontal Project on Climate and Economic Resilience in the Transition to a Low Carbon Economy', and look forward to its possible contribution to climate action.

Supporting the transition to a net zero economy

We recognise that the transition to net zero will depend upon developing the skilled workforce necessary to deliver it, in a way that leaves no one behind, by building on the skills and knowledge in transitioning sectors, developing new labour markets for decent work and quality green jobs, as well as investing in pioneering clean and sustainable industries and technologies. We will address the challenges workers face by ensuring that they have the appropriate skills and training to build back greener, alongside a long-term plan for skills needed for a net zero economy, in a gender-responsive way. This will support the creation of green jobs, a diverse workforce, and will support workers in high carbon sectors

to gain skills and knowledge to implement more sustainable practices and green technologies. We reaffirm our commitment under the Equal by 30 Campaign to work towards equal pay, leadership and opportunities for women in the clean energy sector by 2030. We agree to deepen efforts to advance gender equality and diversity in the energy sector, including under the Equal by 30 Campaign by adopting a set of strengthened commitments. This will support our commitment to make diversity and gender equality central to the global energy sector's recovery efforts and help build a more inclusive and equitable energy future. We acknowledge the need for specific support for all workers as part of a clean energy transition.

We recognise that delivering and accelerating the transition to a net zero global economy will require scaled-up international collaboration. The institutional architecture to enable this should be structured and strengthened appropriately where needed, utilising synergies with existing initiatives to ensure net zero emissions are achieved on an economy-wide basis. We will convene to review the pace of the transition required in each sector to meet the Paris Agreement goals, and the international landscape of institutions and sectoral fora to decarbonise major emitting sectors, with a view to strengthening collaboration in key sectors up to COP26 and beyond.

We recognise the importance of working closely with city, state and regional governments in driving the transition to a net zero economy, and the vital role of national governments to support such actions. We highlight the role of cities in piloting a future with net zero emissions, through innovative and sustainable energy solutions. Local governments and sub-national actors, including businesses, workers, communities and civil society, are central to taking ambitious action on high-emitting sectors and should implement solutions that curb emissions while ensuring equitable and inclusive development for citizens and communities. We will implement a range of measures to encourage and empower citizens, business, communities and regions to decarbonise, including supporting the development of local strategies and plans, encouraging investments for the implementation of model projects for low carbon urban infrastructure, encouraging behavioural change, utilising information systems to promote the transparency of local actions and achievements, and disseminating good practices of concrete actions.

Net zero energy

We recognise the key contribution of energy efficiency as “the first fuel” to emissions reduction, energy security, economic growth, sustainable development, alleviating energy poverty, and job creation. We therefore note with concern the decline in the global rate of energy efficiency improvements and commit to strengthen our efforts to deliver improvements in buildings, industry and transport. We continue to emphasise the need for stronger international exchanges to learn about best practices in this policy space. We stress the importance of strengthening and coordinating international collaboration in developing policy frameworks for new business models and to ensure the necessary investments in energy efficiency measures in all sectors. We therefore welcome the establishment of the Energy Efficiency Hub, hosted at the International Energy Agency, as a key international forum for global collaboration on energy efficiency. We welcome the Super-Efficient Equipment and Appliance Deployment (SEAD) initiative. We further endorse its goal of doubling the efficiency of four key energy-using products sold globally by 2030: lighting, cooling, refrigeration, and motor systems, and will contribute to that end using the full policy toolkit at our disposal.

We affirm the fundamental role of renewable energy sources. We welcome the rapid growth, decreasing cost and increasing value of renewable energy technologies around the world. We stress the need for their further integration in the systems, and we recognise that renewables are a major driver of economic growth, jobs, and increased access to affordable energy. We recognise that the significant progress made in the development and deployment of renewable energy has been driven by a virtuous circle of technological development, a supportive regulatory and policy environment including innovative market designs, and industry-led cost reductions. We affirm our commitment to supporting the development and deployment of renewable energy globally, particularly for developing countries, as well as accelerating the development and deployment of renewable heating and cooling, where a step change in progress is urgently required. We recognise the importance of promoting clean energy transitions in islands, as well as in remote and rural communities, through innovative renewable energy solutions, fostering self-determination and community ownership of resources.

We recognise the role of energy storage as an enabling technology to support the transformation of the global economy towards a net zero pathway. We commit to drive energy storage technology innovation and accelerate its commercialisation and deployment by supporting the private sector in reducing

the cost and increasing the performance of energy storage technologies, through policies and tools supportive of energy storage market adoption, including regulatory frameworks and market structures.

Recognising that coal power generation is the single biggest cause of global temperature increases, we commit now to rapidly scale-up technologies and policies that further accelerate the transition away from unabated coal capacity and to an overwhelmingly decarbonised power system in the 2030s, consistent with our 2030 NDCs and net zero commitments. In doing so, we reaffirm the importance of national energy security and resilience and underscore the importance of providing support for affected workers, regions and communities. We welcome with appreciation the work of the Energy Transition Council in supporting the new economic opportunities and sustained quality job creation offered by a transition to clean energy in developing countries. We commit to exploring further ways that we can accelerate global progress towards net zero power, including leading by example as the G7, and working with collaborative initiatives and institutions. We note that several G7 members participate in the Powering Past Coal Alliance. We will convene by COP26 to lay the groundwork for further joint action by G7 members.

In line with Article 2.1.c of the Paris Agreement, we commit to aligning official international financing with the global achievement of net zero GHG emissions no later than 2050 and deep emissions reductions in the 2020s. We commit to promoting the increased international flow of public and private capital toward Paris Agreement-aligned investments and away from high-carbon power generation to support the clean energy transition in developing countries. In this context, we will phase out new direct government support for carbon intensive international fossil fuel energy, except in limited circumstances at the discretion of each country, in a manner that is consistent with an ambitious, clearly defined pathway towards climate neutrality in order to keep 1.5°C within reach, in line with the long-term objectives of the Paris Agreement and best available science. Consistent with this overall approach and recognising that continued global investment in unabated coal power generation is incompatible with keeping 1.5°C within reach, we stress that international investments in unabated coal must stop now and commit to take concrete steps towards an absolute end to new direct government support for unabated international thermal coal power generation by the end of 2021, including through Official Development Assistance, export finance, investment, and financial and trade promotion support. We commit to reviewing our official trade, export and development finance policies towards

these objectives. We further call on other major economies to adopt these commitments. We welcome the support provided and mobilised by DFIs and multilateral funds, including the GCF, to support the energy transition. In particular, we note the recent Climate Investment Funds board decision to launch new sector specific funds, including those to accelerate coal transitions, and support renewable energy deployment in emerging economies.

We reaffirm the need to take into account the imperative of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities, as reflected in the Paris Agreement. Recalling the SDGs, we commit ourselves to a people-centred transition, that will work to create decent employment in the low carbon economy while making energy more accessible, affordable, and cleaner for all communities. We support reskilling workers across industries and communities and developing the industries of the future, as the clean energy transition continues to gather momentum. We welcome the substantial economic opportunities inherent in a people-centred transition, including alleviating energy poverty for people and communities, removing barriers to employment, especially for marginalised populations, which will in turn lead to substantial and equitable economic growth and prosperity for all.

We recognise that inefficient fossil fuel subsidies encourage wasteful consumption, reduce energy security, impede investment in clean energy sources, and undermine efforts to deal with the threat of climate change. We reaffirm our commitment to the elimination of inefficient fossil fuel subsidies by 2025 and encourage all countries to adopt this commitment. We encourage greater international action to meet this commitment and we support calls for greater transparency.

We recognise the importance of ambitious and urgent action to reduce emissions and leakage of methane (fossil and biogenic) from the energy sector, as well as waste and agricultural sectors, and of other potent warming substances, such as black carbon, in order to slow global warming. This will require improved measurement and reporting to better locate and quantify these emissions.

We recognise the importance of maintaining energy security as we transform our energy systems and the need for energy markets that are open, flexible, transparent, competitive, stable, sustainable, reliable and resilient. We reaffirm the need for investment to ensure energy supply and demand remain balanced throughout energy transitions, recognising the need for energy demand to be met

by sources that align with our Paris Agreement and net zero objectives. We commit to developing strategies and actions that enhance our focus on the security of innovative, clean, safe, and sustainable energy technologies. This includes resilience in the face of cyber security threats, the system integration of variable renewable energy, energy storage, flexible power plants, hydrogen, as well as demand side management, smart grids, and related infrastructure including the accommodation of sustainable biofuels and hydrogen. We recognise the important role of electricity interconnection in market integration, flexibility and promoting decarbonisation, alongside supporting security of supply and system security. We recognise that natural gas may still be needed during the clean energy transition on a time-limited basis and we will work to abate related emissions towards overwhelmingly decarbonised power systems in the 2030s. We also note the importance of ensuring secure, safe and sustainable clean energy supply chains, including with regards to critical minerals and critical renewables components.

We affirm that access to secure affordable, reliable, sustainable, clean and modern energy is a key enabler of the SDGs. We welcome progress made to increase energy access and eradicate energy poverty worldwide, while noting that the world remains off-track to meet our SDG for access to energy. We note the essential role of gender equality in achieving sustainable energy access and welcome synergies with the work of the G7 Gender Equality Advisory Council. We stress the importance of achieving universal, equitable and sustainable access in driving forward a global and inclusive clean energy transition that addresses the disproportionate impact of energy poverty on vulnerable and marginalised populations, both in developing countries and in more mature economies. We welcome the UN commitment to address progress on SDG7 within the High-Level Energy Dialogue.

Those countries that opt to use it reaffirmed the role of nuclear energy in their energy mix. Those countries recognise its potential to provide affordable low carbon energy and contribute to the security of energy supply as a baseload energy source.

Net zero mobility

We stress the urgent need to promote sustainable mobility and reduce GHG emissions from the transport sector to help achieve net zero emissions by 2050. We recognise that this will require dramatically increasing the pace of the global decarbonisation of the road transport sector throughout the 2020s and beyond,

consistent with the goals of the Paris Agreement and our respective 2030 NDCs and net zero commitments. In this regard, and as part of this effort, we welcome and support the Zero Emission Vehicle Transition Council and will work with other global partners to accelerate the deployment of zero emission vehicles for passengers and freight, including exploring ways to support developing countries in making the transition. We further recognise the commitments of some states to the target of sales of passenger cars being zero emission by 2040 or earlier. Furthermore, we also need to promote decarbonising the entire life cycle of vehicles. We commit to support transitioning our industrial bases and providing ambitious investment to research, further develop, and scale up the technologies needed to support a rapidly growing global market for sustainable mobility. We will intensify our efforts in enhancing the offer of more sustainable transport modes in urban and rural areas, including public transport, shared mobility, cycling and walking, and supporting inter-modal transport with investment in rail and waterborne infrastructure.

We further recognise the urgent need for effective efforts to reduce emissions from the international aviation and maritime sectors to put both sectors on a pathway of emissions reduction consistent with the mitigation goals of the Paris Agreement. We commit to supporting the development and adoption of ambitious mid- and long-term measures at the International Maritime Organization (IMO) and to building a global consensus on strengthening the levels of ambition in the initial IMO strategy on reduction of GHG emissions from ships in the context of its forthcoming revision, with the aim of contributing to the Paris Agreement temperature goal. We will also support the development and adoption of an ambitious long-term global goal at the International Civil Aviation Organization in line with our vision for decarbonising the aviation sector.

Net zero innovation

We recognise clean energy innovation as a driver of sustainable and inclusive growth to create jobs, an enabler of a resilient economic recovery. We also recognise the need to accelerate innovation this decade to meet our net zero goal by 2050 or sooner. This includes scaling up demonstrations and the early deployment of zero and negative carbon technologies while ensuring negative impacts on the environment and human wellbeing are avoided. This must be enabled by mechanisms and clear signals, including an increased focus on ESG (environmental, social and governance) performance, that incentivise private sector investment to fast-track innovations to the market. To accelerate the pace of industry decarbonisation, we commit to launch the G7 Industrial

Decarbonisation Agenda to complement and support the activities of existing key initiatives and amplify ambition, while plugging critical gaps in the landscape wherever they exist.

For the G7, we commit to increasing clean energy innovation investments to a level in line with our net zero ambition. We support the launch of a second phase of Mission Innovation as a global platform to strengthen international cooperation that will continually promote increased clean energy innovation ambition and concrete actions for clean energy technical innovation. We support the commencement of Clean Energy Ministerial's third phase as a global platform to share experience, raise ambition, and implement cooperative action for clean energy deployment, including innovative policy, regulatory and market measures. We encourage closer alignment between Mission Innovation and the Clean Energy Ministerial to better coordinate efforts from innovation all the way through to the deployment of clean and sustainable energy technologies including through energy efficiency and from renewable energy sources. We will design appropriate pull mechanisms to accelerate the innovation and scaling up of clean energy and net zero technologies across G7 members and to support the green transition in developing countries. We also acknowledge that the successful deployment of clean energy technologies requires further investment in a skilled, technologically advanced and diverse workforce.

Innovation that supports net zero industries can help existing sectors through the transition, as well as creating additional value with the birth of new industries. We will work together in the lead up to COP26, building on existing initiatives to coordinate action on standards and public procurement in order to create globally competitive markets for green industrial products. In parallel, we will also work to reduce emissions from key industrial processes through enhanced energy efficiency, the development of circular economy and resource efficiency principles, electrification, comprehensive industrial heat utilisation and reduced waste in industry, fuel switching and carbon capture, usage and storage (CCUS). We recognise the importance of early action to decarbonise hard-to-abate industrial sectors such as iron and steel, cement, chemicals, and petrochemicals, to ensure that emissions across the entire economy reach net zero by 2050. For these hard to abate sectors to achieve this, we commit to targeting greater levels of innovation funding to lower the costs of industrial decarbonisation technologies, including the use of hydrogen, electrification, sustainable biomass, CCUS and synthetic fuels (including ammonia and fuels made from hydrogen). Acknowledging that achieving net zero industry will require enhanced global

efforts, we will support low and middle-income countries through financial and technical cooperation, as well as in multilateral fora. We will work together to accelerate the decarbonisation of industry, and welcome the development of the new Industrial Decarbonisation Innovation Mission and the launch of the Clean Energy Ministerial's Industrial Deep Decarbonisation Initiative, while supporting ongoing activities in the Leadership Group for Industry Transition.

We recognise the importance of renewable and low carbon hydrogen on the pathway to net zero. We will step up efforts to advance commercial scale hydrogen from low carbon and renewable sources across our economies, including support for fuel cell deployment globally. This will help realise the development of a future international hydrogen market that creates new jobs for current and future workers in the energy sector.

While the focus must remain on protecting and expanding our natural carbon sinks, we recognise that negative emissions technologies, such as Direct Air Capture, can also play a role in reaching net zero GHG emissions. Negative emissions will be required to offset residual emissions in sectors that are difficult to decarbonise completely. Technical solutions such as CCUS, and carbon recycling where appropriate, will also be important for some countries in meeting our goal of a net zero economy.

Environment

Resetting our relationship with nature

A healthy natural environment is critical to human health, wellbeing and prosperity globally and underpins sustainable development. Despite existing global agreements for the protection, conservation, sustainable use and restoration of biodiversity, global negative trends in biodiversity and ecosystem functions are projected to continue or worsen. We therefore confirm our strong determination to halt and reverse biodiversity loss by 2030, building on the G7 Metz Charter on Biodiversity and the Leaders' Pledge for Nature as appropriate.

We recall with deep concern the 2019 IPBES Global Assessment Report on Biodiversity and Ecosystem Services and the 2021 UNEP Making Peace with Nature report. We commit to take urgent action to address the five direct drivers of biodiversity loss, all a result of human activity: changes in land and sea use, direct exploitation of organisms, climate change, pollution and invasive alien species. We will also address overexploitation and illegal exploitation of resources as well as the indirect drivers identified, including those caused by

unsustainable methods and patterns of consumption and production. We stress that concerted and collaborative action is needed by all partners and stakeholders including governments, businesses, farmers, academia and scientists, NGOs, citizens, Indigenous Peoples, and local communities, and underline the importance of including these groups in co-design, decision-making and implementation.

We commit to raise ambition and accelerate and intensify action, including at CBD COP 15, UNFCCC COP 26, Ramsar COP 14, UNCCD COP 15, UN Environment Assembly (UNEA) 5, UN Food Systems Summit and the UN Ocean Conference, and in support of the UN Decades on Ecosystem Restoration and Ocean Science for Sustainable Development. We will also build on existing synergies, break down silos and support linkages at the domestic and institutional level across relevant Multilateral Environmental Agreements, as appropriate, including Regional Seas Conventions.

Highlighting the urgent need for transformative action, we will champion the agreement and successful implementation of an ambitious and effective post 2020 global biodiversity framework to be adopted by parties at CBD COP15 to protect, conserve and restore ecosystems, halt and reverse biodiversity loss, ensure the conservation and sustainable use of biodiversity, increase resilience to climate change and sustain healthy ecosystems on which our lives, well-being and economies depend. We commit to champion ambitious and effective global biodiversity targets, including conserving or protecting at least 30 percent of global land and at least 30 percent of the global ocean by 2030 to halt and reverse biodiversity loss by 2030 and address climate change, including through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures (OECMs) by 2030 (30by30), recognising that Indigenous Peoples, and local communities, are full partners in the implementation of this target. We will strive to ensure the effective and equitable management of protected areas and OECMs, and strive to improve their ecological connectivity, with a focus on areas that deliver the greatest benefits for global biodiversity, ecosystem services and climate protection. We underline the importance of a strong accountability framework that strengthens implementation and increases transparency of our actions to meet these targets, and will actively support the development of robust implementation, monitoring and review frameworks. We will enhance or put in place robust, science-based domestic implementation plans, strategies and policies to conserve, protect and restore terrestrial,

freshwater, marine and coastal ecosystems and play our part in successfully delivering these global goals and targets. We will work with the competent international and regional organisations, including Regional Seas programmes, Regional Seas Conventions and Regional Fisheries Management Organisations (RFMOs). We will contribute to 30by30 by conserving or protecting at least 30 percent of our own land, including terrestrial and inland waters, and coastal and marine areas by 2030 according to national circumstances and approaches.

Mainstreaming nature

According to the WEF “New Nature Economy Report 2020”, over half the world’s GDP in 2019, almost US$44 trillion, was generated from industries that depend on nature. Waldron et al in their report “Protecting 30% of the planet for nature: costs, benefits and economic implications” suggest that achieving 30 percent protection in two biomes alone could result in gross economic benefits of US$170 billion to US$530 billion per annum by 2050. The report also states that the global financial cost of adequately protecting 30 percent of all the earth’s land and ocean has been estimated to be between US$103 billion and US$177.5 billion per annum. It is clear therefore that the economic benefits of protecting and conserving the land and ocean far outweigh the financial costs of doing so.

We welcome the contribution of the Dasgupta Review on the Economics of Biodiversity, which builds on The Economics of Ecosystems and Biodiversity (TEEB) process among other initiatives. Its conclusion that a fundamental change is needed in how we think about and approach economics if we are to reverse biodiversity loss and protect and enhance our prosperity will inform our work. We will work collaboratively to build on the Dasgupta Review insights and those of other such reports, as appropriate, to support efforts for economic and financial decision-making to account for the goods and services we derive from, and the intrinsic value attributed to nature. We commit to take the urgent and transformative action required to ensure that a deep understanding of ecosystem processes, their interlinkages, and how they are affected by economic activity, is incorporated as part of economic and financial decision-making. To ensure appropriate management of environmental risks and reduce related transaction costs, we will also work with businesses and other stakeholders in developing standardised natural capital accounting practices. We welcome the work being done by the UN Statistical Commission to continue updating the SEEA ecosystem accounting system.

We commit to mainstream nature into all sectors and policies. We recognise the urgency and call for the integration of both climate and nature-related risks into organisational risk management architecture, and of investing in natural capital, which will enable finance to play a greater role by pivoting towards nature positive projects and investments. We recognise the importance of work on nature-related financial disclosure and note with interest the establishment of the Taskforce on Nature-related Financial Disclosures and its aims.

We note the analysis from the OECD, which provides policy recommendations based on the findings of the Dasgupta Review, among other reports. The G7 commits to review these recommendations in order to identify actions to mainstream nature into financial and economic decision-making. In particular we note the OECD's analysis and recognise the harmful effect of some subsidies on the environment and people's livelihoods. We therefore commit to lead by example by reviewing relevant policies with recognised harmful impacts on nature and will take action, as appropriate, to deliver nature positive outcomes.

Preventing and combatting zoonoses and antimicrobial resistance (AMR) using a One Health approach

The COVID-19 pandemic reminds us that human, plant, animal and environmental health are interdependent and we therefore stress the importance of a strengthened One Health approach. We welcome the contribution of the IPBES Workshop Report on Biodiversity and Pandemics to the debate and recognise with concern that increased contact between humans, wildlife and livestock, as a result of human activities including habitat loss, human encroachment into natural areas, land use change such as agricultural expansion, unsustainable food production systems, deforestation, climate change, the legal and illegal wildlife trade, unsustainable international trade and unsustainable consumption is increasing the risk of zoonotic disease emergence and spread. The COVID-19 pandemic has reinforced the importance of close international collaboration in preventing and combatting existing and emerging zoonotic threats. We call for further cross sector research and scientific analysis and evidence on the interactions between humans, wildlife, domesticated animals and the environment, the pathogens which exist in these populations, the risks arising from these interactions and the control and prevention of zoonoses. We call on all governments to ensure transparency and swift sharing of data and information on zoonoses.

As the G7, we will continue to strengthen global collaboration and work towards improving the resilience of our surveillance systems through sharing relevant information in a timely manner, implementing best practice, building capability and improving technology domestically and internationally, particularly with developing countries and countries with economies in transition.

We endorse the work of the One Health Working Group and will join, on a voluntary basis, the International Zoonoses Community of Experts (IZCE) established under the UK Presidency. The IZCE will bring together national points of contact with expertise and interest in zoonoses, their drivers, prevention and monitoring. Through sharing best practice and methodologies, knowledge will be increased across the community and will contribute to improve risk assessment, risk management and early warning capabilities at a global level. We recognise the need to ensure complementarity with such initiatives as the Tripartite Plus and the One Health High Level Expert Panel to avoid duplication. The IZCE will liaise with other relevant G7 working groups, for example the G7 Chief Veterinary Officers Group.

We recognise that better understanding and enhanced visibility, accessibility and interoperability of data is a crucial first step in delivering improved global surveillance and response to One Health threats and issues. We encourage climate, environment and health stakeholders to consider how best they can work together to support the Tripartite Plus in this crucial work.

We recognise that the release of antimicrobials into the environment can select for antimicrobial resistance (AMR) and have an impact on human, animal and environmental health. We also note that heavy metals and biocides potentially have an impact on AMR and human, animal and environmental health. We underline the importance of a One Health approach in tackling AMR and call on all governments to promptly implement measures for the sound management and reduction of inappropriate use of antimicrobials. In this context, we note the potential role that soil microorganisms may play in the fight against AMR. We call on UNEP, in collaboration with the Tripartite organisations, to strengthen the evidence base on the contamination, mechanisms, causes and impacts of AMR emerging and spreading in the environment as mandated at UNEA 3. We commit to work in close collaboration with governments and relevant parties such as, medicines regulators where independent of government agriculture, academia, industry, the Tripartite on AMR and UNEP to develop and implement long-term, sustainable solutions to this issue. We note with concern that there are currently no international standards on safe concentrations of antimicrobials released into

the environment from, inter alia, pharmaceutical manufacturing, healthcare facility effluent, agriculture and aquaculture. We also acknowledge the work of the AMR Industry Alliance in this regard. We commit to accumulate knowledge on AMR in the environment. We will work with our ministerial colleagues with responsibility for health, food, farming and medicines regulators where independent of government, as appropriate to develop and agree such standards.

Transition to sustainable and legal use of natural resources

Resource efficiency

Recalling the findings of the Global Resources Outlook 2019 of the International Resource Panel, we recognise that the continued degradation and loss of natural resources threatens our ability to meet our shared commitments to sustainable development, conservation and restoration, food security and combatting climate change. We underline the importance of increasing the resource efficiency and reducing the global environmental footprint of products and moving to more globally sustainable methods and patterns of consumption and production. We reaffirm our commitment to progress actions to increase resource efficiency and transition to a more circular economy, in line with the Bologna Roadmap, to reduce the pressure and adverse impacts on our natural environment, reduce resource use, maximise the value of materials through a life-cycle approach, curb biodiversity loss, and support climate mitigation and adaptation action and in doing so are determined to reduce pollution from all sources. We ask the G7 Alliance for Resource Efficiency to continue technical work on all aspects of the Bologna Roadmap and invite the next G7 Presidency to take stock of its implementation.

Deforestation

We recognise that deforestation, forest degradation and ecosystem conversion are global threats to our climate, biodiversity, food security and livelihoods and are driven by the expansion of agriculture, mining, logging and infrastructure projects. Agricultural expansion is the driver of around 80 percent of global deforestation. A significant proportion of this expansion is linked to the production of agricultural commodities, including particularly those traded internationally. We will increase our support for sustainable supply chains that decouple agricultural production from deforestation and forest degradation, including production stemming from illegal land conversion, and other negative impacts on

nature, in accordance with our national legislation, and commit to conserve, sustainably manage, restore and protect forests and other ecosystems. We will do this while promoting development and trade, including through participating in the dialogue between consumer and producer countries under the Forest, Agriculture and Commodity Trade (FACT) dialogue hosted by the UK as UNFCCC COP26 President, and through work by the International Tropical Timber Organisation. We will work with partners, including the private sector and producer countries, NGOs, as well as Indigenous Peoples, and local communities, to incentivise consumption of commodities that are not associated with deforestation and forest degradation. We will therefore enhance supply chain transparency and traceability, and if appropriate, develop regulatory frameworks or policies, which may include the introduction of due diligence requirements, to bring about trade that is environmentally, socially, and economically sustainable, and resilient, in order to achieve a successful green recovery. We look forward to discussions by G7 Trade Ministers on facilitating sustainable supply chains.

We reaffirm our commitment to the New York Declaration on Forests to end natural forest loss and, building on the Bonn Challenge, restore 350 million hectares of forest by 2030. We commit to support measures to strengthen forest governance, transparency, and the rule of law, while also empowering Indigenous Peoples as partners in decision-making as well as local communities. We also support measures that promote sustainable finance and tackle the drivers of forest loss and degradation, including efforts to enhance sustainable production and increasing the incentives for preventing deforestation, protecting intact forests and restoring degraded forests and lands. We recognise the need for enhanced monitoring of deforestation globally, regionally and nationally.

Illicit threats to nature

We recognise that the illegal wildlife trade (IWT), trafficking in timber and timber products, hazardous and other wastes, and precious metals, gemstones and other minerals, illegal logging and illegal, unreported and unregulated (IUU) fishing have a devastating impact on our natural environment and livelihoods, with an estimated full global economic value of over US$1 trillion to US$2 trillion per year. These activities drive biodiversity loss, corruption, money laundering, insecurity and other forms of organised criminal activities as well as undermining our efforts to tackle climate change and its impacts. We commit to continue our efforts to strengthen international and transboundary cooperation to tackle these crimes and harmful activities.

We acknowledge that wildlife trafficking is a serious crime, often carried out by transnational organised criminal networks linked to other forms of organised crimes and commit to take urgent and collective action to address this criminal activity in a way that reflects and acknowledges the serious nature of this crime. We remain robustly committed to delivering on our commitments within the 2018 London Declaration and will work to strengthen the capacity of law enforcement authorities and judiciaries in investigating, prosecuting and adjudicating wildlife-related offences where needed. We note proposals to discuss options inter alia to strengthen the international criminal legal framework to effectively combat such offences including prevention, while maintaining our focus on making the best possible use of existing international mechanisms, strengthening legislation, international cooperation, capacity building, criminal justice responses, and law enforcement efforts to strengthen our response. We commit to increase our efforts to reduce the demand for IWT products by developing targeted and evidence-based interventions in order to inform consumer behaviour and close markets where these illegal products are trafficked and sold. We will review our administrative, preventative and criminal justice responses to wildlife and forest crime using the International Consortium on Combatting Wildlife Crime's (ICCWC) Wildlife and Forest Crime Analytic Toolkit. We welcome the discussions by Finance Ministers on strengthening beneficial ownership transparency to better tackle the illicit financial flows stemming from IWT and other illicit threats to nature and welcome the work of the Financial Action Task Force and its recommended actions in this area.

We recognise that IUU fishing remains one of the most serious threats to a healthy ocean, depleting fish stocks, distorting competition, destroying marine habitats and jeopardising international efforts to promote better ocean governance and effectively and sustainably manage fisheries. We recognise the importance of concerted international action to deter IUU fishing, including through support for developing countries. Urgent efforts are needed to prohibit harmful fisheries subsidies that contribute to overfishing, overcapacity and IUU fishing. We commit to concluding the ongoing WTO negotiations as swiftly as possible in order to ensure that a meaningful agreement is reached that delivers effective disciplines.

Building on the outcomes of the Canadian G7 Presidency, we commit to ending IUU fishing by ensuring strong measures are effectively implemented and enforced, such as the Catch Documentation Schemes (CDS) to increase traceability, including those used by RFMOs and other relevant bodies for certain

species; a commitment to develop and enforce more robust Port State measures including by effectively implementing the UN Food and Agriculture Organization (FAO) Port State Measures Agreement (PSMA) and other relevant initiatives, as well as increasing Monitoring, Control and Surveillance (MCS) activities to help tackle IUU fishing. We highlight the importance of bilateral agreements that include mechanisms that effectively address IUU fishing, in particular through effective regulation and enhanced monitoring of fisheries activities, transhipments, landings, and trade in fish and fish products. We also commit to the enhanced sharing of information, intelligence, and best practice and expertise in tackling IUU fishing, acknowledging that international cooperation is the most effective way to tackle this issue.

Recognising that illicit threats to nature deprive some of the world's poorest communities of sustainable forms of living income, we commit to mobilise public and private support for sustainable livelihoods as an alternative to these activities. We recognise the importance of Indigenous Peoples, and local communities, in protecting forests and natural habitats and supporting sustainable land use. We further recognise the importance of securing the legal recognition of the right of Indigenous Peoples to the lands, territories and resources which they owned, occupied, or otherwise used or acquired as acknowledged in national law and international instruments. We also recognise the importance of securing applicable resource and legitimate tenure rights of persons belonging to local (or other) communities, women, and persons in marginalised groups as acknowledged in national law and international instruments. We underline the importance of engagement with these groups to co-develop solutions to these issues, including land tenure rights.

Ocean Action

We recognise that the health of our seas and ocean is critical to the economic, social and environmental well-being of people and the planet, and has a vital role in supporting biodiversity, providing ecosystem services including regulating our climate. Yet the ocean and seas are under significant threat from human actions. Overfishing, IUU fishing, overexploitation of marine habitats and resources, the introduction of invasive alien species, pollution, including marine litter, other anthropogenic pressures on ocean habitats, microplastics, underwater noise are major drivers of marine biodiversity loss. At the same time, climate change is leading to sea level rise, extreme weather events, ocean warming and influences stratification, reduced oxygen levels and shifts in marine resources, which also impact marine biodiversity. Increased carbon dioxide absorption is also leading to

increased ocean acidification. We acknowledge with concern the recent high-level findings from the IPCC Report on Climate Change on the Ocean and Cryosphere. Building on the outcomes of the Canadian and other G7 Presidencies, including the Charlevoix Blueprint for Healthy Oceans, Seas and Resilient Coastal Communities, we commit to support the UN Decade of Ocean Science for Sustainable Development (2021-2030) and work towards its goals, which include the global ocean being clean, healthy and resilient, productive, safe, predicted, accessible and inspiring and engaging. We recognise the value of robust and continuous scientific observation and cooperation to ensure a sustainable ocean for all and to support the science-based implementation of commitments under the 2030 Agenda, SDGs, the CBD, the Paris Agreement and within UNEA resolutions. We will continue our efforts to strengthen the conservation, protection and restoration of coral reefs, mangroves, seagrass beds, salt marshes, polar regions and other ecosystems and we recognise the value of blue carbon ecosystems, which can provide climate resilience benefits while also sequestering carbon. We recognise the importance of sustainable resilience for coastal communities and marine ecosystems and will strengthen our support for the Ocean Risk and Resilience Action Alliance (ORRAA).

We commit to upholding the UN Convention on the Law of the Sea (UNCLOS) which sets out the legal framework within which all activities in the ocean and seas must be carried out, including for the conservation and sustainable use of the ocean and seas. We will work to expeditiously conclude, if possible by the end of 2021, the negotiation of a new and ambitious international legally binding instrument under UNCLOS on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction which will include a clear obligation to conserve and sustainably use marine biodiversity and include a mechanism to establish Area-Based Management Tools (AMBTs), including Marine Protected Areas (MPAs) and will aid the implementation of intended new marine targets, recognising our commitment to support global 30by30 for the ocean.

As an example of the kind of action that needs to be taken to protect and conserve the ocean, we fully support the commitment by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) to develop a representative system of MPAs in the Convention Area. This should be based on the best available scientific evidence, the proposals to establish MPAs in East Antarctica, in the Weddell Sea and in the Antarctic Peninsula, and taking full consideration of the CCAMLR Convention.

Recognising that marine litter continues to pollute the ocean worldwide, has adverse impacts on marine life through ingestion and entanglement, as well as damaging habitats and people's livelihoods, and with possible impacts on food safety and human health, we are determined to accelerate action to tackle sources of marine litter, building on national, regional and global efforts, noting the example of the G7 Action Plan to Combat Marine Litter, the Osaka Blue Ocean Vision, and the G20 Implementation Framework for Actions on Marine Plastic Litter and the Ocean Plastics Charter as appropriate. We acknowledge that there are a number of key contributors to marine litter, including inadequate management of land-based sources, and abandoned, lost and otherwise discarded fishing gear, also known as Ghost Gear, which has a significant direct impact on marine life. Effective policies, practices and management measures to address these issues need to be taken nationally, regionally and internationally by all countries, in partnership with relevant stakeholders, including industry and NGOs. Concerning fishing gear loss and its retrieval, we commit to working through relevant international and regional frameworks to address Ghost Gear including by the FAO, IMO, RFMOs and the Regional Seas Conventions and will work with or support other initiatives such as the Global Ghost Gear Initiative (GGGI). We will collaborate through concrete actions such as gear marking and retrieval and will support and expand existing efforts to address ghost gear as appropriate, including through the implementation of the UN FAO voluntary guidelines on the marking of fishing gear. We note with interest the contribution to the debate of the OECD report Towards G7 Action to Combat Ghost Fishing Gear, and will carefully consider its recommendations.

Recognising the scale, urgency and transboundary nature of the global action needed to tackle marine plastic litter and microplastics, including by considering a life-cycle approach, we welcome the work of the ad hoc open-ended expert group (AHEG) established by UNEA resolution 3/7 and extended by UNEA resolution 4/6 towards UNEA 5.2, and will fully engage in discussions or negotiations on the options identified, with the aim of taking a step forward on that occasion on suggested options which include strengthening existing instruments, a potential new global instrument, and multi-stakeholder engagement. We look forward to the forthcoming OECD study on existing MDB resources that address marine litter, prepared in cooperation with the G7 Alliance for Resource Efficiency.

We welcome the discussions of the Expanded Future of the Seas and Oceans Working Group and endorse the G7 Ocean Decade Navigation Plan establishing

a framework for ambitious and collaborative action under the UN Ocean Decade. This framework will advance the ocean science needed to underpin ocean action, with direct reference to the UN Ocean Decade, its societal outcomes and other international agreements. We commit to work closely with international and regional partners and organisations, including the Intergovernmental Oceanographic Commission (IOC) of UNESCO, to support the UN Ocean Decade and its societal outcomes. We welcome the ongoing work of the G7 Future of the Seas and Oceans Initiative and will continue to support its programme of activities, including to share best practice, and advance scoping activities such as to develop a digital twin ocean, work towards net zero oceanographic capability, and evaluate global ocean indicator frameworks.

Food Loss and Waste

We recognise that one third of food produced for human consumption is lost or wasted globally, and that food grown but never eaten consumes an estimated 250 km3 of fresh water per year and requires an estimated 1.4 billion hectares land area. Furthermore, food loss and waste produces an estimated 8 percent of global GHGs. We note with concern the recent estimate within UNEP's Food Waste Index Report 2021 that 931 million tonnes of food waste was generated globally in 2019 at the level of retail, food service and households, which represents 17percent of food available for consumption. We acknowledge the importance of reducing food loss and waste in improving food security, particularly in the most vulnerable communities, mitigating climate change and land degradation and protecting biodiversity. We welcome the upcoming UN Food Systems Summit which will highlight the need to put sustainable food systems at the centre of efforts to meet the 2030 Agenda and its SDGs. We reaffirm our commitment to achieve SDG 12.3 and commit to utilise a "Target, Measure, Act" approach and establish national targets to reach that goal.

We further commit to measure food loss and waste in accordance with the transparent methodologies outlined in the Food Loss and Waste Accounting and Reporting Standard and consistent with the requirements of international reporting under SDG 12.3. We will establish national baselines and goals against which progress can be measured. We will implement actions to support food supply chains and households to reduce food loss and waste and promote the adoption of sustainable food consumption and production through circular economy and resource efficiency approaches. Our actions will include encouraging collaboration and cooperation between public, private and civil society actors, the adoption of innovative business models and technologies,

redistribution of surplus food, the promotion of youth and wider public education and behaviour change programmes across all sectors on food loss and waste prevention. Food no longer intended for human consumption should be prevented from becoming waste through use as animal feed or reprocessing into new products, whilst ensuring that all safety and related requirements are met. Recalling our commitments under the Bologna Roadmap, and recognising that approximately 60 percent of global food waste occurs in households, we welcome the discussions of the G7 Alliance for Resource Efficiency on key components that support action to reduce food waste at the household level, and the Presidency Summary of the discussion. We further welcome the G7 Alliance for Resource Efficiency document highlighting examples of best practice across the G7 to address this issue.

Conclusion

We express our appreciation to the Formal G7 Engagement Groups and other partners for their important contributions to the UK's G7 Presidency. We look forward to continuing our collaborative efforts on these and other issues under the German G7 Presidency in 2022.

21/05/2021

https://www.investopedia.com/terms/m/multilateral_development_bank.asp

Multilateral Development Bank (MDB)

By WILL KENTON

Reviewed by ERIC ESTEVEZ

Updated Apr 25, 2021

What Is a Multilateral Development Bank (MDB)?

A multilateral development bank (MDB) is an international financial institution chartered by two or more countries for the purpose of encouraging economic development in poorer nations. Multilateral development banks consist of member nations from developed and developing countries. MDBs provide loans and grants to member nations to fund projects that support social and economic development, such as the building of new roads or providing clean water to communities.

KEY TAKEAWAYS

- Multilateral development banks (MDBs) originated in the aftermath of World War II to rebuild war-ravaged nations and stabilize the global financial system.
- Today, MDBs fund infrastructure, energy, education, and environmental sustainability in developing countries.
- While commercial banks seek to make profits on loans and other financial services, the goal of MDBs is to issue grants and low-cost loans to improve the economic conditions of impoverished or developing nations.
- MDBs now operate throughout the world and control trillions of dollars in assets.

How a Multilateral Development Bank (MDB) Works

Multilateral development banks are subject to international law. They and other international financial institutions, such as the International Monetary Fund (IMF), originated in the waning days of World War II when the United States and its allies established the Bretton Woods institutions to rebuild war-ravaged nations and stabilize the post-war international financial system. The World Bank, which has been semi-officially dominated by the U.S. since its founding, is one of these institutions.

Unlike commercial banks, MDBs do not seek to maximize profits for their shareholders. Instead, they prioritize development goals, such as ending extreme poverty and reducing economic inequality. They often lend at low or no interest or provide grants to fund projects in infrastructure, energy, education, environmental sustainability, and other areas that promote development.

"At a time when few institutions were lending during the global financial crisis, the MDBs provided $222 billion in financing, which was critical to global stabilization efforts," according to the U.S. Department of the Treasury.

Along with financial assistance, multilateral development banks often provide member nations with advisers, auditors, and expert assistance in implementing and monitoring bank-funded projects.

Types of Multilateral Development Banks

There are two main forms of multilateral development banks. The first, which includes the largest and best-known institutions, makes loans and grants. These banks often distinguish between poorer, borrowing members and wealthier, non-borrowing members. Examples include the World Bank, founded in 1945, and the Inter-American Development Bank (IDB), founded in 1959.

The second type of multilateral development bank is formed by governments of low-income countries that can then borrow collectively via the MDB in order to secure more favorable rates. The Caribbean Development Bank (CDB), founded in 1969, is an example of this type.

According to the World Bank's 2019 Annual Report, the organization disbursed $49.4 billion during the year to member countries in the form of grants and low-interest loans.

Special Considerations

Many countries have chafed at the U.S.'s influence over the World Bank and regional MDBs, such as the Asian Development Bank, founded in 1966 and based in the Philippines. In October 2013 Chinese President Xi Jinping proposed the Asian Infrastructure Investment Bank (AIIB) as an alternative to these American-dominated institutions. The AAIB began operations in 2016, with headquarters in Beijing.

The U.S. reportedly attempted to discourage allies from signing on to the project, putting pressure on South Korea and Australia in particular. Both ended up joining, along with 58 other members and 22 prospective members. As of 2019, the AIIB has grown to 70 members and 23 prospective members.

Major Multilateral Development Banks

The following is a list of the major multilateral development banks, ranked by total assets as of Dec. 31, 2018, except for the World Bank Group, which reflects Dec. 31, 2019 assets (exchange rates are as of April 15, 2020):

- European Investment Bank: €555.8 billion ($606.5 billion)
- International Bank for Reconstruction and Development, World Bank Group: $283 billion
- Asian Development Bank: $191.9 billion
- International Development Association, World Bank Group: $188.5 billion
- Inter-American Development Bank: $129.5 billion
- European Bank for Reconstruction and Development: €61.9 billion ($67.7 billion)
- African Development Bank: 33.8 billion UA
- Asian Infrastructure Investment Bank: $19.6 billion
- Islamic Development Bank: 22 billion Islamic dinars ($18.5 billion)
- Central American Bank for Economic Integration: $10.9 billion
- New Development Bank: $10.4 billion

https://media.gm.ca/media/ca/en/gm/news.detail.html/content/Pages/news/ca/en/2021/Aug/0820-bolt.html

General Motors to Recall Additional Bolt EVs

2021-08-20

- ***Supplier manufacturing defect may lead to battery fire in rare circumstances***
- ***GM will pursue reimbursement from supplier***

OSHAWA, Ont. (Friday, August 20, 2021) **–** General Motors is voluntarily expanding the current Chevrolet Bolt EV recall to cover the remaining 2019 and all 2020-2022 model year vehicles, including the Bolt EUV. In rare circumstances, the batteries supplied to GM for these vehicles may have two manufacturing defects – a torn anode tab and folded separator – present in the same battery cell, which increases the risk of fire. Out of an abundance of caution, GM will replace defective battery modules in Chevrolet Bolt EVs and EUVs with new modules, with an expected additional cost of approximately $1 billion.

“Our focus on safety and doing the right thing for our customers guides every decision we make at GM,” said Doug Parks, GM executive vice president, Global Product Development, Purchasing and Supply Chain. “As leaders in the transition to an all-electric future, we know that building and maintaining trust is critical. GM customers can be confident in our commitment to taking the steps to ensure the safety of these vehicles.”

After further investigation into the manufacturing processes at LG and disassembling battery packs, GM discovered manufacturing defects in certain battery cells produced at LG manufacturing facilities beyond the Ochang, Korea, plant. GM and LG are working to rectify the cause of these defects. In the meantime, GM is pursuing commitments from LG for reimbursement of this field action.

This new recall population includes:

- 9,335 (6,989 in the U.S. and 1,212 in Canada) – 2019 model year Bolt EVs that were not included in the previous recall
- 63,683 (52,403 in the U.S. and 9,019 in Canada) – 2020–2022 model year Chevrolet Bolt EVs and EUVs

To provide customers peace of mind, batteries with these new modules will come with an 8-year/100,000-mile limited warranty (or 8-year/160,000 km limited warranty in Canada[1]).

GM is working aggressively with LG to increase production as soon as possible. GM will notify customers when replacement parts are ready.

Until customers in the new recall population receive replacement modules, they should:

1. Set their vehicle to a 90 percent state of charge limitation using Target Charge Level mode. Instructions on how to do this are available on chevy.com/boltevrecall. If customers are unable to successfully make these changes, or do not feel comfortable making these changes, GM is asking them to visit their dealer to have these adjustments completed.

2. Charge their vehicle more frequently and avoid depleting their battery below approximately 70 miles (113 kilometers) of remaining range, where possible.

3. Park their vehicles outside immediately after charging and should not leave their vehicles charging indoors overnight.

Customers can visit www.chevy.com/boltevrecall or contact the Chevrolet EV Concierge 1-833-EVCHEVY (available Monday through Friday from 8 a.m.–midnight ET; Saturday and Sunday from noon–9 p.m. ET) or contact their preferred Chevrolet EV dealer.

Canadian customers can visit the Chevrolet Owner's Centre or contact their preferred dealer.

- EN: www.chevrolet.ca/boltevrecall
- FR: https://www.chevrolet.ca/rappelboltev

General Motors (NYSE:GM) is a global company focused on advancing an all-electric future that is inclusive and accessible to all. At the heart of this strategy is the Ultium battery platform, which powers everything from mass-market to high-performance vehicles. General Motors, its subsidiaries and its joint venture entities sell vehicles under the Chevrolet, Buick, GMC, Cadillac, Baojun and Wuling brands. More information on the company and its subsidiaries, including OnStar, a global leader in vehicle safety and security services, can be found at https://www.gm.com.

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

IFIC Monthly Investment Fund Statistics – July 2021

Mutual Fund and Exchange-Traded Fund Assets and Sales

August 19, 2021 (Toronto) – The Investment Funds Institute of Canada (IFIC) today announced investment fund net sales and net assets for July 2021.

Mutual fund assets totalled $1.983 trillion at the end of July 2021. Assets increased by $33.0 billion or 1.7% compared to June 2021. Mutual funds recorded net sales of $8.8 billion in July 2021.

ETF assets totalled $313.6 billion at the end of July 2021. Assets increased by $6.7 billion or 2.2% compared to June 2021. ETFs recorded net sales of $3.0 billion in July 2021.

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

Asset Class	Jul. 2021	Jun. 2021	Jul. 2020	YTD 2021	YTD 2020
Long-term Funds					
Balanced	4,929	8,053	203	44,504	(6,449)
Equity	1,857	3,796	(87)	27,783	1,831
Bond	2,080	1,112	2,574	11,410	7,265
Specialty	413	565	526	3,512	3,424
Total Long-term Funds	9,279	13,526	3,216	87,208	6,071
Total Money Market Funds	(447)	(942)	154	(6,448)	5,119
Total	8,833	12,584	3,370	80,760	11,191

Mutual Fund Net Assets ($ Billions)*

Asset Class	Jul. 2021	Jun. 2021	Jul. 2020	Dec. 2020
Long-term Funds				
Balanced	977.1	959.1	819.9	874.4
Equity	699.4	686.9	522.8	593.4
Bond	259.1	257.2	232.0	246.4
Specialty	19.8	18.7	30.1	35.0
Total Long-term Funds	1,955.4	1,921.9	1,604.8	1,749.3
Total Money Market Funds	27.3	27.8	37.2	34.4
Total	1,982.6	1,949.7	1,641.9	1,783.7

* Please see below for important information regarding this data.

ETF Net Sales/Net Redemptions ($ Millions)*

Asset Class	Jul 2021	Jun. 2021	Jul. 2020	YTD 2021	YTD 2020
Long-term Funds					
Balanced	292	320	90	2,620	1,052
Equity	2,449	2,727	2,293	20,535	17,718
Bond	(362)	1,224	3,303	7,661	6,775
Specialty	273	665	261	6,059	1,261
Total Long-term Funds	2,651	4,936	5,947	36,875	26,805
Total Money Market Funds	357	103	423	(1,216)	2,193
Total	3,009	5,039	6,369	35,659	28,998

ETF Net Assets ($ Billions)*

Asset Class	Jul. 2021	Jun. 2021	Jul. 2020	Dec. 2020
Long-term Funds				
Balanced	10.5	10.1	5.8	7.2
Equity	200.4	195.4	138.8	158.4
Bond	85.9	85.8	74.6	79.3
Specialty	10.6	9.8	4.8	5.2
Total Long-term Funds	307.5	301.2	224.1	250.0
Total Money Market Funds	6.0	5.7	6.7	7.3
Total	313.6	306.8	230.8	257.3

* Please see below for important information regarding this data.

IFIC direct survey data (which accounts for approximately 91% of total mutual fund industry assets) is complemented by data from Investor Economics to provide comprehensive industry totals.

IFIC makes every effort to verify the accuracy, currency and completeness of the information; however, IFIC does not guarantee, warrant, represent or undertake that the information provided is correct, accurate or current.

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

1. Mutual fund data is adjusted to remove double counting arising from mutual funds that invest in other mutual funds.
2. ETF data is not adjusted to remove double counting arising from ETFs that invest in other ETFs.
3. The Balanced Funds category includes funds that invest directly in a mix of stocks and bonds or obtain exposure through investing in other funds.
4. Mutual fund data reflects the investment activity of Canadian retail investors.
5. ETF data reflects the investment activity of Canadian retail and institutional investors.

About IFIC

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

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Japan-Focused ESG Funds Return 5.6% This Year, Underperforming
2021-08-15 22:00:05.219 GMT

By Bloomberg Automation
(Bloomberg) -- Sompo Japan Green Fund fund is the top perfomer among Japan-focused ESG funds screened by Bloomberg so far this year, delivering a total return of 19%. Mansartis Japon ISR is the worst-performing fund, with a total return of -7.3%.

* Japan-focused ESG funds returned 5.6% on average this year
* The Topix Index this year climbed 9.6%, while the Topix Total Return Index JPY rose 9.6%

Best Performers

Fund name	Total Return on Week %	Total Return YTD %	Benchmark	Benchmark YTD %	Total AUM ($M)	Performance Fee %	Mgmt Fee %	Fund Objective
Sompo Japan Green Fund	1.2	18.9	Topix Index	9.6	255.6	n/a	1.5	Thematic Sector
Pictet Japanese Equity Fund	1.0	17.6	MSCI Japan Net Return USD	2.9	183.3	n/a	1.2	Japan
Sparinvest Index Japan Value	2.0	14.3	MSCI Japan Value	17.8	11.2	0.0	2.0	Japan
Sompo Japan Sri Open - Mirai no Chikara	1.4	11.7	Topix Index	9.6	8.6	n/a	1.5	Value Broad Market
BCV Japac Esg	1.2	11.6	Topix Net Return	9.4	224.3	0.0	1.2	Japan

Worst Performers

Fund name	Total Return on Week %	Total Return YTD %	Benchmark	Benchmark YTD %	Total AUM ($M)	Performance Fee %	Mgmt Fee %	Fund Objective
Mansartis Japon ISR	1.2	-7.3	n/a	n/a	33.8	0.0	2.0	Japan
Sparinvest Index Japan Growth	1.2	-0.8	MSCI Japan Growth	2.1	14.6	n/a	2.0	Japan
Kamakura Yui 2101 Fund	0.6	1.3	n/a	n/a	448.1	n/a	1.0	Value Broad Market
Asahi Life SRI Fund	1.1	1.7	Topix Index	9.6	40.0	n/a	1.8	Thematic Sector
DC Daiwa SRI Fund	0.9	1.8	Topix Index	9.6	7.8	n/a	1.5	Thematic Sector

NOTE: This story only includes equity funds with assets under management of at least 500 million yen. ESG-focused funds comprise investments with general attributes including climate change, clean energy and environmentally friendly as found in Bloomberg data. Different funds may report performance data at different dates.

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U.S. ESG Funds Return 17% This Year, Underperforming S&P 500
2021-08-16 10:00:04.858 GMT

By Bloomberg Automation
(Bloomberg) -- Ariel Fund fund is among the leading ESG-focused U.S. mutual funds so far this year, delivering a total return of 29%.
* Eventide Healthcare & Life Sciences Fund is among the worst performers, with a total return of -21%
* U.S. ESG-related funds have returned 17% on average this year, compared to 20% for the Standard & Poor's 500 Index and 19% for the Russell 1000 Index

Best Performers

Fund name	Total Return YTD %	Total Return 3Y %	Benchmark	Benchmark YTD %	Total AUM ($B)	Fund Objective
Ariel Fund	28.8	13.4	S&P 500 Index	20.0	3.2	Thematic Sector
Parnassus Endeavor Fund	27.7	22.1	S&P 500 Index	20.0	5.0	Thematic Sector
Pax Small Cap Fund	25.1	12.8	Russell 2000	13.2	0.7	Blend Small Cap
Pax Large Cap Fund	24.2	21.6	S&P 500 Index	20.0	1.5	Blend Large Cap
Virtus Strategy Trust - Virtus Allianzgi Water Fund	23.1	19.6	MSCI ACWI	15.0	1.1	Thematic Sector

Worst Performers

Fund name	Total Return YTD %	Total Return 3Y %	Benchmark	Benchmark YTD %	Total AUM ($B)	Fund Objective
Eventide Healthcare & Life Sciences Fund	-21.4	11.2	S&P 500 Index	20.0	2.0	Health Care Sector
Morgan Stanley Institutional Fund - Asia Opportunity Portfolio	-16.1	17.8	n/a	n/a	0.6	Thematic Sector
RBC Emerging Markets Equity Fund/USA	-1.9	9.7	MSCI Emerging Markets Index	0.3	2.7	Emerging Market Stock
Calvert Emerging Markets Equity Fund	-1.6	13.0	MSCI Emerging Markets Index	0.3	4.4	Emerging Market Stock
BNY Mellon Global Emerging Markets Fund	1.0	20.1	n/a	n/a	0.6	Emerging Market Stock

NOTE: This story only includes equity funds with assets under management of more than $500 million. ESG-focused funds comprise investments with general attributes including climate change, clean energy and environmentally friendly as found in Bloomberg data. Different funds may report performance data at different dates.
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https://www.nbim.no/en/the-fund/news-list/2021/strong-returns-in-the-first-half-of-the-year/

Strong returns in the first half of the year

In the first half of 2021, the Government Pension Fund Global returned 9.4 percent, equivalent to 990 billion kroner.
18 August 2021

The return on the fund's equity investments was 13.7 percent, the return on the fixed income investments was -2.0 percent, whereas investments in unlisted real estate returned 4.6 percent. The return on unlisted renewable energy infrastructure was -1.9 percent.

The fund's return was 28 basis points higher than the return on the benchmark index.

"The equity investments had the most positive contribution to the return in the first half of the year, and especially the investments within the sectors of energy and finance. The investments in energy companies returned 19.5 percent", says CEO of Norges Bank Investment Management Nicolai Tangen.

The health and technology sectors have had solid returns throughout the Corona pandemic, and the increase continued in the first half of the year.

"Technology companies returned 16.8 percent. Several major technology companies saw a continued increase within digital advertisement", Tangen says.

The krone strengthened against several major currencies in course of the first half of the year. Currency movements contributed to a decrease in the fund's value of 79 billion kroner. In the first half of the year, 147 billion kroner was withdrawn from the fund.

The fund had a value of 11,673 billion kroner as at 30 June 2021. 72.4 percent of the fund was invested in equities, 25.1 percent in fixed income, 2.4 percent in unlisted real estate, and 0.1 percent in unlisted renewable energy infrastructure.

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Report from expert group on climate risk in the GPFG

Press release | Date: 20.08.2021

| No: 57/2021

The expert group, which has looked at the importance of financial climate risk and climate-related investment opportunities for a fund such as the Government Pension Fund Global (GPFG), today submitted its report to the Ministry of Finance.

- Man-made climate change is the biggest challenge facing the world. The changes that will take place on the road to a low-emission society entail a financial risk for a global investor such as the Government Pension Fund Global. It can also be a risk not to understand climate-related investment opportunities that arise, says Minister of Finance Jan Tore Sanner (H).

The Ministry of Finance has initiated major work to strengthen the knowledge base for how climate change, climate policy and the green shift can affect investors such as the GPFG, and alternative ways of dealing with this in the administration. The expert group's report is an important part of this work. The Ministry has also received analyzes and assessments from Norges Bank on the fund's exposure to climate-related risk and the investment opportunities the transition to a low-emission society can provide.

- The fund is our common savings that will benefit both current and future generations. How climate change, climate policy and the green shift can affect the fund, and how we should deal with this, are important and complex questions. We have worked with this for many years before this, but with this expert group, the work in the field is strengthened. This is a high priority area for the government and the Ministry of Finance, says Sanner.

The expert group was appointed on 4 February and has consisted of Martin Skancke (leader), Kristin Halvorsen, Tone Bjørnstad Hanstad and Karin Thorburn. Thomas Ekeli has been the group's secretary. The expert group has been in contact with many actors and has also received several inputs.

The Ministry will present its assessments of how climate risk should be handled in the management of the GPFG in the fund report in the spring of 2022.

Read mo

Google Translate of the Expert Group press release
https://www.regjeringen.no/contentassets/54cfd391677a405a8666071f8d865e32/pressemelding.pdf
Press release from the Expert Group that has assessed climate risk and the GPFG:
The Petroleum Fund's work on climate risk should be strengthened
Date: 8/20/2021
Norges Bank's responsible management and exercise of ownership should be strengthened and the requirements for measurement, management and climate risk reporting should be increased. This should be clarified in the mandate for the management of The Government Pension Fund Global (GPFG).
This is the opinion of the expert group that has assessed how climate risk can affect the Government Pension Fund abroad ("Oil Fund"). The group today submitted its report to the Ministry of Finance.
- Climate risk is a significant risk for the fund, and this should be reflected in Norges Bank's management. The There is a need to further develop the work on climate risk, and we believe that Norway should have the ambition that the fund's work with climate risk will be world-leading, says the expert group's leader Martin Skancke.
The Committee believes that the investment strategy should continue to emphasize risk diversification.
- Climate risk can affect all sectors of the economy in different ways, and a large fund that is broad invested has nowhere to hide, says Skancke.
The expert group suggests:
 Norges Bank's responsible management receives an overall long-term goal of zero emissions from the companies the fund has invested in, in line with the Paris Agreement.
 A further development of Norges Bank's ownership work to influence companies' behavior and strength market functioning through better climate risk reporting.
 Own provisions on measurement, management and reporting of climate risk.
 A set of principles for managing the GPFG's climate risk.
- A good return on the Petroleum Fund over time depends on a successful climate policy and a well-functioning financial market. The key instrument for managing the GPFG's climate risk is the exercise of ownership, since this is aimed directly at the source of the fund's climate risk. Through the exercise of ownership, Norway can Bank test how robust business models the companies the fund is invested in have, contribute to that capital channeled to profitable projects in the transition to a low-emission society, as well as strength the financial market's ability to price climate risk through better reporting, says the committee leader.
- Whether the exercise of ownership eventually turns out not to lead, and the assessment is that a company does not have a compelling restructuring strategy and investing in bad projects rather than paying dividends, the fund may sell down. If there is an unacceptable risk that the company is linked

to serious environmental damage or to an unacceptable degree leads to greenhouse gas emissions, it is relevant with observation or exclusion, Skancke continues.

The committee emphasizes that risk diversification and robustness are important in the face of risks we know to a small degree control. Furthermore, the committee points out that the GPFG's ownership work must support Norway's obligations to contribute to one reduction of world greenhouse gas emissions through the Paris Agreement.

- Decarbonisation of the fund should take place by contributing to the decarbonisation of the companies as the fund is invested in. This is the best way to reduce climate risk in our common wealth, says Skancke.

Contact person: Martin Skancke (leader of the expert group), tel. +47 9188 1776, martin.skancke@gmail.com.

***

Attachment: Summary of the Expert Group's report

Background

On 4 February 2021, the Ministry of Finance appointed an Expert Group to assess how Climate change, climate policy and the green shift can affect the Government Pension Fund Global (GPFG).

The group has had the following composition: Martin Skancke (leader), Kristin Halvorsen, Tone Bjørnstad Hanstad and Karin S. Thorburn. Thomas Ekeli has been the group's secretary.

The structure of the report

Chapter 2 describes the climate challenge, climate risk and economic consequences. Chapter 3 looks at how climate risk arises and can be analyzed at company level, chapter 4 shows how the risk distributed to corporate owners through the financial market, while Chapter 5 describes how investors approaches responsible management and climate risk. Chapter 6 looks at climate-related threats and opportunities for the GPFG, while recommended changes in the management of the GPFG follow in Chapter 7.

Summary chapter of the report

Climate risk arises because there is uncertainty about future climate change, societal development, climate policy and technology development. A lot of uncertainty in many areas gives significant climate risk. Climate risk has some characteristics that are different from other issues investors need to address, since it unfolds over a very long horizon, it raises fundamental ethical questions as well characterized by potentially dramatic consequences and great uncertainty that is difficult to quantify.

With its diversified investment strategy, the Government Pension Fund Global (GPFG) appears to be relative robust to moderate climate change and a predictable climate policy, while dramatic Climate change or abrupt policy changes will represent significantly greater challenges for both the globe as the world's financial markets and the GPFG. The most important way to reduce climate risk

is through one effective and predictable climate policy, as well as strengthening one's resilience to meet unexpected outcomes.

The GPFG has a special role in Norwegian economic policy, and the fund's management has inspired and seemed norm-setting for investors at home and abroad for several years. In our view, there is now a need to further develop the work on climate risk. We believe that Norway should have the ambition that the GPFG's work with climate risk must be world-leading. We therefore suggest:

 A set of principles for managing the GPFG's climate risk, which can stand the test of time.

 That the work with climate risk is anchored in the mandate given by the Ministry of Finance, where Norway

The bank's responsible management receives an overall long-term goal of zero emissions from the companies the fund has invested in, in line with the Paris Agreement.

 A further development of Norges Bank's ownership work to influence companies' behavior and strength market functioning through better climate risk reporting.

 Separate provisions on measurement, management and reporting of climate risk The fund is large, and the investments are spread over a large number of companies in various industries throughout world. Climate risk can affect all sectors of the economy in different ways, and a large fund that is broad invested has nowhere to hide. The fund is thus benefited from, and should be based on its mandate to contribute to the achievement of the objectives of the Paris Agreement and to the transition to a zero-emission society in an orderly manner. An ambitious and successful climate policy internationally reduces the physical the climate risk for the fund. A predictable climate policy and an orderly, gradual decarbonisation of it the financial system provides less risk of sudden changes in the value of the fund's investments and financial instability.

An important starting point for work with climate risk is that the overall climate risk in the financial the system is high. However, there is no basis for believing that climate risk will be systematically mispriced the market over the long time horizon that is relevant for determining the fund's benchmark index.

The investment strategy for the fund is based on the fact that the financial markets are characterized by strong competition, that risk diversification makes the fund robust, and that it is generally not possible to improve the terms of trade between return and risk for the fund by excluding investments with specific characteristics.

The widest possible spread of the fund's investments is a cornerstone of the fund's investment strategy.

This should be fixed.

At the same time, climate risk is potentially significant for the fund, and the Ministry of Finance should change its mandate for the management of the GPFG to better manage this risk. Based on the

mandate changes, Norges Bank's responsible management and exercise of ownership should be strengthened and the requirements for measuring, managing and reporting climate risk is increased.
As the manager of the GPFG, Norges Bank has a coherent chain of instruments for addressing climate risk. The key instrument for managing the GPFG's climate risk is the exercise of ownership, since this is aimed directly at the source of the fund's climate risk. In addition, Norges Bank may choose another composition of the portfolio than that which follows from the benchmark index of the Ministry of Finance has determined. Whether the exercise of ownership eventually turns out not to lead, and the assessment is that a companies do not have a convincing restructuring strategy and invest in bad projects rather than to pay dividends, the bank can sell down.
Through targeted and effective exercise of ownership, Norges Bank can contribute to understanding and influencing the robustness of the business models of the companies the fund has invested in, as well as emphasize the importance of capital discipline so that companies have underlying investment projects that benefit benefit from climate-related opportunities and are profitable in the transition to a low-emission society.
Capital discipline means, among other things, that fossil fuel companies with weaker profitability prospects return surplus capital to the owners in the form of dividends, which gives investors the opportunity to invest capital in new ones investment opportunities related to the green shift.
Exercising ownership can help to strengthen the financial market's general ability to price climate risk and channel capital to profitable projects in the transition to a low-emission society.
Whether the exercise of ownership eventually turns out not to lead, and the assessment is that the company's prospects characterized by weak profitability, poor investment opportunities and little ability to restructure, the bank can sell down. If there is an unacceptable risk that the company is associated with serious environmental damage or in unacceptable degree leads to greenhouse gas emissions, it is relevant with observation or exclusion.
Better reporting on climate risk from the companies will make the financial markets more well-functioning, by that information about this risk becomes more readily available and thus can form the basis for more accurate pricing. With more robust business models and more accurate pricing of risk, the transition risk in it
Further development of Norges Bank's ownership activities to influence companies' behavior and strengthen the market's functioning through better climate risk reporting.
 Separate provisions on measurement, management and reporting of climate risk.
 A set of principles for managing the GPFG's climate risk.
- The GPFG is dependent on a successful climate policy and a well-functioning financial market. The key instrument for managing the GPFG's climate risk is active ownership, since this is aimed directly at the source of the fund's climate risk. Through active ownership, Norges Bank can test the robustness of the business models of the companies in which the fund has invested, ensure that

capital is channeled to profitable projects in the transition to a low-carbon economy, and strengthen the financial market's ability to price climate risk through better reporting, says the chair of the expert group.

- If active ownership eventually turns out not to be successful, and the assessment is that a company does not have a convincing transition strategy and invests in bad projects rather than paying dividends, the bank can divest from the company. If there is an unacceptable risk that the company is associated with serious environmental damage or leads to greenhouse gas emissions to an unacceptable degree, observation or exclusion is relevant.

The expert group emphasizes that risk diversification and resilience are important in the face of risks over which we have little control.

Furthermore, the expert group points out that the fund's ownership work must underpin Norway's commitments to contribute to a reduction in global emissions through the Paris Agreement.

- Decarbonisation of the fund should happen through contributing to decarbonisation of the companies in which the fund is invested. This is the best path to reduced climate risk for our common wealth, says Skancke.

Background

The Expert Group was appointed on 4 February 2021 to assess how climate change, climate policy and the green shift may affect the Government Pension Fund Global (GPFG). The composition of the group is as follows: Martin Skancke (chair), Kristin Halvorsen, Tone Bjørnstad Hanstad and Karin S. Thorburn. Thomas Ekeli served as the group's secretary.

Contact person: Martin Skancke (chair of the expert group), tel. +47 9188 1776, martin.skancke@gmail.com.

An English translation of the report's executive summary and chapter 7 with recommendations is available on the Ministry of Finance's website.

https://inclusivewealth.eig.org/resource/wealth-increasingly-concentrated-geographically-in-the-u-s-new-eig-report-and-interactive-map-finds/

August 18, 2021

Wealth Increasingly Concentrated Geographically In The U.S., New EIG Report and Interactive Map Finds

Washington, D.C. — Income from assets has skyrocketed in centers of wealth, technology, finance, mining, or recreation over the past few decades while stagnating in many distressed communities, according to a new Economic Innovation Group (EIG) report, interactive map, and case studies released today.

The report "***From Wealthy Enclaves to Asset Deserts: What the geography of asset income signals about wealth distribution in the United States***," uses data from the Bureau of Economic Analysis and finds that one-fifth of personal income in the U.S. is derived from asset income—defined as dividends, interest, or rent. And yet, in 2019, nearly two-thirds of all counties had asset income per capita below the county average, the report notes.

"The pandemic has underscored the divide in financial security and well-being between the Americans who own assets and those who do not," said **EIG Research Director Kenan Fikri**. "The overall economy is booming and asset prices are soaring, but many American communities are left out with little direct stake in the wealth created on financial markets. Building wealth inclusively will require expanded and innovative pathways to increase asset ownership for more American families."

Nationally, asset prices have been booming for years, but the report uncovers a widespread dearth in asset ownership across much of the country. Nearly one-quarter of all counties now have asset income per capita less than half the national rate, a considerable rise from only 10 percent in 1990 that signals growing geographic inequality. The report's case studies and interactive maps draw out

several telling comparisons—between the **Bronx** and **Manhattan**; **Los Angeles** and **Riverside**; and **Cleveland** and **Austin**—that provide case studies in localized inequalities and changing economic fortunes.

The research showcases the need for more accessible opportunities for people to save, invest, and build wealth so they can participate in and prosper in the American economic system beyond earning wages. EIG's Inclusive Wealth Building Initiative explores potential pathways, such as a government-matched retirement security and investment plan modeled after the federal employees' Thrift Savings Plan, proposed by a bipartisan pair of economists, Teresa Ghilarducci and Kevin Hassett. The proposal would provide low- and moderate-income working Americans, of whom an estimated 77% are asset-poor, opportunities to build household wealth.

Key findings from the report:

- Nearly one-quarter of all counties now have asset income per capita less than half the national rate ($11,400 per capita in 2019), compared to only 10 percent in 1990.
- By contrast, the number of counties with asset income per capita two times the national level doubled from 1990 to 2019.
- Today's asset income hotspots are overwhelmingly centers of finance, technology, mining, or recreation. Teton County, WY has the highest income from assets per capita in the country at $161,400. Among populous counties, Manhattan (NY), San Mateo (CA), and Palm Beach (FL) lead.
- Mountain West states such as Wyoming and Colorado contain some of the greatest asset income inequality in the country, hosting enclaves of extreme affluence alongside deeply distressed rural areas.
- Highlighting the racial wealth gap, the residents of Cleveland's least diverse neighborhood earned a total of $262 million in dividends in the 2018 tax year,

or $15,800 per a person, compared to a total of $27,000 that went to residents of its most diverse neighborhood, or around a dollar per a person.

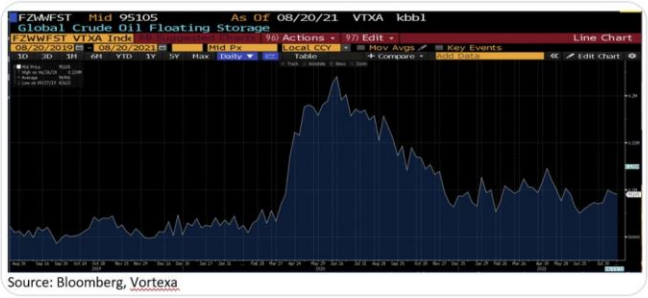
EIG media contact: Danielle Cassagnol (danielle@eig.org)

About the Economic Innovation Group (EIG)

The Economic Innovation Group (EIG) is a bipartisan ideas laboratory and advocacy organization whose mission is to advance solutions that empower entrepreneurs and investors to forge a more dynamic American economy. Headquartered in Washington, D.C., EIG convenes leading experts from the public and private sectors, produces original research, and works to advance creative legislative proposals that will bring new jobs, investment, and economic growth to communities across the nation. For more information, visit eig.org.

Dan Tsubouchi @Energy_Tidbits · 18h

Increased #OPEC+ #Oil since June not being fully absorbed by market. Vortexa floating crude oil storage estimated 08/20 at 95.11 mmb, down vs revised 08/13 of 96.80 mmb. But +20.33 mmb vs recent 06/25 trough of 74.78 mmb. Thx @Vortexa @TheTerminal #OOTT



Source: Bloomberg, Vortexa

3 4

Dan Tsubouchi @Energy_Tidbits · Aug 21

#NordStream2. Putin: only 15 km underwater pipe to go. Also for sure will deliver #NatGas to Europe via Ukraine after contract ends in 2024 but can't commit to specific volumes until they have contracts from Europe customers as to how much they will buy. en.kremlin.ru/events/preside...

Excerpt from Kremlin transcript http://en.kremlin.ru/events/president/transcripts/66418

Vladimir Putin and Federal Chancellor of Germany Angela Merkel gave a joint news conference following Russian-German talks.

August 20, 202118:00The Kremlin, Moscow

Federal Chancellor of Germany Angela Merkel (retranslated): Thank you.
We also talked about bilateral economic relations, which are moving forward. In this regard, of course, we talked about Nord Stream 2. I would like to emphasise that this is not a bilateral German-Russian project, but a project of European dimension, because companies from other countries are also part of it.
In this context, we talked about the document concluded between the United States and the Federal Republic of Germany, and Mr President and I emphasised that Georg Graf Waldersee would act as a highly experienced negotiator with regard to gas transit through Ukraine beyond 2024. This is his assignment. We bear certain responsibility in this regard despite the economic developments that need to be taken into account.
In this context, we also discussed relations between Russia and the EU. It became clear that Russia is interested in entering an exchange with the EU on the "Fit for 55" climate package with account taken of cross-border carbon regulation and other problems. And I also noted that I am in favour of this approach.

And a question for you, Mr President. Once the Nord Stream 2 is completed, can you guarantee that gas transit across Ukraine will remain in place, and if so, will this arrangement remain in force after Ms Merkel leaves the post of chancellor?
Vladimir Putin:
Now, with regard to gas transit. Indeed, the Federal Chancellor has always advocated this approach. Always, mind you, even during construction, which is about to be completed. There are 44 or 45 kilometres left to go. (Addressing Alexei Miller.) How many, Mr Miller? 15? There are 15 more kilometres across the sea to go. We can safely assume that this project is nearing completion. But the Federal Chancellor has always raised the issue of continuing transit across Ukrainian territory even after the expiry of the transit contract.
The first thing I want to say in this regard. First, today this issue was raised again by the Federal Chancellor during the talks. I assured the Federal Chancellor that we will fully comply with our obligations under the transit contract even after she leaves the office of Federal Chancellor. Russia will fulfil all its obligations. We are doing so now and we will continue to do so going forward.
Next, Nord Stream 2. Some people claim the project is politically motivated. This is a fallacy or an attempt to mislead people. It is 2,000 kilometres shorter than the Ukrainian transit route. And it is a modern environmentally friendly system, and I mean it. It uses innovative equipment which, I believe, cuts carbon emissions into the atmosphere during the transit of our hydrocarbons to Europe by five times. We just need to be aware of it and know it. And it is much cheaper than transit across Ukraine.
However, we stand ready, and I'll say it again, I have already said it publicly before and I want to make a point of it now, that we stand ready to transit gas across Ukraine beyond 2024. But we must understand the timeframe and volumes. And for this, we must know, and our European partners must tell us, how much they are willing to buy from us. This is obvious. We cannot sign a transit contract if we have not signed supply contracts with our consumers in Europe. With the green agenda, which is already underway in Europe, we are wondering whether anyone will be buying gas from us altogether and, if so, how much. This needs to be discussed.
In any case, this is a purely business matter. I mean there is yet another component that is the technical condition of the pipeline system. To reiterate, we are not only willing to discuss it, we are really willing to get there. This is especially true of our supplies to Southern Europe. Consumption is on the rise, and I hope it will keep rising in the years ahead. Today...

1 4

Dan Tsubouchi @Energy_Tidbits · Aug 20

#GM #BoltEV recall also said "Park their vehicles outside immediately after charging and should not leave their vehicles charging indoors overnight." #EV #OOTT

> **Dan Tsubouchi** @Energy_Tidbits · Aug 20
>
> Not a good day for #GM #BoltEV, GM expands recall to cover remaining 2019 and all 2020-2022 Bolt #Evs re risk of fire from batteries, so will replace defective battery modules. #OOTT
> media.gm.ca/media/ca/en/gm...

2 7

Dan Tsubouchi @Energy_Tidbits · Aug 20

Not a good day for #GM #BoltEV, GM expands recall to cover remaining 2019 and all 2020-2022 Bolt #Evs re risk of fire from batteries, so will replace defective battery modules. #OOTT
media.gm.ca/media/ca/en/gm...

2 2

Dan Tsubouchi @Energy_Tidbits · Aug 20

is this the 1st sovereign wealth or major pension investor to say owning #Oil stocks can help transition to low emissions if investors use the #Oil dividends to invest in green shift opportunities? see excerpt Expert Group advising Norway on its wealth fund. #OOTT

https://www.regjeringen.no/contentassets/54cfd391677a405a8666071f8d865e32/pressemelding.pdf

"Press release from the Expert Group that has assessed climate risk and the GPFG:

The Petroleum Fund's work on climate risk should be strengthened

Date: 8/20/2021

Through targeted and effective exercise of ownership, Norges Bank can contribute to understanding and influencing the robustness of the business models of the companies the fund has invested in, as well as emphasize the importance of capital discipline so that companies have underlying investment projects that benefit from climate-related opportunities and are profitable in the transition to a low-emission society.

Capital discipline means, among other things, that fossil fuel companies with weaker profitability prospects return surplus capital to the owners in the form of dividends, which gives investors the opportunity to invest capital in new ones investment opportunities related to the green shift.

Exercising ownership can help to strengthen the financial market's general ability to price climate risk and channel capital to profitable projects in the transition to a low-emission society.

> **Dan Tsubouchi** @Energy_Tidbits · Aug 18
>
> 
>
> Energy equities +19.5% highlighted in world's largest sovereign wealth fund, Norway, strong H1/21 returns at +9.4%: Equities +13.7% vs Fixed Income -2.0% vs Unlisted real estate +4.6% vs Unlisted #RenewableEnergy Infrastructure -1.9%. #OOTT…

1 2 3

Dan Tsubouchi @Energy_Tidbits · Aug 20

#JCPOA. Is US thinking about lowering the bar? Great @alexbward @QuintForgey exclusive w/ US envoy @Rob_Malley US preparing contingencies incl "One is that Washington and Tehran sign a wholly separate deal, complete with different parameters than the current accord" #OOTT

Welcome to National Security Daily, POLITICO's newsletter on the global events roiling Washington and keeping the administration up at night. I'm Alex Ward, your guide to what's happening inside the Pentagon, the NSC and D.C.'s foreign policy machine. National Security Daily arrives in your inbox Monday through Friday by 4 p.m.; subscribe here.

Aim your tips and comments at award@politico.com and qforgey@politico.com. Follow us on Twitter at @alexbward and @QuintForgey.

ROBERT MALLEY, the man President JOE BIDEN has tasked with putting the United States back into the Iran nuclear deal, isn't supremely confident he'll succeed in his mission.

"It's just one big question mark," he told NatSec Daily during an exclusive interview in his State Department office. Rejoining the multinational accord "is not something that we can fully control," he said, citing a lack of engagement from the Iranians.

Negotiations between the United States, Iran and five world powers have proceeded fruitlessly since April. Tehran's side won't even speak directly with Washington's and instead prefers working through intermediaries while in Vienna. That dance was complicated by the arrival of new Iranian President EBRAHIM RAISI, a hardliner who experts suspect is more skeptical of the diplomatic effort than his pact-signing predecessor. No open bargaining has taken place since Raisi came to power in mid-July.

Moments after pointing to a portrait of former Secretary of State MIKE POMPEO unceremoniously stashed at the bottom of his closet (a joke apparently played by staff), Malley repeatedly refused to assign a percentage chance to America's reentry into the deal. "I wouldn't be helping you much if I gave you a percentage," he insisted, saying the unknown variables are about what the Iranians will and won't do. But, he added, "we are prepared to resume the talks, which we wouldn't do if we didn't think [a deal] was possible."

Should the United States and Iran fail to agree on terms in the coming months, the envoy says his team is preparing some contingencies. One is that Washington and Tehran sign a wholly separate deal, complete with different parameters than

4

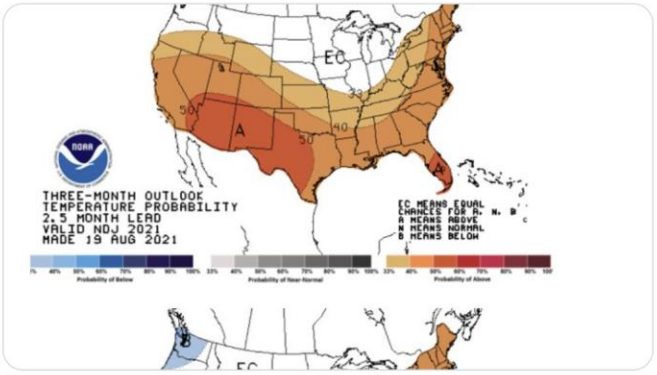
Dan Tsubouchi @Energy_Tidbits · Aug 19

was watching the 2021 #Canmore elk calves grazing m the hill beside our place and then heard this racket and went to the other side of the deck to see these two feasting on our neighbours buffet. as soon as i coughed they looked up and left

9

Dan Tsubouchi @Energy_Tidbits · Aug 19

Updated @NOAA 3-mth outlook temperature probability forecast. Still early with >2 mths to go, but calling for a warm start to winter. Reminder gas storage is -547 bcf YoY & new LNG startups Sabine Pass #6 0.7 bcf/d, Calcasieu Pass 1.3 bcf/c. #NatGas #LNG
cpc.ncep.noaa.gov/products/predi...



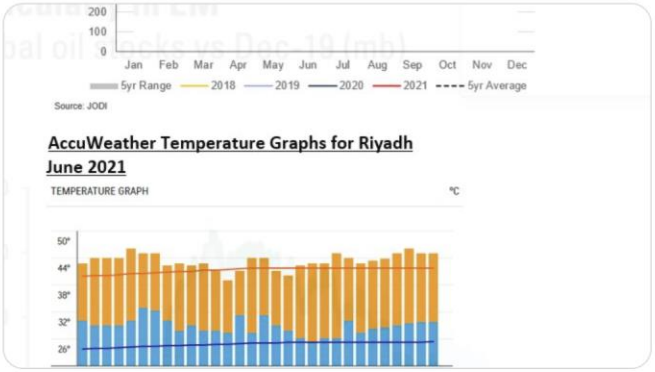
> **Dan Tsubouchi** @Energy_Tidbits · Jul 19
>
> 
> 1/2. Overlooked potential big upside to #HenryHub #AECO 2022 gas prices - #NatGas feedgas deliveries to #Cheniere #SabinePassLNG Train 6 (0.7 bcf/d) & #CalcasieuLNG (1.3 bcf/d) expected to start around yr end 2021 or early 2022. #LNG
>
> Show this thread

2

2

Dan Tsubouchi @Energy_Tidbits · Aug 19

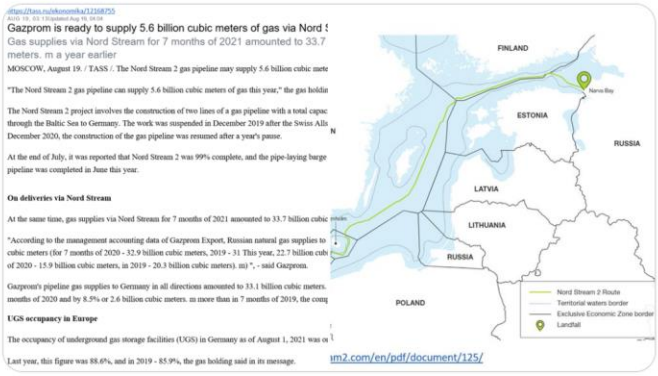
Saudi use of oil for electricity typically peaks in Aug. @JODI_Data for June, Saudi used 585,000 b/d, +134,000 b/d MoM, +116,000 b/d YoY, +11,000 b/d vs 5-yr ave. Should see normal seasonal increase as July & Aug both been above normal temps. #OOTT



1 1

Dan Tsubouchi @Energy_Tidbits · Aug 19

#NordStream2. Looks ready to start deliveries for start of winter #NatGas year on Nov 1, 2021. #Gazprom says can supply 5.6 bcm (198 bcf) in 2021. Nord Stream 2 capacity is 5.3 bcf/d. Assuming some ramp up levels, implies ready for Nov 1 start. This is key relief for 2022 #LNG



1 2 4

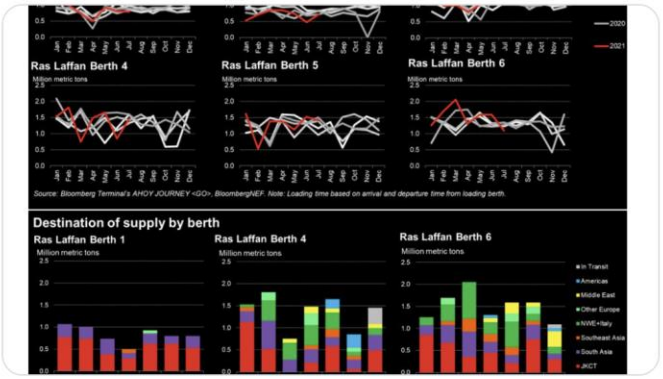
Dan Tsubouchi @Energy_Tidbits · Aug 18

yesterday's rain has made this the clearest sky on #Canmore in some time. hope that means there was rain to help bring down BC wildfires.

1 4

Dan Tsubouchi @Energy_Tidbits · Aug 18

Smart @qatarpetroleum #LNG supply mgmt. Record LNG spot prices = some Asian #LNG buyers holding off spot. Yes, seasonally low Jun/Jul output, but great @BloombergNEF Fauziah Marzuki & Michael Yip Qatar loadings/maintenance graphs suggest some moving forward of Oct/Nov mainenance.



3

Dan Tsubouchi @Energy_Tidbits · Aug 18

For those not near their laptop, @EIAgov weekly #Oil #Gasoline #Distillates inventory data just out. Prior to release WTI was $66.51. #OOTT

ir.eia.gov/wpsr/overview....

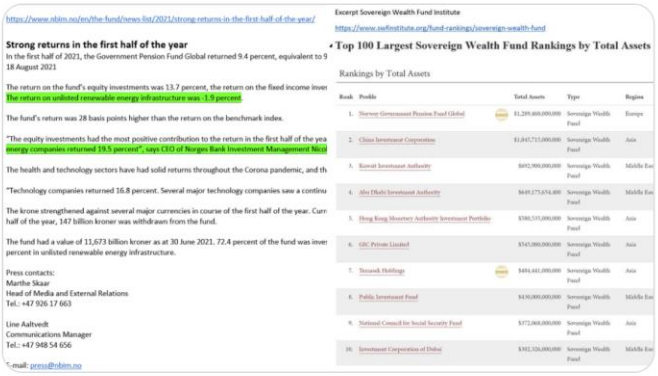
Oil/Products Inventory Aug 13: EIA, Bloomberg Survey Expectations, API			
(million barrels)	EIA	Expectations	API
Oil	-3.23	-1.45	-1.16
Gasoline	0.70	-2.00	-1.98
Distillates	-2.70	0.20	0.50
	-5.23	-3.25	-2.64
Note: In addition, there was no change in the SPR for Aug 13 week			
Note: Included in the data, Cushing had a draw of 0.98 mmb for Aug 13 week			
Source EIA, Bloomberg			
Prepared by SAF Group			

6

Dan Tsubouchi @Energy_Tidbits · Aug 18

Energy equities +19.5% highlighted in world's largest sovereign wealth fund, Norway, strong H1/21 returns at +9.4%: Equities +13.7% vs Fixed Income -2.0% vs Unlisted real estate +4.6% vs Unlisted #RenewableEnergy Infrastructure -1.9%. #OOTT

nbim.no/en/the-fund/ne...



https://www.nbim.no/en/the-fund/news-list/2021/strong-returns-in-the-first-half-of-the-year/

Strong returns in the first half of the year

In the first half of 2021, the Government Pension Fund Global returned 9.4 percent, equivalent to 9
18 August 2021

The return on the fund's equity investments was 13.7 percent, the return on the fixed income inves
The return on unlisted renewable energy infrastructure was -1.9 percent.

The fund's return was 28 basis points higher than the return on the benchmark index.

"The equity investments had the most positive contribution to the return in the first half of the yea
energy companies returned 19.5 percent", says CEO of Norges Bank Investment Management Nico

The health and technology sectors have had solid returns throughout the Corona pandemic, and th

"Technology companies returned 16.8 percent. Several major technology companies saw a continu

The krone strengthened against several major currencies in course of the first half of the year. Curr
half of the year, 147 billion kroner was withdrawn from the fund.

The fund had a value of 11,673 billion kroner as at 30 June 2021. 72.4 percent of the fund was inver
percent in unlisted renewable energy infrastructure.

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Line Aaltvedt
Communications Manager
Tel.: +47 948 54 656

E-mail: press@nbim.no

Excerpt Sovereign Wealth Fund Institute
https://www.swfinstitute.org/fund-rankings/sovereign-wealth-fund

Top 100 Largest Sovereign Wealth Fund Rankings by Total Assets

Rankings by Total Assets

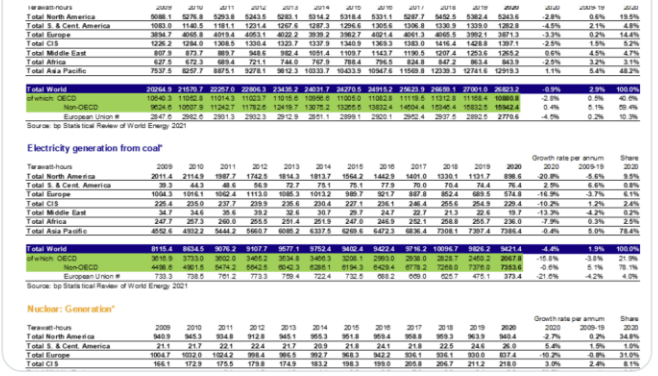
Rank	Profile	Total Assets	Type	Region
1.	Norway Government Pension Fund Global	$1,289,460,000,000	Sovereign Wealth Fund	Europe
2.	China Investment Corporation	$1,045,715,000,000	Sovereign Wealth Fund	Asia
3.	Kuwait Investment Authority	$692,900,000,000	Sovereign Wealth Fund	Middle Eas
4.	Abu Dhabi Investment Authority	$649,177,654,400	Sovereign Wealth Fund	Middle Eas
5.	Hong Kong Monetary Authority Investment Portfolio	$580,535,000,000	Sovereign Wealth Fund	Asia
6.	GIC Private Limited	$545,000,000,000	Sovereign Wealth Fund	Asia
7.	Temasek Holdings	$494,441,000,000	Sovereign Wealth Fund	Asia
8.	Public Investment Fund	$430,000,000,000	Sovereign Wealth Fund	Middle Eas
9.	National Council for Social Security Fund	$372,068,000,000	Sovereign Wealth Fund	Asia
10.	Investment Corporation of Dubai	$302,326,000,000	Sovereign Wealth Fund	Middle Eas

1 4 2

Dan Tsubouchi @Energy_Tidbits · Aug 17

Record EU #Solar generation. But doesn't provide relief to high #Electricity prices. No surprise EU is replacing 24/7 #Coal #Nuclear baseload with variable Solar #Wind power so prices spike when supply/demand gets tight. Reminds why #NatGas is needed.
reuters.com/business/energ...

> **Dan Tsubouchi** @Energy_Tidbits · Aug 6
>
> Positive to #NatGas #LNG in 2020s. OECD's steady replacement of 24/7 #Coal #Nuclear baseload with variable #Renewable means OECD #Electricity prices spike/shortage risk when supply/demand gets tight. China/India just increase coal. #Electricity will cost more in #EnergyTransition



Terawatt-hours	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020	2009-19	2020
Total North America	5088.1	5276.8	5293.8	5243.5	5283.1	5314.2	5316.4	5331.1	5287.7	5452.5	5382.4	5243.6	-2.6%	0.6%	19.5%
Total S. & Cent. America	1083.0	1140.5	1181.1	1231.4	1267.6	1287.3	1296.6	1305.6	1306.8	1330.9	1339.0	1282.8	-4.5%	2.1%	4.8%
Total Europe	3894.7	4066.8	4019.4	4053.1	4022.2	3939.2	3982.7	4021.4	4061.3	4065.5	3992.1	3871.3	-3.3%	0.2%	14.4%
Total CIS	1226.2	1284.0	1308.5	1330.4	1323.7	1337.9	1340.9	1363.3	1383.0	1416.4	1428.8	1367.1	-2.5%	1.5%	5.2%
Total Middle East	807.9	873.7	889.7	948.6	982.4	1051.4	1109.7	1143.7	1190.5	1207.4	1253.6	1265.2	0.6%	4.5%	4.7%
Total Africa	627.5	672.3	689.4	721.1	744.0	767.9	788.4	796.5	824.8	847.2	863.4	843.9	-2.5%	3.2%	3.1%
Total Asia Pacific	7537.5	8257.7	8975.1	9278.1	9812.3	10333.7	10433.9	10947.6	11569.8	12339.3	12741.6	12919.3	1.1%	5.4%	48.2%
Total World	**20264.9**	**21630.7**	**22257.0**	**22806.3**	**23435.2**	**24031.7**	**24270.5**	**24911.2**	**25623.9**	**26659.1**	**27001.0**	**26832.2**	**-0.9%**	**2.9%**	**100.0%**
of which: OECD	10640.3	11062.8	11014.3	11023.7	11015.8	10896.6	11005.0	11082.8	11119.8	11312.8	11169.4	10883.8	-2.8%	0.5%	40.9%
Non-OECD	9624.6	10567.9	11242.7	11782.6	12419.7	13135.2	13265.5	13832.4	14504.4	15346.4	15832.5	15942.4	0.4%	5.1%	59.4%
European Union #	2847.6	2982.6	2951.3	2902.3	2912.9	2851.1	2899.1	2920.1	2952.4	2937.5	2892.5	2770.6	-4.5%	0.2%	10.3%

Source: bp Statistical Review of World Energy 2021

Electricity generation from coal*

Terawatt-hours	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Growth rate per annum 2020	Growth rate per annum 2009-19	Share 2020
Total North America	2011.4	2114.9	1987.7	1742.5	1814.3	1813.7	1564.2	1442.9	1401.0	1330.1	1131.7	896.5	-20.8%	-5.6%	9.5%
Total S. & Cent. America	39.3	44.3	48.6	56.9	72.7	75.1	75.1	77.9	70.0	70.4	76.4	76.4	2.5%	6.6%	0.8%
Total Europe	1094.3	1016.1	1062.4	1113.0	1085.3	1013.2	989.7	921.7	887.8	852.4	689.5	574.8	-16.9%	-3.7%	6.1%
Total CIS	225.4	235.0	237.7	239.9	235.6	230.4	227.1	226.1	246.4	255.6	254.9	229.4	-10.2%	1.2%	2.4%
Total Middle East	34.7	34.6	35.6	39.2	32.6	30.7	29.7	24.7	22.7	21.3	22.6	19.7	-13.3%	-4.2%	0.2%
Total Africa	247.7	257.3	260.0	255.5	251.4	251.9	247.0	246.9	252.1	258.8	255.7	236.0	-7.9%	0.3%	2.5%
Total Asia Pacific	4552.6	4932.2	5444.2	5660.7	6086.2	6337.5	6269.6	6472.3	6836.4	7308.1	7397.4	7386.4	-0.4%	5.0%	78.4%
Total World	**8115.4**	**8634.5**	**9076.2**	**9107.7**	**9577.1**	**9752.4**	**9402.4**	**9422.4**	**9716.2**	**10096.7**	**9826.2**	**9421.4**	**-4.4%**	**1.9%**	**100.0%**
of which: OECD	3618.9	3733.0	3602.0	3465.2	3534.8	3466.3	3206.1	2993.0	2938.0	2828.7	2450.2	2047.8	-16.5%	-3.8%	21.9%
Non-OECD	4496.6	4901.5	5474.2	5642.5	6042.3	6286.1	6196.3	6429.4	6778.2	7268.0	7375.9	7373.6	-0.0%	5.1%	78.1%
European Union #	733.3	738.5	761.2	773.3	759.4	722.4	732.5	668.2	669.0	625.7	475.1	373.4	-21.5%	-4.2%	4.0%

Source: bp Statistical Review of World Energy 2021

Nuclear: Generation*

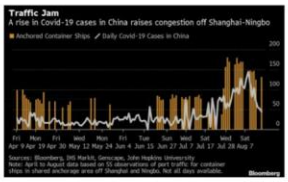
Terawatt-hours	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Growth rate per annum 2020	Growth rate per annum 2009-19	Share 2020
Total North America	940.9	945.3	934.8	912.8	945.1	955.3	951.8	959.4	958.8	959.3	963.9	940.4	-2.7%	0.2%	34.8%
Total S. & Cent. America	21.1	21.7	22.1	22.4	21.7	20.9	21.8	24.1	21.8	22.5	24.6	26.0	5.4%	1.9%	1.0%
Total Europe	1004.7	1032.0	1024.2	998.4	986.5	992.7	968.3	942.2	936.1	936.1	930.0	837.4	-10.2%	-0.8%	31.0%
Total CIS	166.1	172.9	175.5	179.8	174.9	183.2	198.3	199.0	205.8	206.7	211.2	218.0	3.0%	2.4%	8.1%

1 6

Dan Tsubouchi @Energy_Tidbits · Aug 17

Excellent China port congestion table/map/graph in @MessageAnnKoh report shows backlog continues to ramp up as port restrictions continue. Hard not to wonder what the on-the-ground story is when see # of anchored container ships > # of daily Covid cases. #OOTT

Container vessel positions, as of aug 17, heatmapped in yellow, with anchored vessels in blue.



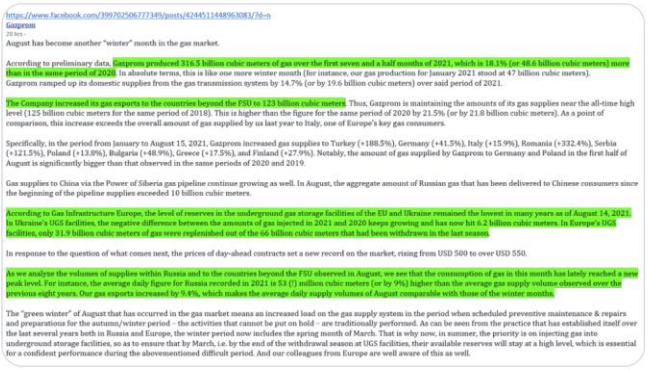
To contact the reporters on this story: Kevin Varley in Singapore at kvarley@bloomberg.net; Ann Koh in Singapore at akoh15@bloomberg.net
To view this story in Bloomberg click here: https://blinks.bloomberg.com/news/stories/QXWV42DWRGG0

> **Ann Koh** @MessageAnnKoh · Aug 17
>
> The partial closure of the world's third-busiest container port is worsening congestion at other major Chinese ports, as ships divert away from Ningbo amid uncertainty over how long virus control measures in the city will last.
> bloomberg.com/news/articles/...

1 2

Dan Tsubouchi @Energy_Tidbits · Aug 17

Positive for #LNG & Europe #NatGas price, #Gazprom won't be normal help rebuilding low EU storage. Its production & exports up, but can't do more as domestic consumption at new peak levels and domestic gas storage is low & needs to be rebuilt for winter.
facebook.com/39970250677734...



https://www.facebook.com/399702506777349/posts/4244511448963083/?d=n

Gazprom
20 hrs ·

August has become another "winter" month in the gas market.

According to preliminary data, Gazprom produced 316.5 billion cubic meters of gas over the first seven and a half months of 2021, which is 18.1% (or 48.6 billion cubic meters) more than in the same period of 2020. In absolute terms, this is like one more winter month (for instance, our gas production for January 2021 stood at 47 billion cubic meters). Gazprom ramped up its domestic supplies from the gas transmission system by 14.7% (or by 19.6 billion cubic meters) over said period of 2021.

The Company increased its gas exports to the countries beyond the FSU to 123 billion cubic meters. Thus, Gazprom is maintaining the amounts of its gas supplies near the all-time high level (125 billion cubic meters for the same period of 2018). This is higher than the figure for the same period of 2020 by 21.5% (or by 21.8 billion cubic meters). As a point of comparison, this increase exceeds the overall amount of gas supplied by us last year to Italy, one of Europe's key gas consumers.

Specifically, in the period from January to August 15, 2021, Gazprom increased gas supplies to Turkey (+188.5%), Germany (+41.5%), Italy (+15.9%), Romania (+332.4%), Serbia (+121.5%), Poland (+13.8%), Bulgaria (+48.9%), Greece (+17.5%), and Finland (+27.9%). Notably, the amount of gas supplied by Gazprom to Germany and Poland in the first half of August is significantly bigger than that observed in the same periods of 2020 and 2019.

Gas supplies to China via the Power of Siberia gas pipeline continue growing as well. In August, the aggregate amount of Russian gas that has been delivered to Chinese consumers since the beginning of the pipeline supplies exceeded 10 billion cubic meters.

According to Gas Infrastructure Europe, the level of reserves in the underground gas storage facilities of the EU and Ukraine remained the lowest in many years as of August 14, 2021. In Ukraine's UGS facilities, the negative difference between the amounts of gas injected in 2021 and 2020 keeps growing and has now hit 6.2 billion cubic meters. In Europe's UGS facilities, only 31.9 billion cubic meters of gas were replenished out of the 66 billion cubic meters that had been withdrawn in the last season.

In response to the question of what comes next, the prices of day-ahead contracts set a new record on the market, rising from USD 500 to over USD 550.

As we analyze the volumes of supplies within Russia and to the countries beyond the FSU observed in August, we see that the consumption of gas in this month has lately reached a new peak level. For instance, the average daily figure for Russia recorded in 2021 is 53 (!) million cubic meters (or by 9%) higher than the average gas supply volume observed over the previous eight years. Our gas exports increased by 9.4%, which makes the average daily supply volumes of August comparable with those of the winter months.

The "green winter" of August that has occurred in the gas market means an increased load on the gas supply system in the period when scheduled preventive maintenance & repairs and preparations for the autumn/winter period – the activities that cannot be put on hold – are traditionally performed. As can be seen from the practice that has established itself over the last several years both in Russia and Europe, the winter period now includes the spring month of March. That is why now, in summer, the priority is on injecting gas into underground storage facilities, so as to ensure that by March, i.e. by the end of the withdrawal season at UGS facilities, their available reserves will stay at a high level, which is essential for a confident performance during the abovementioned difficult period. And our colleagues from Europe are well aware of this as well.

1 11

Dan Tsubouchi @Energy_Tidbits · Aug 16

3/3. Winter weather is huge variable to storage. But even if Oct 31/22 storage is ~3 tcf and not @BloombergNEF fcast of 2.430 tcf, it is extremely bullish (especially to 2023) to 2022 & 2023 strips for #HenryHub $3.51 & 3.02, #AECO $3.26 & $2.74 #NatGas

1 6

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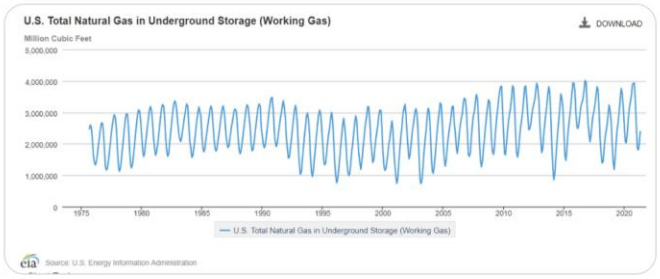
Dan Tsubouchi @Energy_Tidbits · Aug 16

2/3. Last time Oct 31 storage was <3 tcf was Oct 31/2000 at 2.732 tcf when #HenryHub was $4.50 & spiked >$10 in winter 2000/01. Oct 31 storage: 3.929 Oct 31/20, latest 5 yr ave 3.751 tcf, the latest 10 yr ave is 3.784 tcf. Last time <2.5 tcf was Oct 31/74. #NatGas



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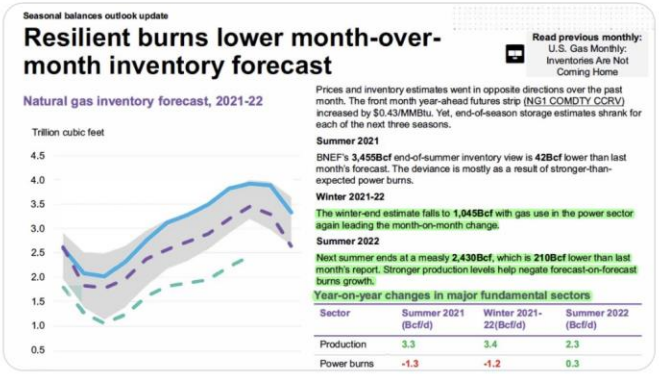
Dan Tsubouchi @Energy_Tidbits · Aug 16

1/3. Huge potential upside to 2022/23 #NatGas if YoY 2022 gas storage declines are even 50% of @BloombergNEF @naknair @jadepatterson1 fcast US gas storage down 1.031 tcf YoY to 2.430 tcf at Oct 31/22. A key is LNG exports +2.1 tcf YoY w/ Sabine Pass 6 & Calcasieu Pass start.



1 13 33

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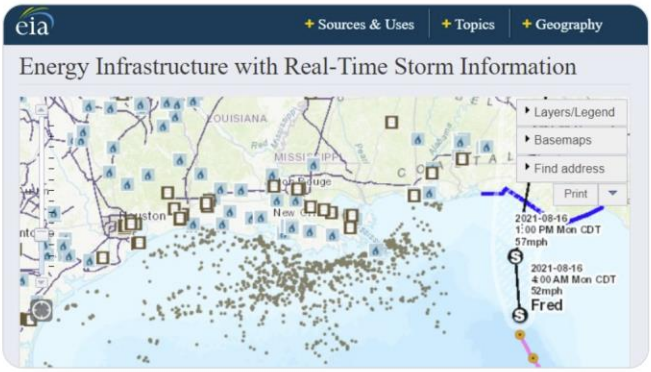
Dan Tsubouchi @Energy_Tidbits · Aug 16

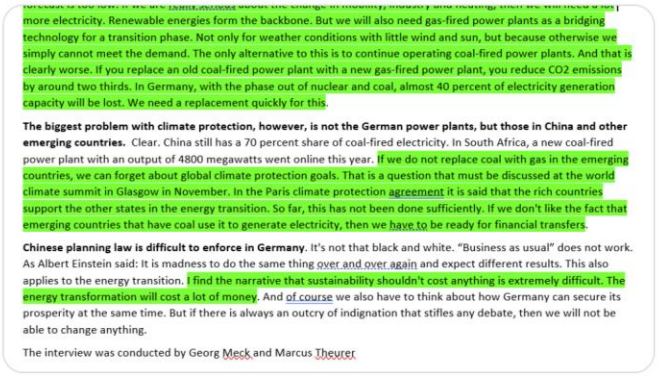
Morning @NHC_Atlantic update has Grace returning to #TropicalStormGrace strength and, for now, forecast in straight line due west to be south of US #Oil #NatGas #LNG fields & infrastructure in Gulf Coast. #OOTT



2

Dan Tsubouchi @Energy_Tidbits · Aug 15

"I find the narrative that sustainability shouldn't cost anything is extremely difficult. The energy transformation will cost a lot of money", need #NatGas & many other #EnergyTransition reality checks from @Siemens_Energy CEO Bruch. Great interview @MeckGeorg @MarcusTheurer



more electricity. Renewable energies form the backbone. But we will also need gas-fired power plants as a bridging technology for a transition phase. Not only for weather conditions with little wind and sun, but because otherwise we simply cannot meet the demand. The only alternative to this is to continue operating coal-fired power plants. And that is clearly worse. If you replace an old coal-fired power plant with a new gas-fired power plant, you reduce CO2 emissions by around two thirds. In Germany, with the phase out of nuclear and coal, almost 40 percent of electricity generation capacity will be lost. We need a replacement quickly for this.

The biggest problem with climate protection, however, is not the German power plants, but those in China and other emerging countries. Clear. China still has a 70 percent share of coal-fired electricity. In South Africa, a new coal-fired power plant with an output of 4800 megawatts went online this year. If we do not replace coal with gas in the emerging countries, we can forget about global climate protection goals. That is a question that must be discussed at the world climate summit in Glasgow in November. In the Paris climate protection agreement it is said that the rich countries support the other states in the energy transition. So far, this has not been done sufficiently. If we don't like the fact that emerging countries that have coal use it to generate electricity, then we have to be ready for financial transfers.

Chinese planning law is difficult to enforce in Germany. It's not that black and white. "Business as usual" does not work. As Albert Einstein said: It is madness to do the same thing over and over again and expect different results. This also applies to the energy transition. I find the narrative that sustainability shouldn't cost anything is extremely difficult. The energy transformation will cost a lot of money. And of course we also have to think about how Germany can secure its prosperity at the same time. But if there is always an outcry of indignation that stifles any debate, then we will not be able to change anything.

The interview was conducted by Georg Meck and Marcus Theurer

1 8 11

Dan Tsubouchi @Energy_Tidbits · Aug 15

Positive for #LNG in 2020s, #Modi IMD anniversary speech, India must move to be energy independent within 25 yrs "and our roadmap is very clear for the same. It should be a gas based economy. There should be a network of CNG & PNG across the country". #NatGas #EnergyTransition

Excerpt https://www.narendramodi.in/text-of-prime-minnister-narendra-modi-s-address-from-the-red-fort-on-75th-independence-day-556737

Sabka Saath, Sabka Vikas, Sabka Vishwas and now Sabka Prayas are vital for the achievement of our goals: PM Modi on 75th Independence Day

August 15, 2021

Environmental security is getting the same importance in the world as national security. Today India is a vibrant voice of environmental security, whether it is biodiversity or land neutrality, climate change or waste recycling, organic farming or biogas, energy conservation or clean energy transition. India's efforts in environment are giving results today. Increase in forest cover, number of national parks, increase in number of tigers and Asiatic lions are a matter of happiness for the countrymen.

Among all these successes one truth needs to be understood. India is not yet energy independent. India today spends more than 12 lakh crore rupees annually for importing energy. For India's progress and to build a self-reliant India, India's energy independence is the need of the hour! Therefore today, India has to make a resolution to make India energy independent before the completion of 100 years of independence and our roadmap is very clear for the same. It should be a gas based economy. There should be a network of CNG & PNG across the country. There should be a target of 20 percent ethanol blending. India is moving ahead with a set goal. India has also made a move towards Electric Mobility and the work on 100% electrification of Railways is also progressing at a fast pace. Indian Railways has set a target of

> **Dan Tsubouchi** @Energy_Tidbits · Jun 20
>
> 
>
> Positive for #LNG. #Petronet's fcast for India #NatGas consumption & #LNG imports in 2030 is the 1st specific India forecast to what it means if #NatGas is 15% of India's energy mix. Here is the write up from SAF Group June 20, 2021 Energy Tidbits memo poste...

4 8

Dan Tsubouchi @Energy_Tidbits · Aug 15

#TropicalStormFred turned east of GoM #Oil #NatGas fields & infrastructure. But #TropicalStormGrace is likely to impact especially if it veers north after entering GoM. #OOTT #LNG

eia.gov/special/gulf_o...

1

Dan Tsubouchi @Energy_Tidbits · Aug 15

Our weekly SAF Aug 15, 2021 Energy Tidbits memo was just posted to our SAF Group website. This 52-pg energy research piece expands upon and covers many more items than tweeted this week. See the research section of the SAF website #Oil #OOTT #LNG #NatGas safgroup.ca/news-insights/

SAF GROUP

Energy Tidbits

Aug 15, 2021

Produced by: Dan Tsubouchi

Expect Liberals Platform Values To Be Negative To Oil and Natural Gas

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

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