

# Energy Tidbits

Abdulaziz “If You Impact Negatively Your Economic Well Being,  
You Are Actually Impacting the Well Being of Your People”

Produced by: Dan Tsubouchi

October 24, 2021

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# Year-over-year summary

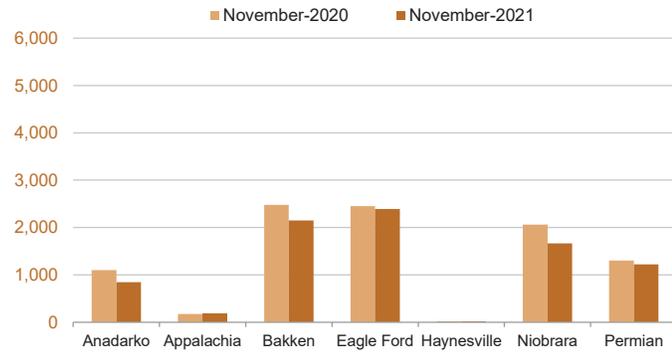
October 2021

## Drilling Productivity Report

drilling data through September  
projected production through November

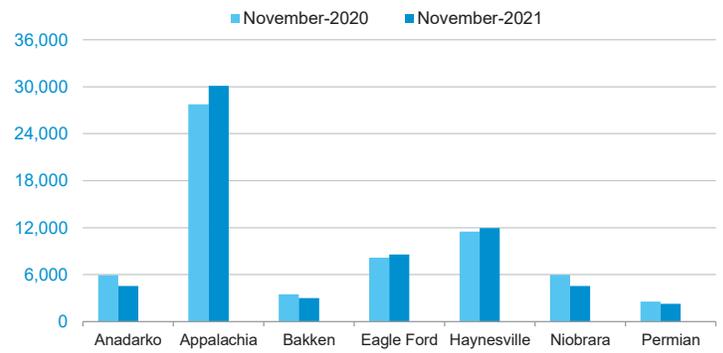
### New-well oil production per rig

barrels/day



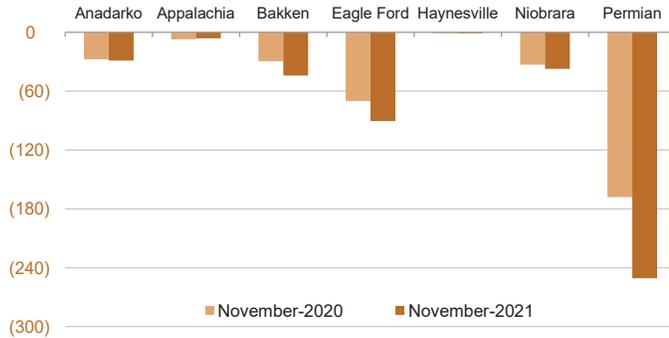
### New-well gas production per rig

thousand cubic feet/day



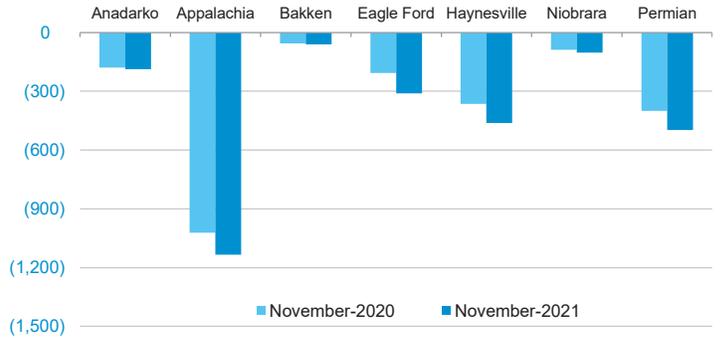
### Legacy oil production change

thousand barrels/day



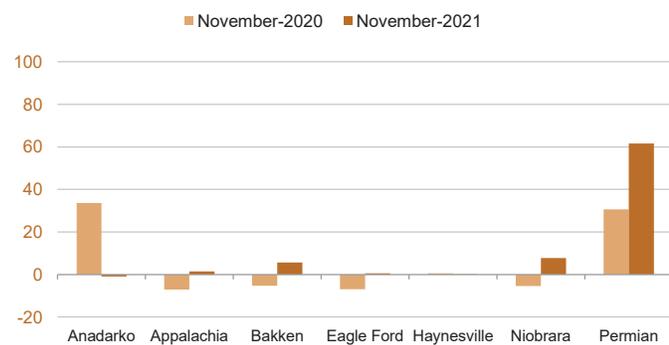
### Legacy gas production change

million cubic feet/day



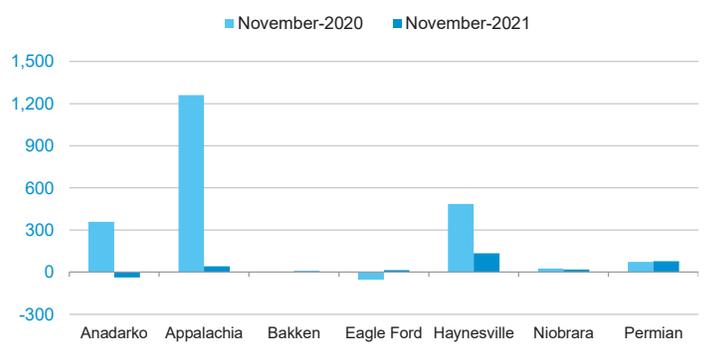
### Indicated monthly change in oil production (Nov vs. Oct)

thousand barrels/day



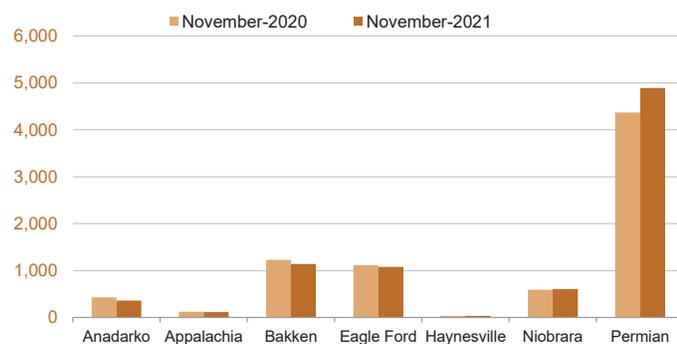
### Indicated monthly change in gas production (Nov vs. Oct)

million cubic feet/day



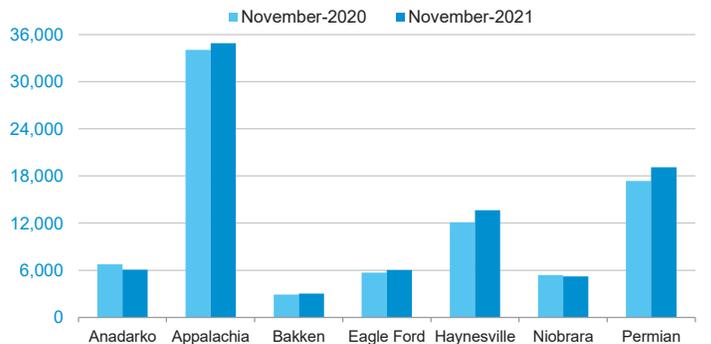
### Oil production

thousand barrels/day



### Natural gas production

million cubic feet/day



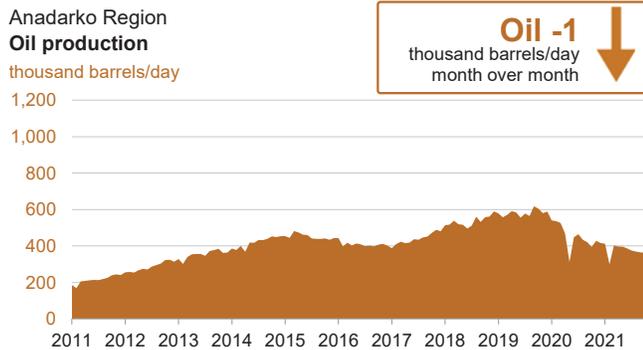
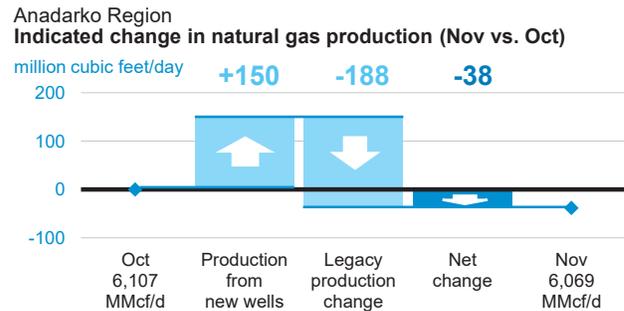
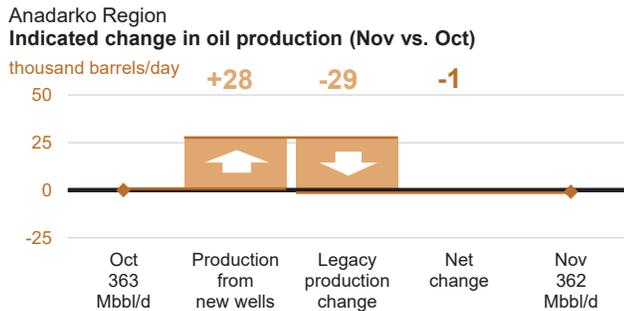
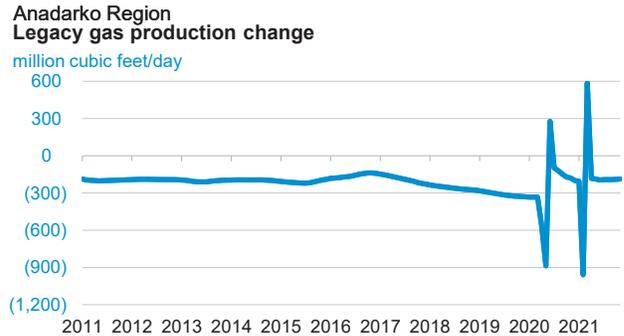
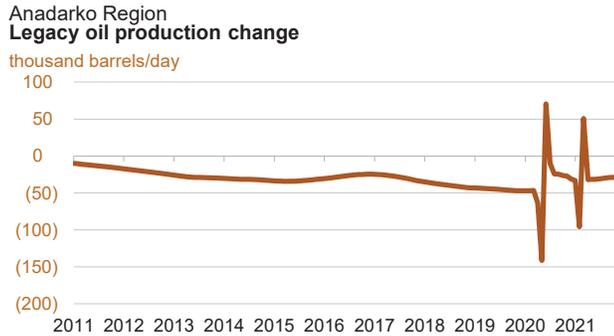
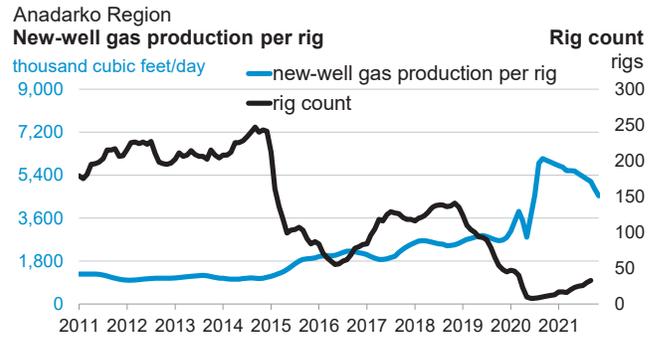
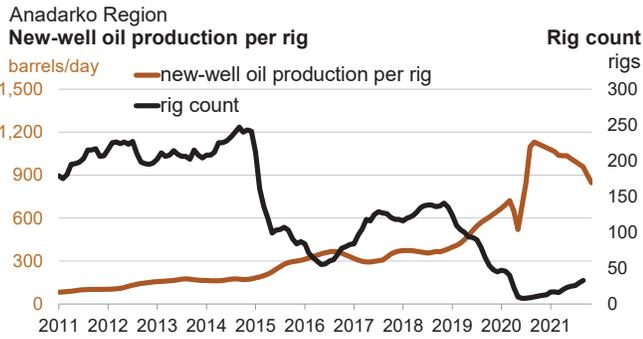
**Oil -54**  
barrels/day  
month over month

**845** November  
**899** October  
barrels/day

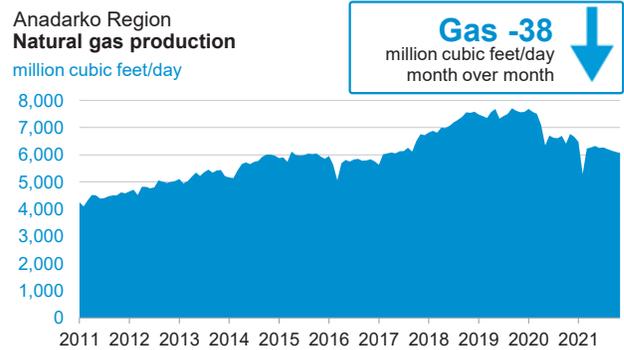
**Monthly additions from one average rig**

November **4,538**  
October **4,828**  
thousand cubic feet/day

**Gas -290**  
thousand cubic feet/day  
month over month



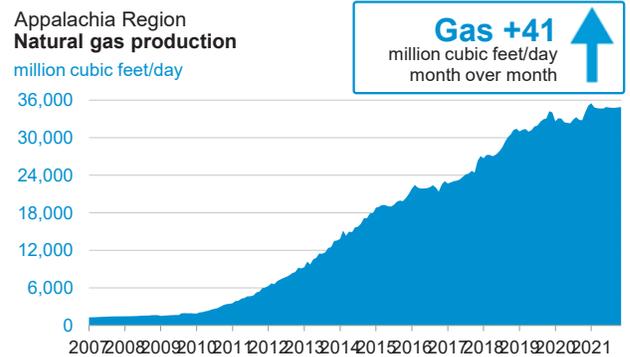
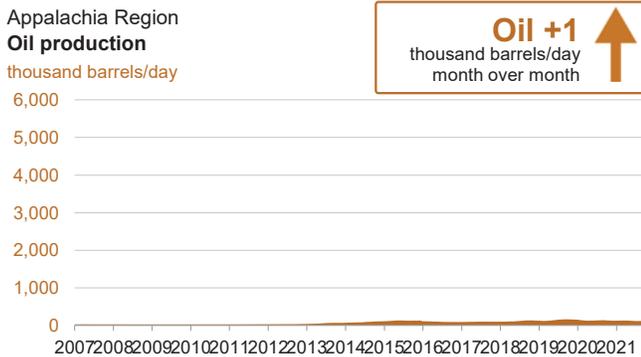
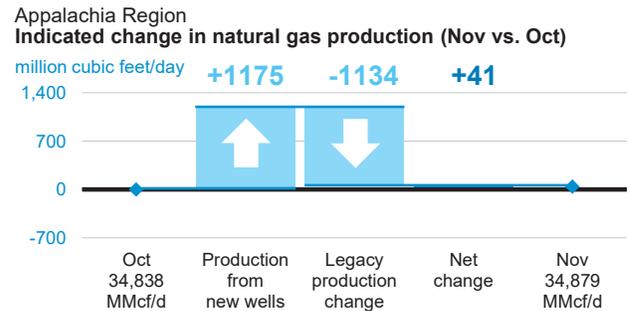
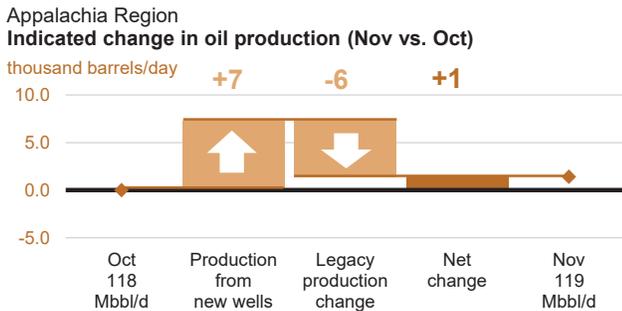
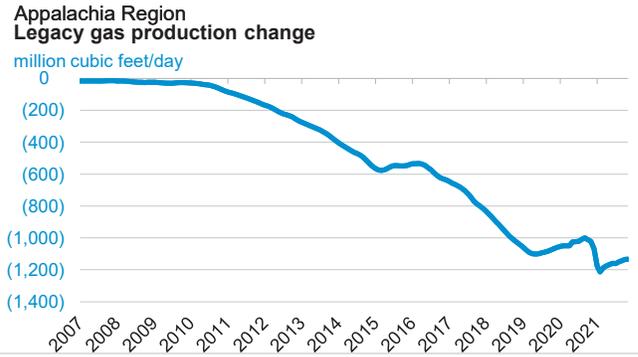
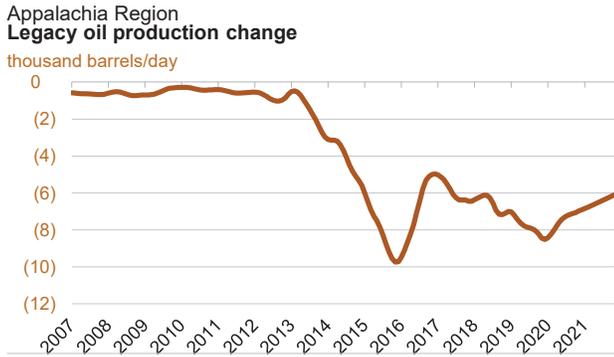
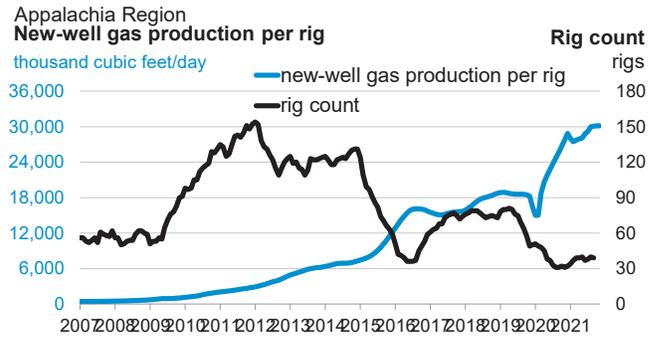
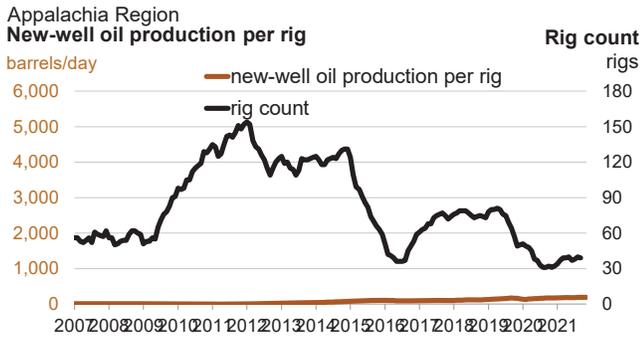
**Oil -1**  
thousand barrels/day  
month over month



**Gas -38**  
million cubic feet/day  
month over month



Monthly additions from one average rig



# eia Bakken Region

## Drilling Productivity Report

October 2021

drilling data through September  
projected production through November

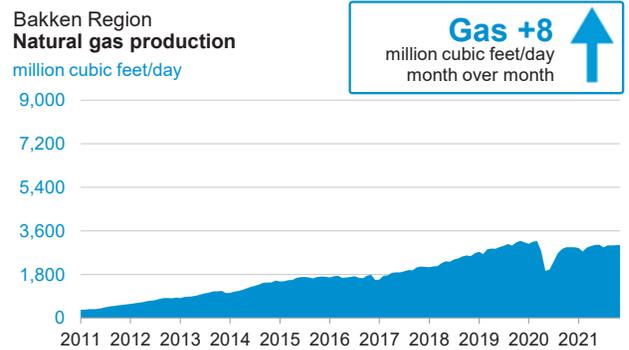
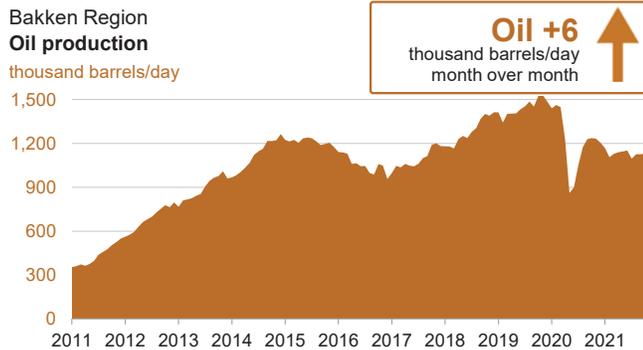
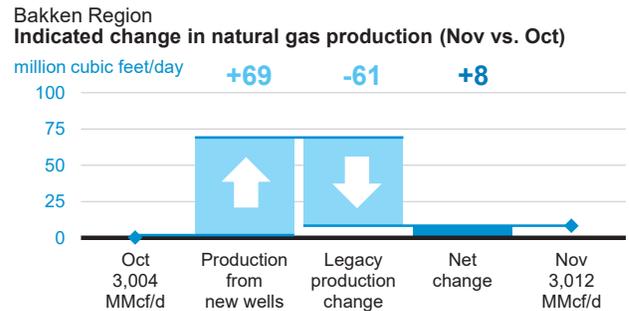
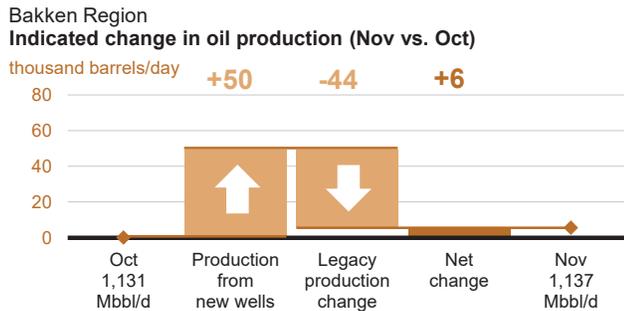
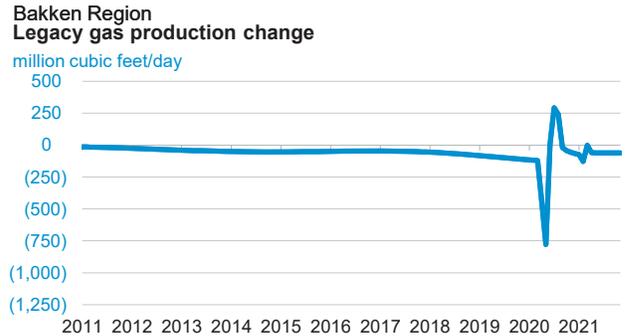
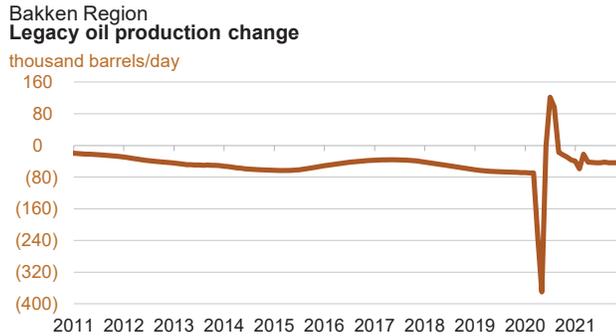
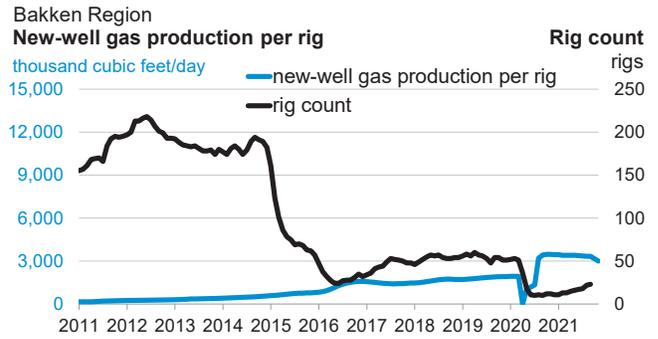
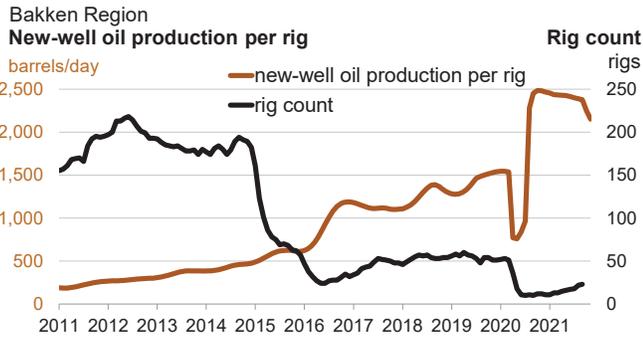
**Oil**  
**-98**  
barrels/day  
month over month

**2,152** November  
**2,250** October  
barrels/day

**Monthly additions from one average rig**

November **3,013**  
October **3,150**  
thousand cubic feet/day

**Gas**  
**-137**  
thousand cubic feet/day  
month over month



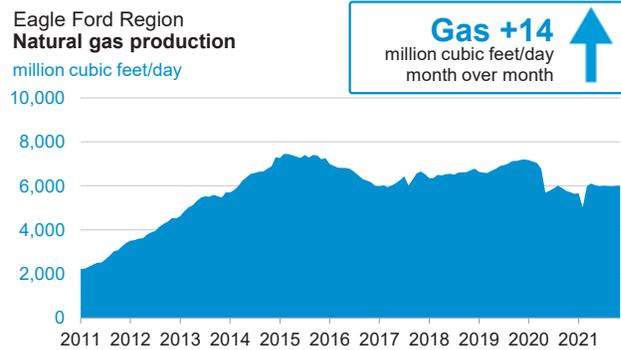
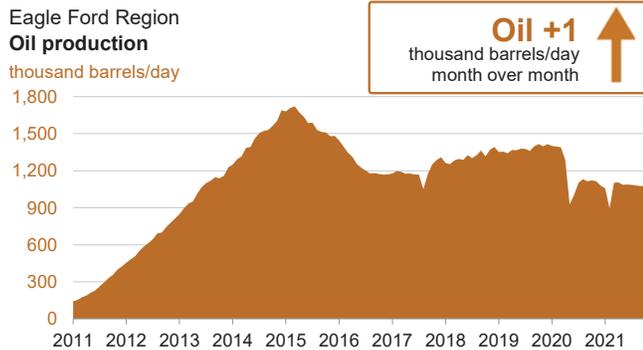
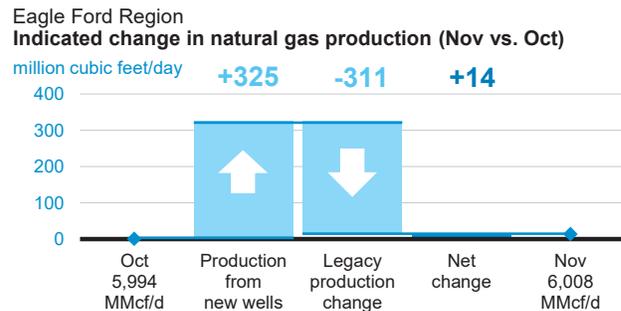
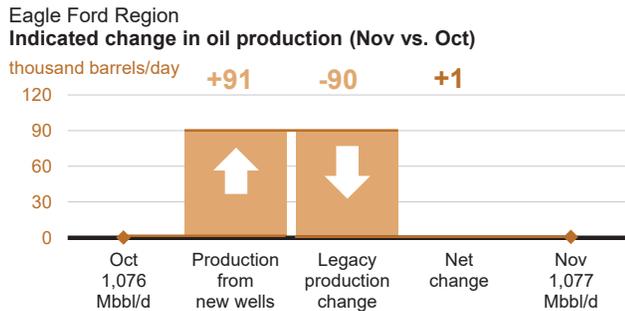
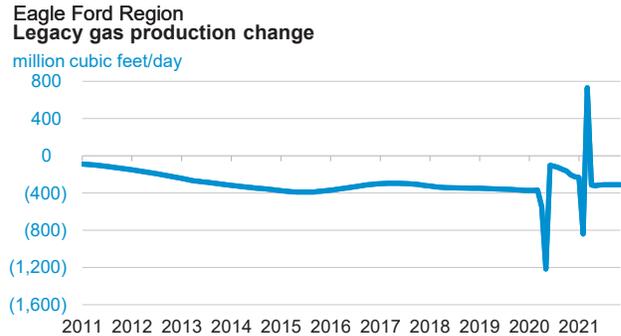
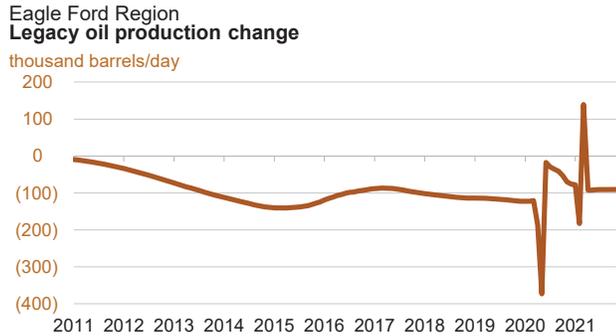
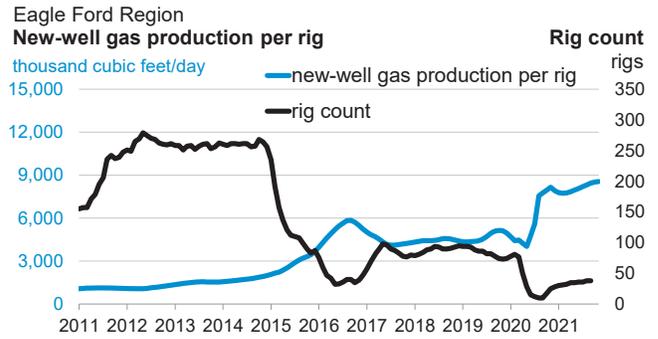
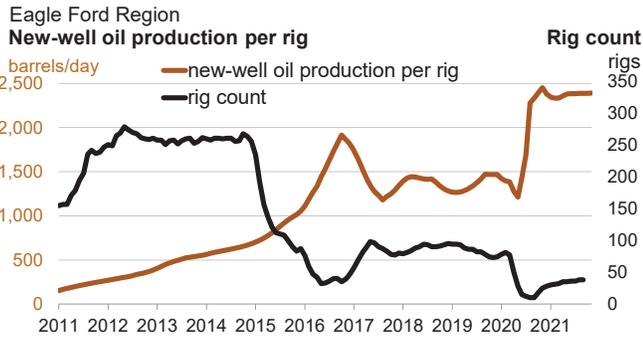
**Oil +2**  
barrels/day  
month over month

**2,390** November  
**2,388** October  
barrels/day

**Monthly additions from one average rig**

November **8,559**  
October **8,516**  
thousand cubic feet/day

**Gas +43**  
thousand cubic feet/day  
month over month



# Haynesville Region

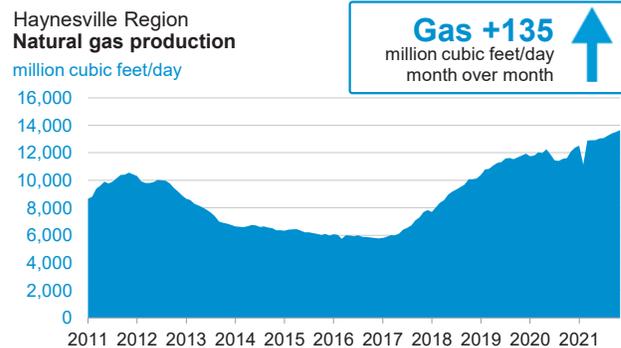
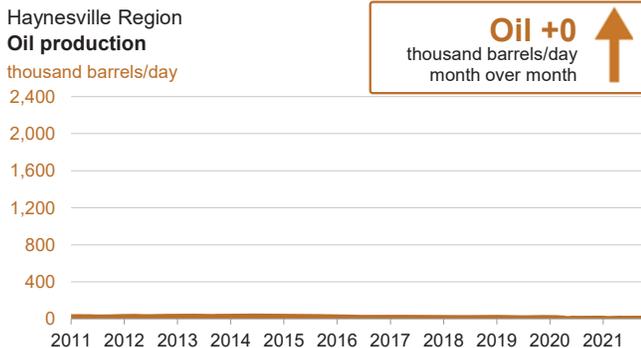
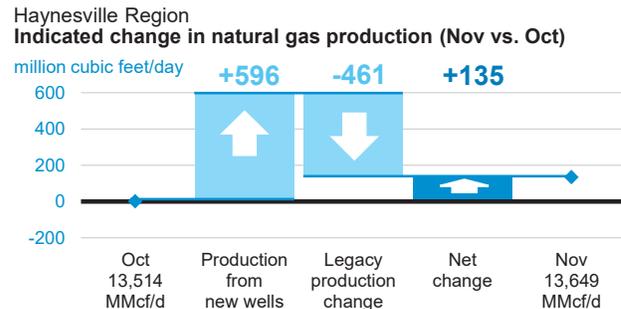
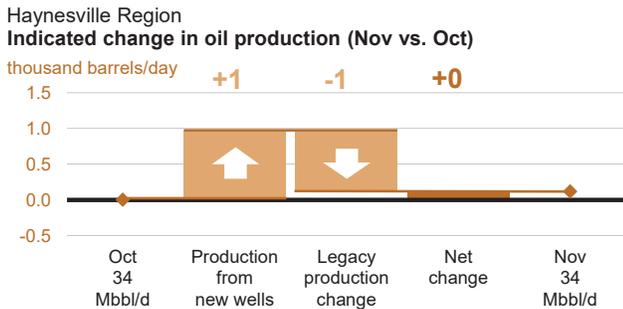
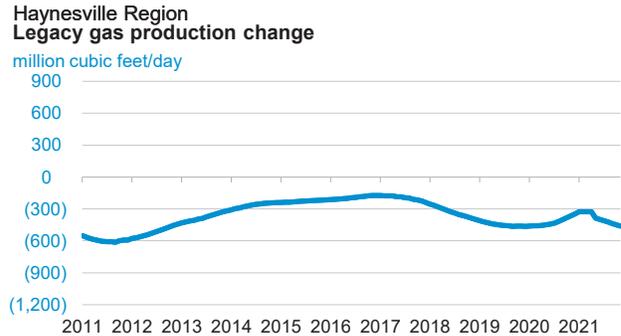
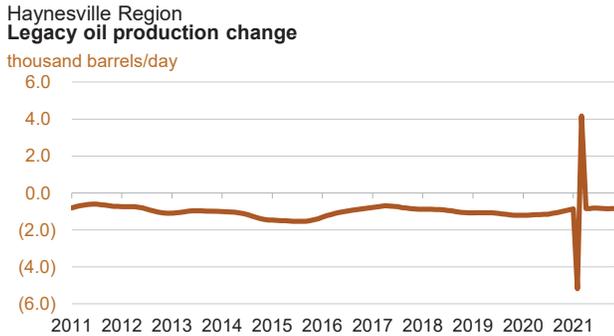
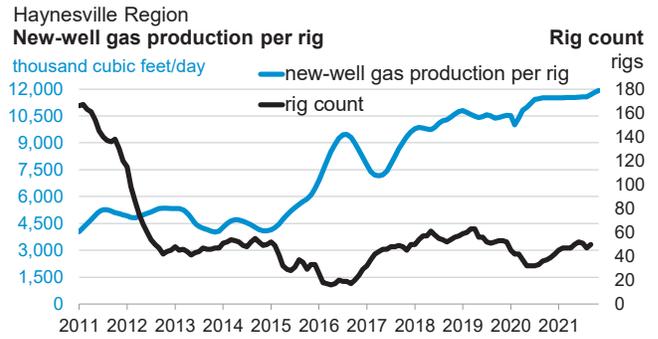
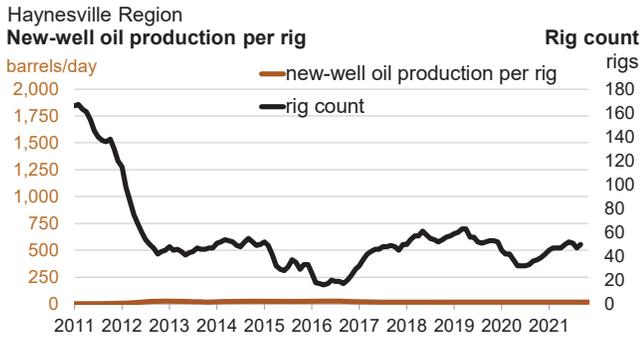
## Drilling Productivity Report

October 2021

drilling data through September  
projected production through November



Monthly additions from one average rig



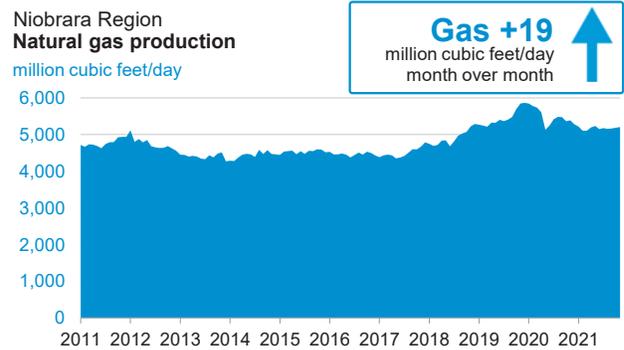
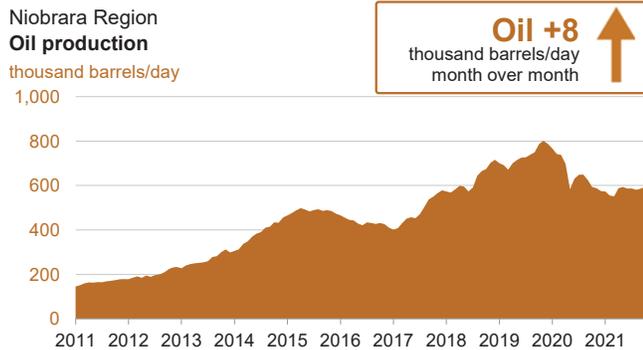
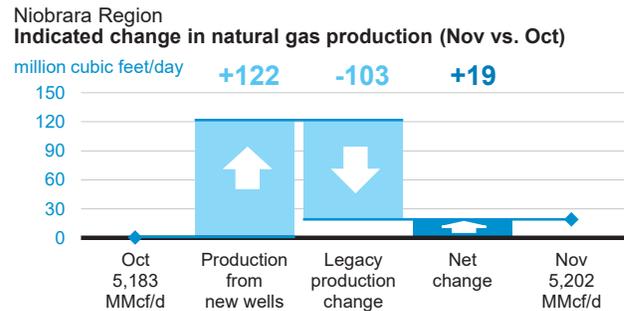
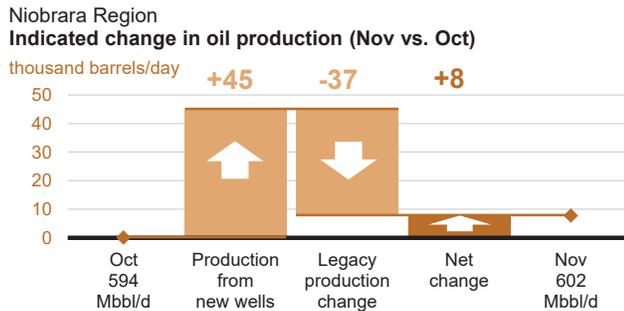
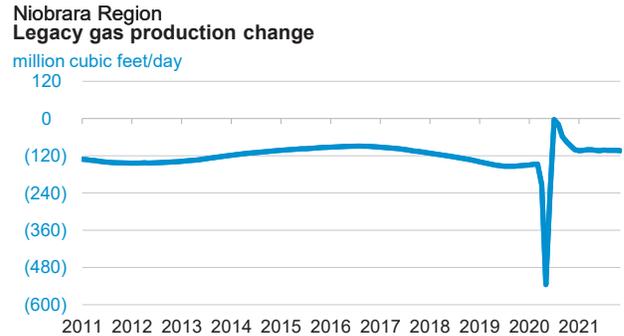
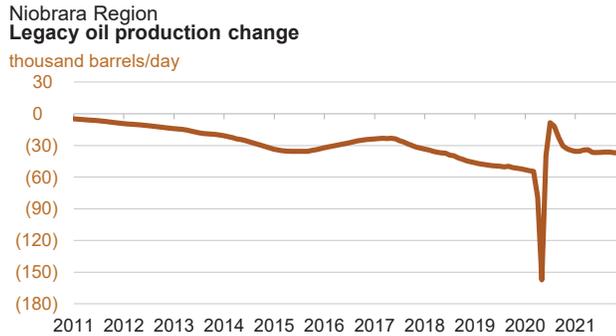
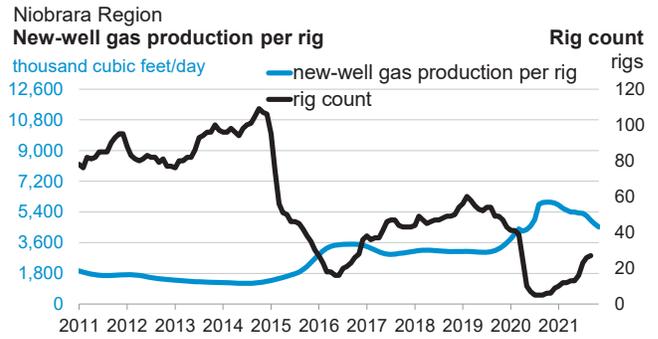
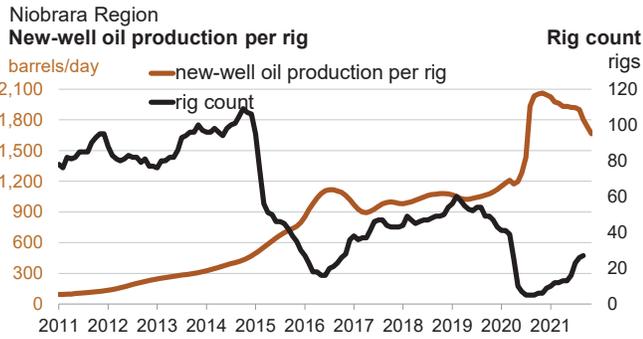
**Oil**  
**-70**  
barrels/day  
month over month

**1,663** November  
**1,733** October  
barrels/day

**Monthly additions from one average rig**

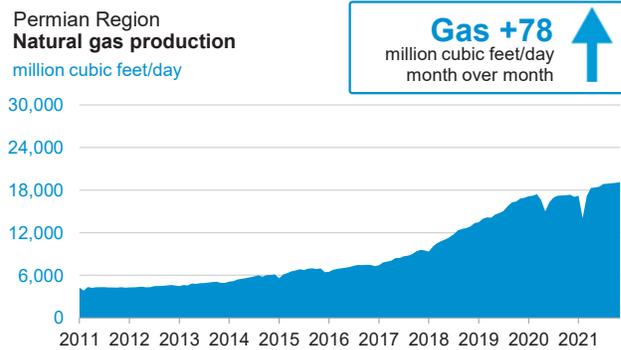
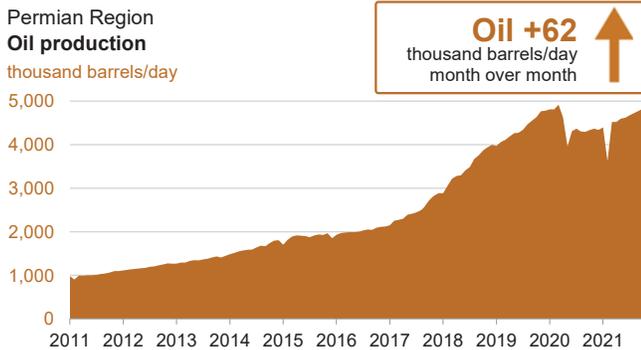
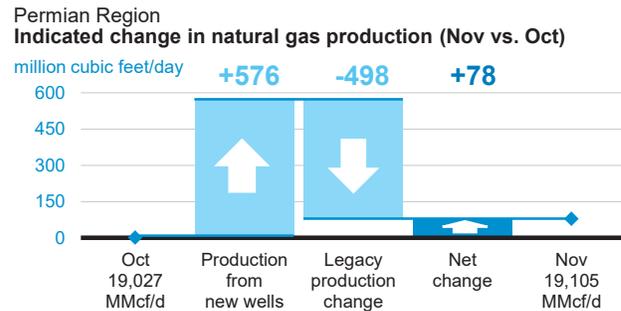
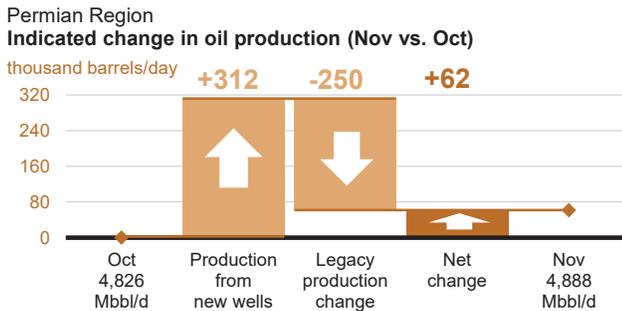
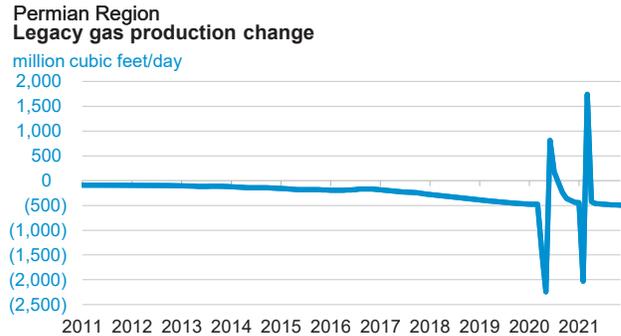
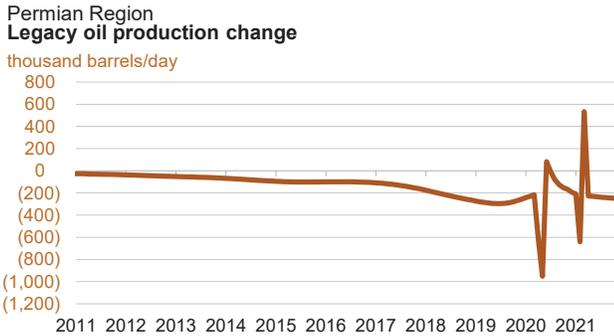
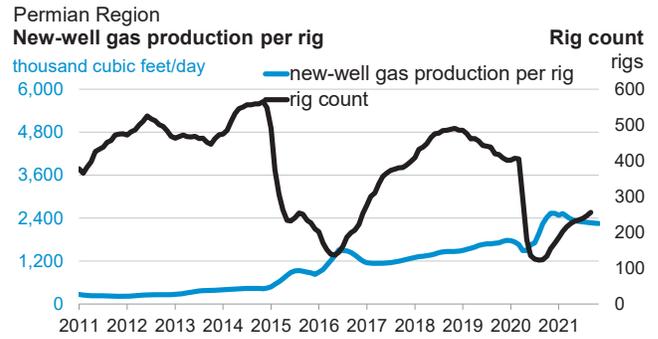
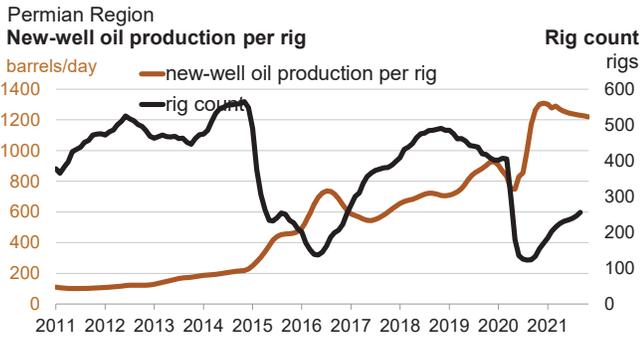
November **4,523**  
October **4,712**  
thousand cubic feet/day

**Gas**  
**-189**  
thousand cubic feet/day  
month over month





Monthly  
additions  
from one  
average rig



The Drilling Productivity Report uses recent data on the total number of drilling rigs in operation along with estimates of drilling productivity and estimated changes in production from existing oil and natural gas wells to provide estimated changes in oil<sup>1</sup> and natural gas<sup>2</sup> 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<sup>3</sup> contribution to production of oil and natural gas from new wells.<sup>4</sup> 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.<sup>5</sup> 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

• 22 Oct 2021 | 20:13 UTC

## **Freeport LNG to reduce loadings due to Gulf South pipeline maintenance: source**

HIGHLIGHTS

**Work on two sections, from Oct. 26-Nov. 12**

**Facility helps Japanese utilities optimize portfolios**

Freeport LNG will reduce the number of loadings at the 15 million mt/year capacity liquefaction facility through up to early November due to a planned maintenance outage on a segment of pipeline that feeds gas to the Texas terminal, a person familiar with the decision said Oct. 22.

North to south capacity on a segment of Boardwalk Pipeline Partners' Gulf South pipeline will cut flows by up to 650 MMcf/d during the work that will occur from Oct. 26 to Nov. 9, according to a notice from the operator to market participants. That work will be along its main 30-inch line from Goodrich, a compressor just northeast of Houston, to South Texas. The operator will be conducting maintenance from Nov. 10-12 that will limit capacity by 400 MMcf/d from Brazos, a station just downstream of Goodrich, to South Texas.

Gulf South gathers gas from basins in Texas and Alabama and delivers it to the US Northeast, Midwest and Southeast.

Freeport LNG declined to comment.

Freeport LNG has options to get gas from other pipelines, including the Texas Eastern Transmission Gas Pipeline operated by Canada's Enbridge. Because of that, it was not clear exactly how many LNG loadings would be reduced or for how long, the person said.

Feedgas deliveries to the terminal totaled 1.8 Bcf/d on Oct. 22, down from about 2 Bcf/d the day before, based on nominations for the morning cycle. Earlier in the week, flows fell to below 1.5 Bcf/d, S&P Global Platts Analytics data showed.

There was one unladen tanker, Maran Gas Alexandria, moored at the facility on Oct. 22, according to Platts cFlow trade-flow analytics software. It arrived Oct. 21. Ten tankers have departed Freeport LNG month to date as of Oct. 22 -- the last one, the Bushu Maru, on Oct. 20, cFlow showed. There were nine tankers that departed Freeport LNG during the same period in September, cFlow showed.

Freeport LNG has offtake commitments with Japanese utilities JERA and Osaka Gas, each of which also hold 25% stakes in an entity that controls the terminal.

During an interview from Tokyo with Platts earlier Oct. 22, Sunao Nakamura, a senior managing executive officer at JERA, said the 20-year liquefaction tolling agreement that it has with

Freeport LNG helps it optimize its portfolio during periods of high demand and volatile price movements.

Strong prices in end-user markets in Asia and Europe have been incentivizing near full dispatch of US liquefaction terminals for months.

The price volatility peaked earlier in October, with the Platts JKM spot Asian LNG price hitting a record high of \$56.33/MMBtu on Oct. 6, while the TTF day-ahead contract in Europe reached a high of \$39.50/MMBtu on Oct. 5. Platts JKM for December was assessed at \$33.642/MMBtu Oct. 22, while Platts assessed TTF for December at \$29.829/MMBtu.

The US FOB Gulf Coast Marker was assessed Oct. 22 at \$27/MMBtu, the same level as the day before. That was based on elevated freight rates for shipments through the Atlantic and Pacific affecting FOB USGC cargoes loading 30 to 60 days forward, in conjunction with price movements in the major destination markets.

## Feedgas options

Both sections of Gulf South that will be undergoing maintenance include the delivery location to send feedgas to Freeport LNG, which is fed by the Coastal Bend Header pipeline. Month to date, Gulf South's Coastal Bend line has averaged 1.2 Bcf/d of feedgas deliveries to Freeport.

While the initial reduction will significantly limit flows along Gulf South's 30-inch line, roughly 500 MMcf/d of Gulf's South's deliveries to Freeport are supplied from the 30-inch line, with other pipeline deliveries from Tennessee and Enterprise mainly, delivering the remaining feedgas volumes into the Coast Bend Header line.

Therefore, while the maintenance activities from Oct. 26 through Nov. 12 will reduce Gulf South deliveries into Coastal Bend, increased deliveries from Kinder Morgan's Tennessee Gas Pipeline and Enterprise Products Partners' intrastate system could help to offset some of those losses, according to Platts Analytics.

<https://rbnenergy.com/go-west-pt3-mexicos-pacific-coast-lng-export-projects-gain-traction>

## Go West, Part 3 - Mexico's Pacific Coast LNG Export Projects Gain Traction

Tuesday, 10/19/2021

Published by: [Lindsay Schneider](#)

After years of waiting on the so-called “second wave” of North American LNG, 2022 could finally be the year that sees multiple LNG export projects reach a final investment decision (FID). Global gas fundamentals have been bullish for about a year, and prices hit record highs throughout the summer and fall. Offtakers around the world are clamoring and competing for LNG cargoes, anticipating a volatile and undersupplied winter. But with Russian piped exports to Europe expected to increase dramatically as the controversial Nord Stream 2 pipeline finally comes online, likely early next year, North American LNG is looking for ways to be more attractive to Asian offtakers. One option on the table for North America is to go west and export from the Pacific Coast, which cuts the voyage time to Asia in half. Exporting from the Pacific Coast is not without its challenges, however, including where and how to source the feedgas required for liquefaction. In today’s RBN blog, we continue our series looking at Pacific Coast LNG export developments, this time focusing on feedgas and infrastructure for the LNG projects in Mexico.

So far in this series, we’ve discussed the logistical and economic advantages of exporting North American LNG from the Pacific Coast, as opposed to the Gulf Coast, namely shorter voyage times and lower costs for Asian offtakers. [In Part 1](#), we used the RBN LNG Export Cost Model to break down and compare the various components of shipping costs associated with exporting from the region. Combining the costs, Asian offtakers can save more than \$1.25/MMBtu by shipping from the Pacific Coast, so it’s no wonder offtakers are lining up for these projects. [In Part 2](#) of our series, we highlighted the two Pacific Coast projects currently under construction — LNG Canada in British Columbia, and Sempra Energy’s Energía Costa Azul (ECA) LNG in Baja California, Mexico — as well as two projects likely to take FID in the next year: Woodfibre LNG in British Columbia and Mexico Pacific Limited (MPL) in Sonora State. There are three basic areas in which LNG projects need to advance before taking FID: commercial/financial, regulatory, and feedgas/infrastructure. [In Part 2](#), we also dived deeper into the Mexico-based projects, including the specifics of the commercial and regulatory progress that led to ECA LNG achieving FID in 2020 as well as where MPL stands in the process. Today, we will focus on the feedgas supplies for these projects.

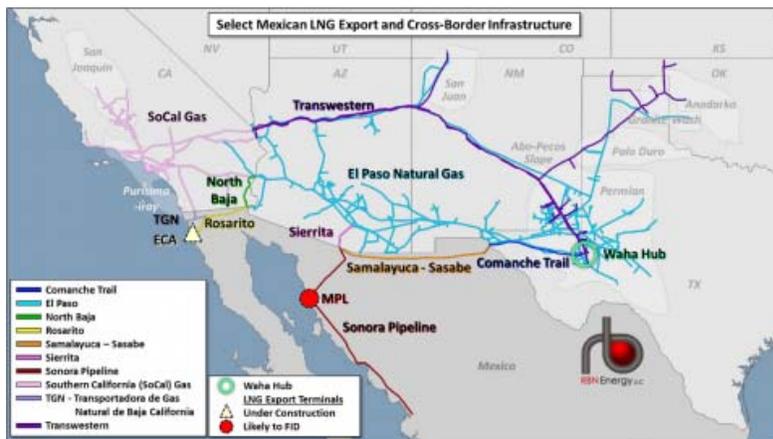


Figure 1: Map of Mexican LNG and Cross-Border Pipelines. Source: RBN

ECA LNG (cream triangle in Figure 1) and MPL (red circle) plan to source gas from the prolific Permian production area and utilize mostly existing infrastructure to pipe volumes to the terminals. This is one of the major things these two projects have in common and is a driving force behind their eventual completion. As you can see from the map in Figure 1, both terminals are located extremely close to the U.S. border. In addition, both are located on sites that already have pipelines running directly to the LNG terminal and to existing cross-border interconnects with the U.S. pipeline grid. This is a huge factor in why these specific sites were chosen. ECA LNG was an import terminal originally and already connected to the pipeline network, while MPL is located next to a state-owned power plant, so there is already gas and electric infrastructure in place as well. Unlike the U.S., vast parts of Mexico simply don't have existing natural gas pipeline infrastructure. And without this existing tie-in, feedgas would be incredibly difficult or very expensive to source. Next, let's look at the specific routes that could potentially serve the ECA and MPL terminals.

## **ECA LNG**

ECA LNG's single liquefaction train, due for completion in 2024, will have an initial offtake capacity of 2.5 MMtpa (330 MMcf/d). Exact feedgas requirements for a terminal vary by technology used for liquefaction and a number of other factors, but the terminal will likely require around 370 MMcf/d of feedgas, all of which is expected to come from the Permian Basin. ECA LNG directly connects to the existing Gasoducto Rosarito pipeline (Rosarito, yellow line), which, like the LNG terminal, is owned and operated by Sempra through its Mexican subsidiary, IENova. The most likely and desirable source of feedgas for the terminal is Permian gas moving west on El Paso Natural Gas (EPNG, teal line). El Paso connects to the North Baja Pipeline (green line), which runs from the Arizona/California border to the California/Mexico border and feeds into the Rosarito pipeline. This is the primary path of U.S. gas exports to Mexico in Baja California. Sempra already holds long-term firm capacity on this route, about 140 MMcf/d on EPNG to North Baja and about 160 MMcf/d on North Baja, which may provide the terminal with feedgas. But these contracts are not exclusively or specifically for ECA LNG and may also be used to supply gas to San Diego Gas and Electric (another subsidiary of Sempra).

Interstate pipelines like EPNG are required to make active contracts public, but not future contracts, so it is possible (in fact, likely) that Sempra holds more future capacity on this line for ECA LNG than is publicly known. While the cross-border capacity may be underutilized, EPNG moving west to California typically runs full (see [Almost is Never Enough](#)), so having firm capacity on EPNG is essential for ECA LNG. The current capacity of the North Baja line is 600 MMcf/d, but gas flow data from Genscape indicates that volumes along this route have averaged around 410 MMcf/d over the last year, so there is available capacity on the pipe. Additionally, an expansion on the North Baja, the North Baja Xpress project, will add 495 MMcf/d of capacity at the U.S.-Mexico border when it is completed in late 2022. The capacity addition will provide more than enough feedgas to serve the liquefaction train currently under construction. The FERC application for this project did not disclose the shipper(s), but it did refer to the LNG terminal as one of the market drivers for the expansion, and it's likely that Sempra holds at least some of this capacity for ECA LNG.

ECA could also source feedgas through Transportadora de Gas Natural de Baja California (TGN, light purple line), also owned by IENova. TGN is bidirectionally connected to the SoCal Gas system (light pink line). This path is less likely because SoCal prices are often at a steep premium to Henry Hub and Waha (green circle), the Permian benchmark pricing hub. If this path is utilized, the gas will still likely be supplied from the Permian moving west on EPNG or Transwestern (dark purple line).

## **Mexico Pacific Limited**

MPL has three trains planned for a total of 14.1 MMtpa (1.9 Bcf/d) of capacity, and the company has said that it needs about 2.3 Bcf/d of feedgas for the total project. For the first two trains, which are expected to take FID next year, that's about 1.5 Bcf/d of feedgas to supply. Like ECA, MPL has access to Permian supplies via EPNG, flowing through the Sierrita Pipeline (hot pink line in Figure 1), and then further south on Sempra/IENova's Sonora Norte Pipeline (maroon line) to the terminal. EPNG is capable of delivering about 510 MMcf/d to Sierrita, but flows in the past year have only averaged about 110 MMcf/d, as demand in Northwest Mexico is limited mostly to a few power plants. Mexico has also recently been able to increase flows to this area on the Samalayuca-Sasabe Pipeline (orange line), which also connects to

Sonora Norte. The terminal would also be able to access Permian supplies on that route by bringing gas down from the Waha Hub (green circle) via the Comanche Trail Pipeline (blue line) and the Samalayuca-Sasabe. These pipelines report some flow data and it appears the Samalayuca-Sasabe is currently flowing about 200 MMcf/d to Sonora Norte. The total capacity of the Samalayuca-Sasabe, the smaller of the two, is 472 MMcf/d. Additionally, MPL has said it plans to build its own cross-border pipeline directly from Waha Hub to the terminal. The pipeline does not have to file with FERC and the company has not released any specifics about the planned capacity addition. New pipeline capacity aside, many of these routes are currently underutilized and MPL has said that, including its planned expansion, it has secured firm contracts for enough feedgas to supply the first two trains under consideration for FID in the near term, another important milestone for achieving FID.

Pipelines along the route from the Permian to Mexico are, generally speaking, underutilized. The buildout of cross-border capacity that was driven by supply growth in the Permian outpaced the buildout of connectivity and end-users in Mexico, which leaves available supplies for planned LNG terminals. For sites already connected, this is a huge advantage for Mexican LNG, putting it on par with the Gulf Coast for feedgas cost and access, if not besting them. Both ECA LNG and MPL are capitalizing on this, and in addition to what's planned for right now, both terminals have said they can go bigger if a greater appetite for Pacific Coast LNG materializes. While an advantage for these two terminals, in particular, feedgas availability may ultimately limit buildout of LNG in Mexico, more than the available pool of offtakers targeting Asia. But way up north there is another growing supply basin with feedgas available for potential Pacific Coast exports: the [prolific Montney Basin](#) in Western Canada. In Part 4, we will detail the LNG projects targeting exports from British Columbia.

"Go West" was written by Jacques Morali, Henri Belolo, and Victor Willis. It appears as the second song on Village People's fourth studio album of the same name. Released as the first single from the LP in June 1979, it went to #14 on the Billboard Dance Club and #45 on the Billboard Hot 100 Singles charts. Personnel on the Village People record were: Victor Willis (lead vocals), Randy Jones, Glenn Hughes, Felipe Rose, David Hodo, Alex Briley (backing vocals), and Gypsy Lane (studio band). In September 1993, Pet Shop Boys released their version of the song as a single from their fifth studio album, *Very*. It went to #1 on the Billboard Dance Club chart and #25 on the Billboard Hot 100 Singles chart. Personnel on the Pet Shop Boys record were: Chris Lowe, Neal Tennant (vocals).

The Village People album, *Go West*, was produced by Jacques Morali and released in March 1979. It went to #8 on the Billboard 200 Albums chart and has been certified Platinum by the Recording Industry Association of America (RIAA). It would be the last Village People album of new material for Casablanca Records and the last album to feature Victor Willis on lead vocals. Two singles were released from the LP. The Pet Shop Boys album, *Very*, was released in September 1993 and went to #20 on the Billboard Top 200 Albums chart. It has been certified Gold by the RIAA. Five singles were released from the album.

Village People is an American disco group known for its costuming and clever lyrics. Formed in New York City in 1977 by French record producers Jacques Morali and Henri Belolo, and featuring the vocals of Victor Willis, the group released its debut album in July 1977. They have released eight studio albums, one live album, four compilation albums, and 25 singles. Twenty-four members have passed through the group since its inception. They still tour with original member Victor Willis on lead vocals, accompanied by James Kwong, Chad Freeman, Jeffrey James Lippold, and James Lee on backing vocals.

Pet Shop Boys are an English synth-pop duo formed in London in 1981, consisting of Chris Lowe and Neil Tennant. They have released 14 studio albums, five live albums, five soundtrack albums, seven compilation albums, three EPs, and 70 singles. They continue to record and tour.

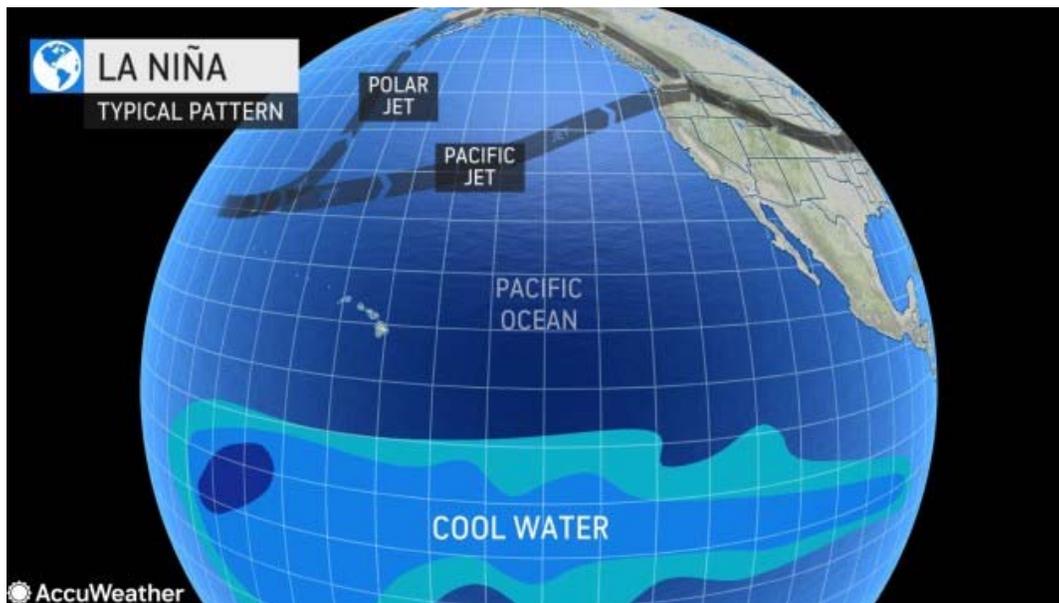
# AccuWeather's 2021-2022 Europe winter forecast

By Mary Gilbert, AccuWeather meteorologist  
Published Oct. 20, 2021 9:25 AM CDT

Meteorological autumn has only just reached its halfway point, but [AccuWeather](#) meteorologists are already looking ahead to what the winter will usher in weather-wise, and this week, they released their annual winter forecast for Europe. Meteorological winter begins on Dec. 1, and astronomical winter will get underway on Dec. 21.

Even with winter officially about two months away, rising energy costs and coronavirus concerns continue to loom large over the continent. With some Europeans already facing exorbitant energy bills, the prospect of a cold winter may also mean an expensive winter.

In order to help residents across the continent prepare, AccuWeather's team of long-range international forecasters breaks down what Old Man Winter has in store for Europe. Expert meteorologists -- Tyler Roys, a senior meteorologist who has been with AccuWeather for nearly a decade, and Alan Reppert, a senior meteorologist who has been with the company for 20 years -- answer all of the pressing questions about the season and more.



[La Niña](#), similar to its influence over weather patterns in the [United States](#) and [Canada](#), will be in the driver's seat for Europe this winter, too. But other factors will come into play. How much will the polar vortex impact the weather in the season to come? And where will windstorms wreak havoc? Read on for a detailed region-by-region forecast of the upcoming season.

## [Southern Europe](#)

As the landscape changes colors and trees begin to shed their leaves, the dominant storm track across Europe will also undergo a transition of its own. AccuWeather forecasters say

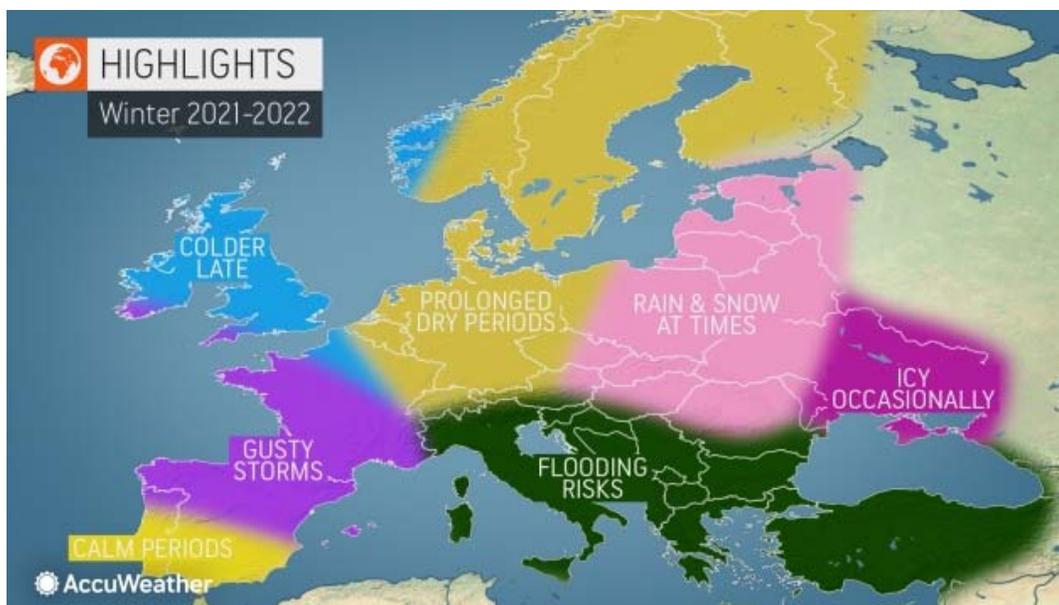
a southward shift in the overall storm track across the continent will force rounds of stormy weather to take aim at southern Europe and the Mediterranean Sea this winter.

In many ways, the upcoming winter across the southern portion of the continent will have echoes of last year's winter, a year also heavily influenced by a La Niña pattern.

Windstorms are forecast to dive across Spain and southern France at a steady clip this winter, according to Roys.

Last winter, 12 windstorms were named by the meteorological agencies of France, Spain, Portugal and Belgium. Typically, a windstorm is given a name by the meteorological agency of the region set to be subject to the worst impacts from the storm.

Not surprisingly, strong and damaging winds are the primary danger associated with windstorms, but they can also unload torrential rainfall.



"Some of the strongest windstorms are most likely to happen somewhere in southern France, Spain or Portugal this winter," Roys cautioned.

Any windstorm that initially impacts Spain or southern France can even go on to bring adverse weather to areas farther south and east. Even without windstorms, other portions of Southern Europe are in for a soggy winter.

Abundant moisture is forecast to flow from the Mediterranean into Italy, the Balkans and into much of Turkey this winter. According to Reppert, due to this steady stream of moisture, these areas will encounter storm after storm.

Winter is the region's wettest season, and while rounds of stormy weather can go a long way toward filling depleted reservoirs, another less desirable impact is likely to develop at times. After record-shattering rain events doused areas along the Mediterranean, including [southern France](#) and [Italy](#), this autumn, even moderate amounts of rainfall could result in rapid runoff and swollen rivers reaching a breaking point, which could cause significant flooding.

Forecasters have pinpointed at least one portion of southern Europe that will largely miss out on the worst of the stormy weather. Southern Portugal and southwestern Spain are forecast to encounter periods of calm weather this winter, which may be great news for some key crops like grapes, oranges and olives. This region is the largest olive producer in the world, Roys noted.

Temperatures this winter across much of Southern Europe are expected to remain around average for the season. However, temperatures in portions of Italy, Greece and the Balkans can climb above normal at times, according to Roys.

## Eastern Europe

Unlike areas influenced by the Mediterranean Sea that are forecast to stay near, or even a few degrees above normal, AccuWeather forecasters say interior portions of Eastern Europe will be in the bull's-eye for unseasonably cold air this winter.

"If a shot of cold air is ejected by the [polar vortex](#), the core of that cold is going to end up settling in over parts of Eastern Europe," Roys explained.

The area at the most risk for temperatures several degrees below normal this winter includes an area from central Ukraine, northward to Latvia and Estonia and as far west as Slovakia and Poland.

As if abnormally cold conditions weren't enough, Old Man Winter will have another trick in store for the region. The same active storm track that will heighten the flooding risk across Italy and the Balkans this winter will also bring rounds of adverse weather to Eastern Europe.

Any storm that crosses the Balkans and swings northward into central Ukraine and areas north will likely encounter an abundance of cold air already in place. The clash of moisture with brisk air will lead to frequent periods of rain and snow across much of the interior of Eastern Europe.

Even portions of the region that dodge the chilliest air will not be impervious to adverse winter weather. In this part of the world, with seasonably chilly air in place, some "nasty" ice storms can develop, Roys cautioned.

Several major ice events impacted portions of Ukraine last winter. In December 2020, after a period of freezing rain, the capital city of Kiev was turned into a large ice sheet. Icy conditions sent [pedestrians sliding down sidewalks](#) and vehicles skidding off roadways, [leading to more than 500 car accidents, according to the Kyiv Post](#).

## Northern Europe

Unlike its stormy counterpart to the south, Northern Europe is not predicted to face unsettled weather this winter.

Windstorms are not expected to frequently sweep from west to east this season, which spells fewer impacts for portions of the United Kingdom, Ireland, Germany, Denmark, Norway and Sweden, Roys explained.

Due in part to a lack of frequent windstorms, prolonged stretches of drier weather are in store for eastern France, Germany, Sweden and Norway.

A drier winter may come as welcome news for some parts of the region that endured unprecedented flooding this summer. Back in July, [catastrophic flooding left more than 180 people dead](#) across Germany, Belgium and the Netherlands.

Long periods of dry conditions may leave some residents worried about the potential for drought, but forecasters say there is good news on that front.

"This winter is not showing signs of a major drought in any part of Europe," Reppert said.

In addition, temperatures are not anticipated to be prone to any extreme variations for the first half of the winter. This could spell relief for residents across Northern Europe concerned about heating costs this winter.

However, Old Man Winter won't be content with staying in the shadows for the entire duration of the season. Later this winter, the opportunity for prolonged bouts of cold air will arrive across Northern Europe, especially across Ireland and the United Kingdom.

"Under a La Niña setup, typically the northern third to the northern half of Europe has an increased chance to encounter cold shots of air," Roys explained.

As the second half of the season approaches, the predominant wind direction will shift across northwestern Europe and become more easterly in nature. Since the core of cold air across the European continent is forecast to set up over the east, an easterly wind will be able to transport that chilly air farther to the west.

Temperatures during the second half of winter will dip to near-normal and below-normal levels over northwestern Europe, according to Roys.

These cold pushes of air from the east can lead to significant spikes in heating demands for several days to even a week at a time across northwestern Europe. If energy production and demand issues are still in flux by January or February, these cold snaps may place a significant strain on residents' wallets.

On top of chilly winds out of the east, the La Niña phase will increase the opportunity for snow across the United Kingdom and Ireland as well as areas from France to Poland, especially later in the season.

"Snow is not necessarily going to come from any individual big storm, but there will be frequent batches of light to moderate snow that can produce a bit of accumulation," Roys said.

Last winter, parts of the United Kingdom experienced their snowiest times during the months of January and February -- and forecasters say that could be the case again this winter.

## Energy Concerns

On one hand, a cold, potentially snowy second half of winter may sound wonderful to residents wishing to explore magical, winter wonderland scenes, but, on the other hand, the conditions may lead to financial concerns as heating bills climb.

Compared to 2020, Europeans have experienced a [600 percent increase in gas prices so far in 2021](#). A limited supply and an increasing demand for gas as economies start to recover from the worst of the coronavirus pandemic have put pressure on the natural resource.

In addition, the overall weather pattern during the last several months has not done Europe any favors in its push toward greener energy sources, especially across the United Kingdom. In 2020, [wind energy accounted for 25 percent](#) of the energy produced in the United Kingdom. Following a rather quiet summer weather-wise and a calm start to fall, the amount of wind energy produced in the U.K. cratered, leaving millions with skyrocketing energy bills.

## AccuWeather's Inaugural European Ski Forecast

As international travel restrictions continue to be paired down across many nations, ski resorts across Europe are gearing up for the season. Some popular ski resorts have already begun to open up their slopes as autumn snowfall blankets the highest peaks.

New to the annual Europe winter forecast this year, AccuWeather's meteorologists have produced a ski forecast to pinpoint mountain ranges that can get a boost from Mother Nature this winter, as well as those that may miss out on abundant snow.

Along with the higher frequency of stormy weather in the forecast for Spain and southern France, the Pyrenees Mountains that border the two countries will receive a plethora of natural snow this winter. This predicted abundance of natural snow means that forecasters expect excellent skiing conditions this winter for visitors to ski resorts in the mountain range.



The Alps are also expected to experience excellent skiing conditions this winter. Fresh powder on the slopes will be a common occurrence as waves of moisture push into the area from the Mediterranean Sea.

"While the French, Italian and southern Austrian Alps have the greatest chance to get fresh snow often this winter, a higher risk for avalanches will develop across these areas later in the winter and into early spring," Roys cautioned.

Roys added that the Pyrenees are also included in this late-season avalanche risk.

The Carpathian Mountains, which stretch from the center of the continent and well into the east, are forecast to encounter good skiing conditions this winter. Similarly, good conditions will be in place across Scotland as well.

However, there are some areas that may hurt for natural snow at times this winter.

The southern portion of the Scandinavian Mountains will face prolonged periods of dry weather. Resorts in the Scandes may need to rely heavily on snow machines in order to build and maintain a meaningful base.

Almost on the opposite end of the continent, the central and southern Apennines will also struggle to find any help from Mother Nature in terms of natural snow.

[https://www.wsj.com/articles/exxon-debates-abandoning-some-of-its-biggest-oil-and-gas-projects-11634739779?mod=hp\\_lead\\_pos2](https://www.wsj.com/articles/exxon-debates-abandoning-some-of-its-biggest-oil-and-gas-projects-11634739779?mod=hp_lead_pos2)

• **WSJ NEWS EXCLUSIVE**

## Exxon Debates Abandoning Some of Its Biggest Oil and Gas Projects

Members of company's remade board question company's planned investments ahead of spending-plan vote

By Christopher M. Matthews and Emily Glazer  
Oct. 20, 2021 10:23 am ET

[Exxon Mobil](#) Corp.'s [XOM +0.17%](#) remade board of directors is debating whether to continue with several major oil and gas projects as the company reconsiders its investment strategy in a fast-changing energy landscape, according to people familiar with the matter.

[Members of the board](#)—which includes three directors successfully nominated by an activist investor in May and two other new members—**have expressed concerns about certain projects, including a \$30 billion liquefied natural gas development in Mozambique and another multibillion-dollar gas project in Vietnam, the people said.**

Oil and gas [prices are at multiyear highs](#), and the world is experiencing a shortage of fossil fuels as economies emerge from the pandemic. But it takes years for such energy megaprojects to produce additional supplies, and more years after that for the investments to pay off.

Exxon board members are weighing the fate of future projects as the company is facing pressure from investors to restrain fossil-fuel investment to limit carbon emissions and return more cash to shareholders. Environmentalists and some government officials are also [pressuring the company to produce less oil and gas](#).

**The discussions are taking place as part of a review of the oil company's five-year spending plan, on which the board is set to vote at the end of this month, the people said. It isn't clear whether the board will make a final call on the Mozambique or Vietnam projects during the current review, according to the people.**

**Both projects face potential political obstacles**, and some Exxon board members have expressed concerns about whether they would return the billions in upfront investment they would require, some of the people said. The board meetings have been cordial, the people said.

Exxon said it doesn't discuss internal board deliberations. "Any depiction of the board's discussions as being less than constructive in tone or substance is wrong," said Exxon spokesman Casey Norton.

As part of the review, Exxon is analyzing the expected carbon emissions from each project and how they would affect the company's ability to meet pledges to reduce emissions, people familiar with the matter said. The annual projected emissions from the Mozambique and Vietnam projects were among the highest in Exxon's planned pipeline of oil and gas projects, according to a pre-pandemic internal analysis by Exxon, which was reviewed by The Wall Street Journal.

Mr. Norton said the analysis of projected carbon emissions the Journal reviewed was several years old and didn't include the impact of Exxon's most recent emission reduction plans and other post-Covid-19 changes.

The discussions over the projects represent a new dynamic for Exxon's board, said people familiar with the matter.

Engine No. 1, the hedge fund that led a campaign that replaced three Exxon board members earlier this year, argued Exxon was investing in low-return projects and lacked a coherent strategy to chart a transition to lower-carbon fuels amid growing concerns about climate change.

The activist was successful in part because it was able to win support from some of the company's largest investors, including [BlackRock](#) Inc. and Vanguard Group. The asset managers said one of the reasons they supported the Engine candidates was that Exxon's board lacked energy expertise and independence.

**Gregory Goff, one of the Engine No. 1 nominees, is among the directors to raise doubts about the Mozambique project, people familiar with the matter said. Mr. Goff, the former chief executive of Andeavor**, which was one the largest U.S. refiners before being purchased by [Marathon Petroleum](#) Corp. , has said that Exxon should consider more closely the risks presented by the project to assess whether it justifies investing, the people said.

The Mozambique project, called Rovuma, would tap vast reserves of natural gas off the coast of the southern African country, then chill them to a liquid state at an onshore plant to be exported around the world. It is one of the largest projects in Exxon's portfolio, and its proximity to India could give Exxon an opportunity to export gas to a fast-growing market.

But Mozambique lacks infrastructure and is fighting an Islamic State-linked insurgency that has claimed more than 3,000 lives. [TotalEnergies](#) SE halted construction of a \$20 billion gas project there in March after violence erupted near its construction site. Exxon spent \$2.8 billion to acquire a stake in the Rovuma project but has delayed a final investment decision for several years. Exxon hasn't disclosed an exact estimate of the project's cost; Mozambique has estimated it at \$27 billion to \$33 billion.

In Vietnam, Exxon and its partners discovered a large gas field in 2011 in waters 50 miles off the coast but have yet to develop it. Gas from the field, known as Ca Voi Xanh or blue whale, would be sent through a pipeline to planned onshore power plants. Vietnamese officials have said the project would generate \$20 billion in government revenue. The field is near contested waters claimed by China in the South China Sea, and analysts say China is actively disrupting Vietnam's offshore oil-and-gas industry, adding geopolitical complications to the project.

Abandoning the projects would represent another setback to plans by Exxon Chief Executive Darren Woods to boost spending to increase production. [Less than four years ago, Mr. Woods said the company would invest \\$230 billion to pump an additional one million barrels of oil and gas a day by 2025. Rovuma, in particular, was central to that strategy.](#) [The company has already pulled back](#) parts of that strategy after the pandemic decimated demand for oil and gas last year, prompting it to undergo a belt tightening.

Exxon's fortunes have improved this year along with rising oil and gas prices. Analysts expect Exxon to report more than \$6 billion in quarterly profit later this month, after a loss of \$680 million during the same period last year. The company has said it would give priority to using cash to pay down debt and fund dividends.

Exxon is planning to declare in coming weeks that it will increase its investment in a low-carbon unit it announced in February by billions of dollars, according to people familiar with the matter. It initially said it would invest \$3 billion in the unit through 2025 to commercialize carbon capture and storage, hydrogen, biofuels and other technologies. Most of those businesses aren't profitable, say analysts, and need significant public-policy support and technological advances to become so.

[Exxon is also considering a pledge](#) to reduce and offset the carbon emissions from its operations to zero by 2050, the Journal has reported. Mr. Woods previously called such net zero commitments a "beauty competition."

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

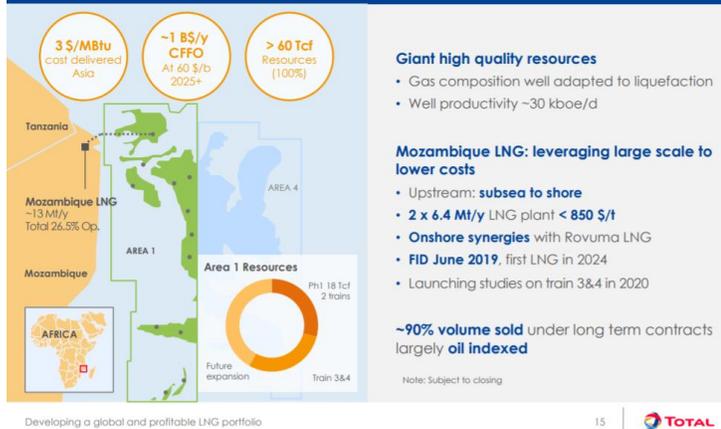
Posted Wednesday April 28, 2021. 9:00 MT

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

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

## Total Mozambique Phase 1 and 2

### Mozambique LNG: unlocking world-class gas resources



Source: Total Investor Day September 24, 2019

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

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

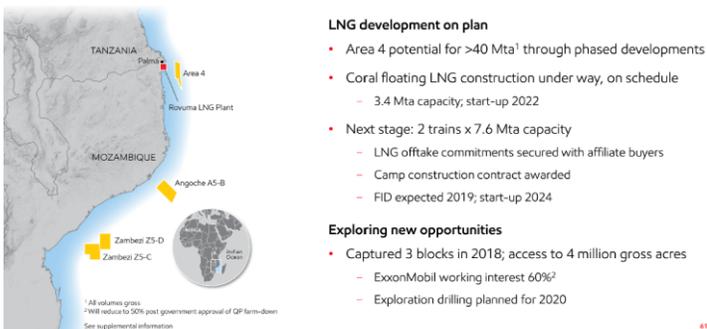
Mozambique's security issues pushes back 5.0 bcf/d of new LNG supply at least a couple years. The global LNG issue is that 5 bcf/d of new Mozambique LNG supply (apart from the Eni Coral FLNG of 0.45 bcf/d) won't start up in 2024 and

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

## Exxon Mozambique LNG

### UPSTREAM MOZAMBIQUE

Five outstanding developments



Source: Exxon Investor Day March 6, 2019

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

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

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

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

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

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



Source: IEA

● On Track      ● More Efforts Needed      ● Not on Track

Source: IEA Tracking Clean Energy Progress, June 2020

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

[Shell's March 2021 long term outlook for LNG demand was basically unchanged vs 2020 and leads to a LNG supply gap in mid 2020s](#). Shell does not provide the detailed numbers in their Feb 25, 2021 LNG forecast. We would assume they

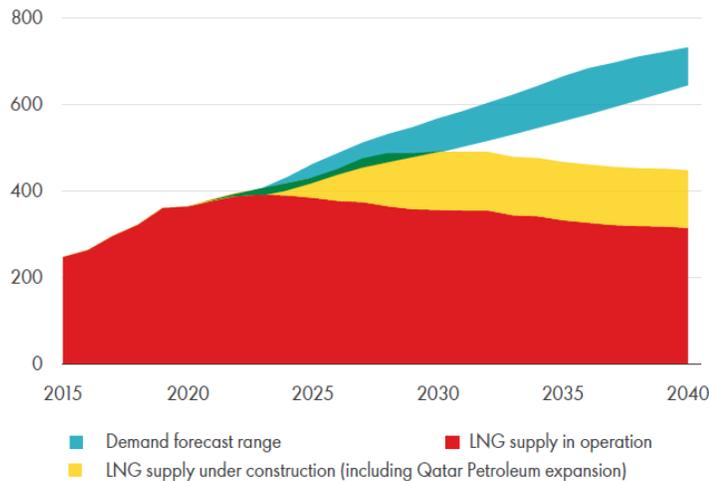
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would have reflected some delay, perhaps 1 year, at Mozambique but would be surprised if they put a 2-3 year delay in for the 5 bcf/d from Total Phase 1 +2 and Exxon Rozuma Phase 1. Compared to their LNG Outlook 2020, it looks like there was no change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

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

#### Emerging LNG supply-demand gap

MTPA



Source: Shell LNG Outlook 2021, Feb 25, 2021

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

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

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

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

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

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

Press Release 19 Oct 2021

## Pre-emptive Measures to Enhance Singapore's Energy Security and Resilience

Singapore imports almost all our energy needs. Having a secure and reliable energy supply is critical to Singapore's survival and economic competitiveness. In view of the developments in the global energy sector, Singapore will be taking temporary pre-emptive measures to safeguard our energy security and resilience.

### Developments in the Global and Domestic Energy Sector

2. A confluence of increased gas consumption from recovering economic activity, severe weather events and a series of gas production outages have disrupted supplies and sent global market prices to new highs<sup>(1)</sup>. This has been compounded by low inventory levels in the major economies for the coming winter season. The tight gas market has also created ripple effects on electricity markets, pushing prices up and driving fuel substitution in favour of coal and oil. Governments around the world are taking measures to secure sufficient fuel supplies.

3. Domestically, around 95% of electricity is generated from imported natural gas. The higher fuel prices will push up electricity prices. In addition, the risk of supply disruptions has also risen. Upstream production issues in Indonesia's West Natuna gas field have resulted in reduced output, which is likely to last until end-2021. Gas pressure from South Sumatra has decreased due to higher demand from gas users both upstream and in Singapore. The global energy crunch has made it significantly more expensive for the power generation companies (gencos) to secure additional spot liquefied natural gas (LNG) to make up for the drop in piped natural gas supplies.

4. Most consumers have been cushioned from the price volatility as they are either on standard price plans with retailers or the regulated tariff rate. Those on retail rates may however, see an increase in electricity prices at the point of contract renewal, which reflects the increased costs of electricity production. Electricity retailers who have under-hedged their positions may be exposed to the volatility in the wholesale electricity market. They may now find it challenging to sustain their operations and may choose to exit the market. For retailers that are exiting the market, the Energy Market Authority (EMA) will ensure a smooth transition for their affected customers. They will not face any electricity supply disruption and retailers will not be allowed to charge an early termination fee. Household consumers will have their security deposits returned to them after outstanding charges are offset.

### Pre-Emptive Measures to Enhance Energy Security and Resilience

5. Singapore's overall gas supplies remain sufficient. Earlier this year, EMA appointed two new term LNG importers, on top of the existing two, to provide gas users in Singapore with more options to procure the gas they require. Nevertheless, given the developments in the global energy sector, EMA is working with industry stakeholders on three pre-emptive measures to further secure our fuel and electricity supply:

6. First, we will establish standby fuel facilities which gencos can draw upon if needed to generate electricity. We are working closely with all gencos to track their fuel supply levels and generating capacity, and will provide the standby fuel to them if gas supplies are affected or there is a need to ensure reliable electricity supply to consumers in Singapore.

7. Second, to complement the standby fuel facilities, EMA has informed gencos to contract sufficient fuel to at least meet the demands of customers of their retail arms. To help gencos who have not contracted enough gas, EMA has informed gencos which are looking to sell their excess natural gas supply to provide other gencos and EMA with the first right of refusal, before they can divert or onsell the excess gas to other parties.

8. Third, EMA has been working with gencos and will direct them to generate electricity using fuel from the standby facilities if needed to maintain system stability. EMA is monitoring the Singapore Wholesale Electricity Market closely and will intervene if necessary.

## **Conclusion**

9. These pre-emptive measures are extraordinary but necessary to secure our fuel and electricity supply. We will review if these measures are still needed by 31 March 2022. During this period, we urge consumers to conserve energy where possible. EMA will continue to monitor developments in the global and domestic energy sector closely and will introduce further measures if necessary.

## Highlights for the month

- The consumption of petroleum products during April-September 2021 with a volume of 95.6 MMT reported a growth of 11.3% compared to the volume of 85.9 MMT during the same period of the previous year. Except SKO & petcoke all other petroleum products reported a growth in consumption during April-September 2021 compared to the same period of the previous year. The consumption of petroleum products during September 2021 recorded a growth of 5.2% compared to the same period of the previous year.
- Indigenous crude oil and condensate production during September 2021 was lower by 1.7 % than that of September 2020 as compared to a de-growth of 2.3% during August 2021. OIL registered a growth of 0.22 % and ONGC registered a de-growth of 3.3 % during September 2021 as compared to September 2020. PSC registered growth of 1.8 % during September 2021 as compared to September 2020. De-growth of 2.9 % was registered in the total crude oil and condensate production during April- September 2021 over the corresponding period of the previous year.
- Total consumption of natural gas (including internal consumption) for the month of September 2021 was 5485 MMSCM which was 7.9% higher than the corresponding month of the previous year. The cumulative consumption of 32147 MMSCM for the current year till September 2021 was higher by 9.8% compared with the corresponding period of the previous year.
- Crude oil processed during September 2021 was 18.2 MMT, which was 2.9 % higher than September 2020 as compared to a growth of 14.2 % during August 2021. Growth of 13.1 % was registered in the total crude oil processing during April-September 2021 over the corresponding period of the previous year.
- Production of petroleum products saw a growth of 6.1 % during September 2021 over September 2020 as compared to a growth of 9.1 % during August 2021. Growth of 11.0 % was registered in the total POL production during April- September 2021 over the corresponding period of the previous year.
- Ethanol blending with Petrol was 6.6% during September 2021 and cumulative during December 2020- September 2021 was 7.9%.

	<ul style="list-style-type: none"> <li>Gross production of natural gas for the month of September 2021 was 2902 MMSCM which was higher by 26.5% compared with the corresponding month of the previous year. The cumulative gross production of natural gas of 16891 MMSCM for the current financial year till September, 2021 was higher by 21% compared with the corresponding period of the previous year.</li> </ul>
	<ul style="list-style-type: none"> <li>Crude oil imports increased by 14.7% and 12.9% during September 2021 and April-September 2021 respectively as compared to the corresponding period of the previous year.</li> </ul>
	<ul style="list-style-type: none"> <li>POL products imports increased by 22.4% and decreased by 4.8% during September 2021 and April-September 2021 respectively as compared to the corresponding period of the previous year. Decrease in POL products imports during April-September 2021 was due to decrease in imports of petcoke, high speed diesel (HSD), superior kerosene oil (SKO) and aviation turbine fuel (ATF).</li> </ul>
	<ul style="list-style-type: none"> <li>LNG import for the month of September, 2021(P) was 2645 MMSCM which was 7.4% lower than the corresponding month of the previous year. The cumulative import of 15678 MMSCM for the current year till September, 2021 was lower by 0.8% compared with the corresponding period of the previous year.</li> </ul>
	<ul style="list-style-type: none"> <li>Exports of POL products increased by 0.9% during September 2021 as compared to the corresponding period of the previous year. The total POL products exports during April-September 2021 remained approximately the same as compared to the corresponding period of the previous year. However, there was a decrease in exports of high-speed diesel (HSD), petcoke/CBFS and LOBS/Lube oil etc. during April-September 2021 as compared to the corresponding period of the previous year.</li> </ul>
	<ul style="list-style-type: none"> <li>The price of Brent Crude averaged \$74.58/bbl during September,2021 as against \$70.81/bbl during August 2021 and \$40.81/bbl during September 2020. The Indian basket crude price averaged \$73.13/bbl during September 2021 as against \$69.80/bbl during August 2021 and \$41.35 /bbl during September 2020.</li> </ul>

## 1. Selected indicators of the Indian economy

Economic indicators		Unit/ Base	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
1	Population (Census 2011)	Billion	1.2	-	-	-	-	-
2	GDP at constant (2011-12 Prices)	Growth %	8.3	6.8 3rd RE	6.5 2nd RE	4.0 1st RE	-7.3 PE	20.1 E (Q1, 2021-22)
3	Agricultural Production (Food grains)	MMT	275.1	285.0	285.2	297.5	308.7 4th AE	150.5 1st AE (Kharif)
		Growth %	9.4	3.6	0.1	4.3	3.7	-
4	Gross Fiscal Deficit (as percent of GDP)	%	3.5	3.5	3.4	4.6	9.5 RE	6.8 BE

Economic indicators	Unit/ Base	2019-20	2020-21 (P)	September		April-September		
				2020-21 (P)	2021-22 (P)	2020-21 (P)	2021-22 (P)	
5	Index of Industrial Production (Base: 2011-12)	Growth %	-0.8	-8.4	-7.1*	11.9* QE	-25.0#	28.6#
6	Imports	\$ Billion	474.7	394.4	30.5	56.4	151.9	276.0
7	Exports	\$ Billion	313.4	291.8	27.6	33.8	125.6	197.9
8	Trade Balance	\$ Billion	-161.3	-102.6	-3.0	-22.6	-26.3	-78.1
9	Foreign Exchange Reserves @	\$ Billion	475.6	579.3	542.0	638.6	-	-

IIP is for the month of \* August and # April-August; @ 2019-20-as on March 27, 2019, 2020-21-as on March 26, 2021, September 2020- as on September 25, 2020 and September 2021-as on September 24, 2021; E: Estimates; PE: Provisional Estimates; AE-Advanced Estimates; RE-Revised Estimates; QE-Quick Estimates.

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

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

Details		Unit/ Base	2019-20	2020-21 (P)	September		April-September	
					2020-21 (P)	2021-22 (P)	2020-21 (P)	2021-22 (P)
1	Crude oil production in India <sup>#</sup>	MMT	32.2	30.5	2.5	2.4	15.4	14.9
2	Consumption of petroleum products*	MMT	214.1	194.3	15.1	15.9	85.9	95.6
3	Production of petroleum products	MMT	262.9	233.5	18.0	19.1	107.3	119.1
4	Gross natural gas production	MMSCM	31,184	28,672	2,294	2,902	13,954	16,891
5	Natural gas consumption	MMSCM	64,144	60,645	5,083	5,485	29,290	32,147
6	Imports & exports:							
	Crude oil imports	MMT	227.0	196.5	15.2	17.4	89.2	100.7
		\$ Billion	101.4	62.2	4.7	9.2	22.4	51.0
	Petroleum products (POL) imports*	MMT	43.8	43.2	3.1	3.8	20.9	19.9
		\$ Billion	17.7	14.8	1.0	1.9	5.7	10.2
	Gross petroleum imports (Crude + POL)	MMT	270.7	241.6	18.3	21.2	110.1	120.6
		\$ Billion	119.1	76.9	5.7	11.1	28.2	61.2
	Petroleum products (POL) export	MMT	65.7	56.8	4.8	4.8	29.5	29.5
		\$ Billion	35.8	21.4	1.8	3.0	8.9	17.7
	LNG imports*	MMSCM	33,887	32,861	2,855	2,645	15,798	15,678
		\$ Billion	9.5	7.4	0.6	1.1	3.1	5.3
7	Petroleum imports as percentage of India's gross imports (in value terms)	%	25.1	19.5	18.6	19.6	18.5	22.2
8	Petroleum exports as percentage of India's gross exports (in value terms)	%	11.4	7.3	6.4	8.8	7.1	8.9
9	Import dependency of crude (on consumption basis)	%	85.0	84.4	83.8	84.1	82.4	84.8

<sup>#</sup>Includes condensate; \*Private direct imports are prorated for the period Aug-2021 to Sep-2021; RIL data prorated for Sep-2021

### 3. Indigenous crude oil production (Million Metric Tonnes)

Details	2019-20	2020-21	September			April-September		
			2020-21	2021-22 Target*	2021-22 (P)	2020-21	2021-22 Target*	2021-22 (P)
ONGC	19.2	19.1	1.6	1.7	1.5	9.6	10.1	9.2
Oil India Limited (OIL)	3.1	2.9	0.2	0.3	0.2	1.5	1.5	1.5
Private / Joint Ventures (JVs)	8.2	7.1	0.6	0.6	0.6	3.6	3.8	3.6
<b>Total Crude Oil</b>	<b>30.5</b>	<b>29.1</b>	<b>2.4</b>	<b>2.6</b>	<b>2.3</b>	<b>14.7</b>	<b>15.5</b>	<b>14.3</b>
ONGC condensate	1.4	1.1	0.1		0.1	0.6		0.5
PSC condensate	0.3	0.3	0.02		0.03	0.12		0.16
<b>Total condensate</b>	<b>1.6</b>	<b>1.4</b>	<b>0.1</b>		<b>0.1</b>	<b>0.7</b>		<b>0.6</b>
<b>Total (Crude + Condensate) (MMT)</b>	<b>32.2</b>	<b>30.5</b>	<b>2.5</b>	<b>2.6</b>	<b>2.4</b>	<b>15.4</b>	<b>15.5</b>	<b>14.9</b>
Total (Crude + Condensate) (Million Bbl/Day)	0.64	0.61	0.61		0.60	0.62		0.60

\*Provisional targets inclusive of condensate.

### 4. Domestic oil & gas production vis-à-vis overseas production

Details	2019-20	2020-21	September		April-September	
			2020-21	2021-22 (P)	2020-21	2021-22 (P)
Total domestic production (MMTOE)	63.4	59.2	4.8	5.3	29.3	31.8
Overseas production (MMTOE)	24.5	21.9	1.7	1.8	11.0	11.0
<b>Overseas production as percentage of domestic production</b>	<b>38.7%</b>	<b>37.0%</b>	<b>36.2%</b>	<b>33.4%</b>	<b>37.5%</b>	<b>34.6%</b>

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

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

Details	2019-20	2020-21	September		April-September	
			2020-21	2021-22 (P)	2020-21	2021-22 (P)
1 High Sulphur crude	192.4	161.4	13.2	13.8	73.1	85.1
2 Low Sulphur crude	62.0	60.3	4.5	4.4	27.1	28.2
<b>Total crude processed (MMT)</b>	<b>254.4</b>	<b>221.8</b>	<b>17.7</b>	<b>18.2</b>	<b>100.2</b>	<b>113.3</b>
Total crude processed (Million Bbl/Day)	5.09	4.45	4.33	4.45	4.01	4.54
<b>Percentage share of HS crude in total crude oil processing</b>	<b>75.6%</b>	<b>72.8%</b>	<b>74.4%</b>	<b>75.9%</b>	<b>73.0%</b>	<b>75.1%</b>

6. Quantity and value of crude oil imports			
Year	Quantity (MMT)	\$ Million	Rs. Crore
2019-20	227.0	1,01,376	7,17,001
2020-21	196.5	62,248	4,59,779

7. Self-sufficiency in petroleum products (Million Metric Tonnes)							
Particulars		2019-20	2020-21	September		April-September	
				2020-21	2021-22 (P)	2020-21	2021-22 (P)
1	Indigenous crude oil processing	29.3	28.0	2.3	2.3	13.9	13.3
2	Products from indigenous crude (93.3% of crude oil processed)	27.3	26.1	2.1	2.2	13.0	12.4
3	Products from fractionators (Including LPG and Gas)	4.8	4.2	0.3	0.3	2.1	2.1
4	Total production from indigenous crude & condensate (2 + 3)	32.1	30.3	2.4	2.5	15.1	14.5
5	Total domestic consumption	214.1	194.3	15.1	15.9	85.9	95.6
<b>% Self-sufficiency (4 / 5)</b>		<b>15.0%</b>	<b>15.6%</b>	<b>16.2%</b>	<b>15.9%</b>	<b>17.6%</b>	<b>15.2%</b>

## 8. Refineries: Installed capacity and crude oil processing (MMTPA / MMT)

Company	Refinery	Installed capacity (1.10.2021) MMTPA	Crude oil processing (MMT)							
			2019-20	2020-21	September			April-September		
					2020-21	2021-22 (Target)	2021-22 (P)	2020-21	2021-22 (Target)	2021-22 (P)
IOCL	Barauni (1964)	6.0	6.5	5.5	0.4	0.6	0.1	2.2	2.8	2.4
	Koyali (1965)	13.7	13.1	11.6	0.9	1.2	1.0	5.2	7.3	6.3
	Haldia (1975)	8.0	6.5	6.8	0.4	0.7	0.6	2.7	4.2	3.9
	Mathura (1982)	8.0	8.9	8.9	0.6	0.7	0.7	4.0	4.5	4.2
	Panipat (1998)	15.0	15.0	13.2	1.0	1.3	1.1	5.7	7.9	7.3
	Guwahati (1962)	1.0	0.9	0.8	0.07	0.1	0.1	0.34	0.3	0.2
	Digboi (1901)	0.65	0.7	0.6	0.05	0.06	0.06	0.3	0.3	0.4
	Bongaigaon(1979)	2.35	2.0	2.5	0.2	0.2	0.2	1.2	1.3	1.4
	Paradip (2016)	15.0	15.8	12.5	1.0	0.6	0.8	5.2	5.9	6.0
	<b>IOCL-TOTAL</b>	<b>69.7</b>	<b>69.4</b>	<b>62.4</b>	<b>4.7</b>	<b>5.4</b>	<b>4.7</b>	<b>26.9</b>	<b>34.5</b>	<b>32.0</b>
CPCL	Manali (1969)	10.5	10.2	8.2	0.8	0.9	0.5	3.4	4.5	4.0
	CBR (1993)	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>CPCL-TOTAL</b>	<b>11.5</b>	<b>10.2</b>	<b>8.2</b>	<b>0.8</b>	<b>0.9</b>	<b>0.5</b>	<b>3.4</b>	<b>4.5</b>	<b>4.0</b>
BPCL	Mumbai (1955)	12.0	15.0	12.9	0.9	1.3	1.0	5.5	7.6	6.9
	Kochi (1966)	15.5	16.5	13.3	1.0	1.3	1.3	5.2	8.3	6.8
BORL	Bina (2011)	7.8	7.9	6.2	0.5	0.6	0.6	2.5	3.5	3.4
	<b>BPCL-TOTAL</b>	<b>35.3</b>	<b>39.4</b>	<b>32.4</b>	<b>2.4</b>	<b>3.2</b>	<b>2.9</b>	<b>13.2</b>	<b>19.3</b>	<b>17.1</b>
NRL	Numaligarh (1999)	3.0	2.4	2.7	0.2	0.2	0.2	1.3	1.3	1.3

Company	Refinery	Installed capacity (1.10.2021) (MMTPA)	Crude oil processing (MMT)							
			2019-20	2020-21	September			Apr-September		
					2020-21	2021-22 (Target)	2021-22 (P)	2020-21	2021-22 (Target)	2021-22 (P)
ONGC	Tatipaka (2001)	0.066	0.087	0.081	0.007	0.005	0.007	0.038	0.030	0.036
MRPL	Mangalore (1996)	15.0	14.0	11.5	0.8	1.1	1.0	4.3	6.6	6.2
	<b>ONGC-TOTAL</b>	<b>15.1</b>	<b>14.0</b>	<b>11.6</b>	<b>0.8</b>	<b>1.1</b>	<b>1.0</b>	<b>4.4</b>	<b>6.6</b>	<b>6.2</b>
HPCL	Mumbai (1954)	7.5	8.1	7.4	0.7	0.7	0.4	3.7	2.8	1.5
	Visakh (1957)	8.3	9.1	9.1	0.7	0.5	0.5	4.3	4.4	3.5
HMEL	Bathinda (2012)	11.3	12.2	10.1	1.0	0.9	1.1	5.1	5.5	6.5
	<b>HPCL- TOTAL</b>	<b>27.1</b>	<b>29.4</b>	<b>26.5</b>	<b>2.4</b>	<b>2.1</b>	<b>2.0</b>	<b>13.2</b>	<b>12.8</b>	<b>11.6</b>
RIL	Jamnagar (DTA) (1999)	33.0	33.0	34.1	2.8	2.8	2.8	16.8	16.8	16.8
	Jamnagar (SEZ) (2008)	35.2	35.9	26.8	2.2	2.2	2.4	12.2	12.2	14.3
NEL	Vadinar (2006)	20.0	20.6	17.1	1.5	1.5	1.7	8.9	8.9	10.0
<b>All India (MMT)</b>		<b>249.9</b>	<b>254.4</b>	<b>221.8</b>	<b>17.7</b>	<b>19.4</b>	<b>18.2</b>	<b>100.2</b>	<b>117.0</b>	<b>113.3</b>
<b>All India (Million Bbl/Day)</b>		<b>5.02</b>	<b>5.09</b>	<b>4.45</b>	<b>4.33</b>		<b>4.45</b>	<b>4.01</b>		<b>4.54</b>

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

### 9. Major crude oil and product pipeline network (as on 01.10.2021)

Details		ONGC	OIL	Cairn	HMEL	IOCL	BPCL	HPCL	Others*	Total
Crude Oil	Length (KM)	1,283	1,193	688	1,017	5,301	937			<b>10,419</b>
	Cap (MMTPA)	60.6	9.0	10.7	11.3	48.6	7.8			<b>147.9</b>
Products	Length (KM)		654			9,400	2,241	3,775	2,395	<b>18,465</b>
	Cap (MMTPA)		1.7			47.5	19.5	34.1	9.4	<b>112.2</b>

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

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

Products	2019-20		2020-21		September 2020		September 2021 (P)		Apr-Sep 2020		Apr-Sep 2021 (P)	
	Prod	Cons	Prod	Cons	Prod	Cons	Prod	Cons	Prod	Cons	Prod	Cons
LPG	12.8	26.3	12.1	27.6	0.9	2.3	0.9	2.4	5.7	13.3	5.7	13.6
MS	38.6	30.0	35.8	28.0	3.0	2.5	3.1	2.6	15.9	12.1	18.5	14.7
NAPHTHA	20.6	14.3	19.4	14.1	1.5	1.1	1.6	1.1	9.0	6.4	9.7	7.0
ATF	15.2	8.0	7.1	3.7	0.5	0.3	0.7	0.4	2.7	1.2	4.2	2.0
SKO	3.2	2.4	2.4	1.8	0.2	0.2	0.2	0.1	1.3	0.9	0.9	0.8
HSD	111.1	82.6	100.4	72.7	7.6	5.5	7.8	5.5	45.7	30.9	50.5	35.7
LDO	0.6	0.6	0.7	0.9	0.05	0.07	0.05	0.09	0.3	0.4	0.4	0.5
LUBES	0.9	3.8	1.1	4.1	0.1	0.4	0.1	0.4	0.4	1.7	0.5	2.1
FO/LSHS	9.3	6.3	7.4	5.6	0.5	0.5	0.7	0.5	3.7	2.6	3.9	3.0
BITUMEN	4.9	6.7	4.9	7.5	0.3	0.4	0.2	0.4	1.6	2.6	1.9	3.3
PET COKE	14.6	21.7	12.0	15.6	0.9	1.1	1.1	1.1	5.8	8.8	6.7	6.9
OTHERS	31.0	11.4	30.2	12.8	2.4	0.9	2.7	1.2	15.1	5.0	16.1	6.0
<b>ALL INDIA</b>	<b>262.9</b>	<b>214.1</b>	<b>233.5</b>	<b>194.3</b>	<b>18.0</b>	<b>15.1</b>	<b>19.1</b>	<b>15.9</b>	<b>107.3</b>	<b>85.9</b>	<b>119.1</b>	<b>95.6</b>
<b>Growth (%)</b>	<b>0.2%</b>	<b>0.4%</b>	<b>-11.2%</b>	<b>-9.3%</b>	<b>-9.5%</b>	<b>-6.5%</b>	<b>6.1%</b>	<b>5.2%</b>	<b>-16.3%</b>	<b>-19.3%</b>	<b>11.0%</b>	<b>11.3%</b>

Note: Prod - Production; Cons - Consumption

15. LPG consumption (Thousand Metric Tonne)								
LPG category	2019-20	2020-21	September			April-September		
			2020-21	2021-22 (P)	Gr (%)	2020-21	2021-22 (P)	Gr (%)
<b>1. PSU Sales :</b>								
LPG-Packed Domestic	23,076.0	25,128.1	2,053.9	2,110.5	2.8	12,414.1	12,308.1	-0.9
LPG-Packed Non-Domestic	2,614.4	1,886.0	155.1	204.0	31.5	636.8	994.9	56.2
LPG-Bulk	263.5	361.9	35.0	29.6	-15.4	141.0	176.9	25.5
Auto LPG	171.9	118.4	11.1	11.6	4.1	43.4	56.7	30.6
<b>Sub-Total (PSU Sales)</b>	<b>26,125.7</b>	<b>27,494.3</b>	<b>2,255.2</b>	<b>2,355.8</b>	<b>4.5</b>	<b>13,235.3</b>	<b>13,536.6</b>	<b>2.3</b>
<b>2. Direct Private Imports*</b>	<b>204.0</b>	<b>64.2</b>	<b>6.2</b>	<b>6.8</b>	<b>9.6</b>	<b>19.1</b>	<b>43.8</b>	<b>129.3</b>
<b>Total (1+2)</b>	<b>26,329.8</b>	<b>27,558.4</b>	<b>2,261.4</b>	<b>2,362.5</b>	<b>4.5</b>	<b>13,254.4</b>	<b>13,580.4</b>	<b>2.5</b>

\*Aug -Sep 2021 DGCIS data are prorated

16. LPG marketing at a glance														
Particulars (As on 1st of April)	Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	1.10.21 (P)
LPG Active Domestic Customers	(Lakh)						1486	1663	1988	2243	2654	2787	2895	2957
	Growth							11.9%	19.6%	12.8%	18.3%	5.0%	3.9%	3.9%
LPG Coverage (Estimated)	(Percent)						56.2	61.9	72.8	80.9	94.3	97.5	99.8	-
	Growth							10.1%	17.6%	11.1%	16.5%	3.4%	2.3%	-
PMUY Beneficiaries	(Lakh)								200	356	719	802	800.4	832.9
	Growth									77.7%	101.9%	11.5%	-0.2%	3.9%
LPG Distributors	(No.)	9686	10541	11489	12610	13896	15930	17916	18786	20146	23737	24670	25083	25156
	Growth	3.4%	8.8%	9.0%	9.8%	10.2%	14.6%	12.5%	4.9%	7.2%	17.8%	3.9%	1.7%	1.3%
Auto LPG Dispensing Stations	(No.)	536	604	652	667	678	681	676	675	672	661	657	651	634
	Growth	19.9%	12.7%	7.9%	2.3%	1.6%	0.4%	-0.7%	-0.1%	-0.4%	-1.6%	-0.6%	-0.9%	-3.5%
Bottling Plants	(No.)	182	183	184	185	187	187	188	189	190	192	196	200	199
	Growth	0.0%	0.5%	0.5%	0.5%	1.1%	0.0%	0.5%	0.5%	0.5%	1.1%	2.1%	2.0%	0.5%

Source: PSU OMCs (IOCL, BPCL and HPCL)

1. Growth rates as on 1.10.2021 are w.r.t. figures as on 1.10.2020. All growth rates as on 1 April of any year are w.r.t. figures as on 1 April of previous year.

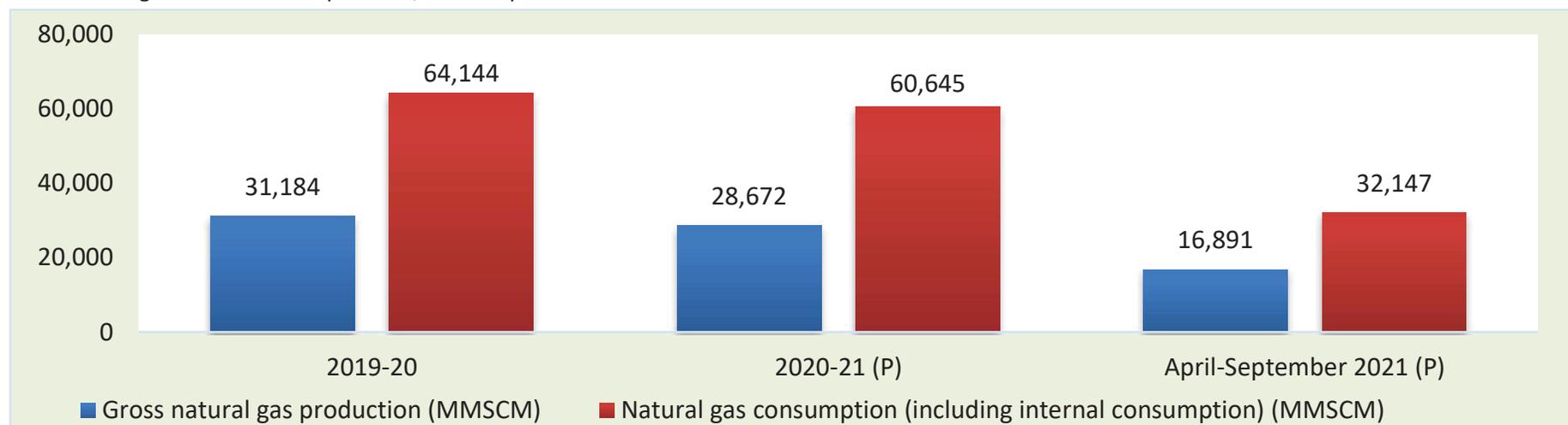
2. The methodology used for estimating LPG coverage by PSU OMC's is under review.

## 18. Natural gas at a glance

(MMSCM)

Details	2019-20	2020-21 (P)	September			April-September		
			2020-21 (P)	2021-22 (Target)	2021-22 (P)	2020-21 (P)	2021-22 (Target)	2021-22 (P)
(a) Gross production	31,184	28,672	2,294	3,171	2,902	13,954	18,112	16,891
- ONGC	23,746	21,872	1,783	1,934	1,730	10,979	11,530	10,256
- Oil India Limited (OIL)	2,668	2,480	201	243	254	1,242	1,478	1,434
- Private / Joint Ventures (JVs)	4,770	4,321	310	994	918	1,733	5,105	5,200
(b) Net production (excluding flare gas and loss)	30,257	27,784	2,228		2,840	13,492		16,469
(c) LNG import <sup>#</sup>	33,887	32,861	2,855		2,645	15,798		15,678
(d) Total consumption including internal consumption (b+c)	64,144	60,645	5,083		5,485	29,290		32,147
(e) Total consumption (in BCM)	64.1	60.6	5.1		5.5	29.3		32.1
(f) Import dependency based on consumption (%), {c/d*100}	52.8	54.2	56.2		48.2	53.9		48.8

#Jul 2020-Aug 2021 DGCIS data prorated; RIL data prorated



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

Prognosticated CBM resources	91.8	TCF
Established CBM resources	10.4	TCF
CBM Resources (33 Blocks)	62.8	TCF
Total available coal bearing areas (India)	32760	Sq. KM
Total available coal bearing areas with MoPNG/DGH	21659	Sq. KM
Area awarded	16613	Sq. KM
Blocks awarded (ST CBM Block awarded twice in CBM Round II and Round IV)	32	Nos.
Exploration initiated (Area considered if any boreholes were drilled in the awarded block)	10669.55	Sq. KM
Production of CBM gas	April-September 2021 (P)	344.62
Production of CBM gas	September 2021 (P)	57.04
		MMSCM
		MMSCM

## 20. Natural gas pipeline network as on 31.03.2021

Nature of pipeline		GAIL	GSPL	PIL	IOCL	AGCL	RGPL	GGL	DFPCL	ONGC	GIGL	GITL	Others*	Total
Operational	Length	8,242	2,265	1,459	132	105	312	73	42	24				<b>12,653</b>
	Capacity	167.2	43.0	85.0	20.0	2.4	3.5	5.1	0.7	6.0				<b>337.3</b>
Partially commissioned <sup>#</sup>	Length	8,071			1,431						2,590	365		<b>12,457</b>
	Capacity	121.0												-
<b>Total operational length</b>		<b>16,313</b>	<b>2,265</b>	<b>1,459</b>	<b>1,563</b>	<b>105</b>	<b>312</b>	<b>73</b>	<b>42</b>	<b>24</b>	<b>2,590</b>	<b>365</b>	<b>0</b>	<b>25,110</b>
Under construction	Length	2,445									90	1,446	3,550	<b>7,531</b>
	Capacity	23.2											149.0	-
<b>Total length</b>		<b>18,758</b>	<b>2,265</b>	<b>1,459</b>	<b>1,563</b>	<b>105</b>	<b>312</b>	<b>73</b>	<b>42</b>	<b>24</b>	<b>2,680</b>	<b>1,811</b>	<b>3,550</b>	<b>32,641</b>

Source: PNGRB; Length in KMs ; Authorized Capacity in MMSCMD; \*Others-APGDC, HEPL, IGGL, IMC, Consortium of H-Energy

## 21. Existing LNG terminals

Location	Promoters	Capacity as on 01.10.2021	% Capacity utilisation (Apr-Aug 2021)
Dahej	Petronet LNG Ltd (PLL)	17.5 MMTPA	92.1
Hazira	Shell Energy India Pvt. Ltd.	5 MMTPA	74.0
Dabhol	Konkan LNG Limited	*5 MMTPA	42.8
Kochi	Petronet LNG Ltd (PLL)	5 MMTPA	22.7
Ennore	Indian Oil LNG Pvt Ltd	5 MMTPA	15.0
Mundra	GSPC LNG Limited	5 MMTPA	21.2
<b>Total Capacity</b>		<b>42.5 MMTPA</b>	

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

India's LNG Imports to Jump Near 5 Times by 2030: Petronet  
2021-10-22 09:02:33.799 GMT

By Debjit Chakraborty and Rajesh Kumar Singh  
(Bloomberg) -- India's import of natural gas is expected to hit 120 million tons/year by 2030 as the nation targets an energy mix goal, Akshay Kumar Singh, CEO of Petronet LNG, said at the India Energy Forum by CERAWEEK.

\* NOTE: India aims to boost use to natural gas to 15% of primary energy mix from about 6% now

\* India's current annual LNG import is about 26 million tons

\* The nation's gas production by 2030 is expected to reach 40 million-50 million tons

\* Current LNG import capacity is 42 million tons/year, while about 19 million tons/year capacity is under construction

\* Another 9 million-10 million tons of capacity addition are at design stage

\* Petronet is expanding its biggest terminal at Dahej to 22.5 million tons a year from 17.5 million currently

\* India's biggest LNG importer is also looking at building a new terminal on the east coast

\* The current volatility in global gas prices is causing demand destruction

\* Price volatility pushing consumers to long term LNG contracts

\* Consumers are looking at a mix of oil, gas indexation for long LNG deals, which can work good for buyers

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• 19 Oct 2021 | 20:44 UTC

## Venture Global agrees to sell 4 million mt/year of LNG to China's Sinopec: DOE

### HIGHLIGHTS

**Oct. 1 letter, now public, says deals signed Sept. 1**

**High Asian and European prices spur contracting**

Venture Global LNG has signed two long-term offtake contracts with China's Sinopec for a total of 4 million mt/year of supplies that will be tied to its proposed Plaquemines LNG facility in Louisiana, a letter it filed with the US Department of Energy that was made public Oct. 19 said.

The 20-year deals – one for 2.8 million mt/year of supply and the other for 1.2 million mt/year of supply – represent by far the largest contract by volume for US LNG agreed to by a single Chinese entity.

The disclosure, in an Oct. 1 letter from Venture Global attorneys to the DOE that was posted on the government agency's website, follows Cheniere Energy's announcement Oct. 11 that a subsidiary of China's ENN Natural Gas had signed a 13-year deal to buy LNG from the US exporter. Combined with two previous supply deals with PetroChina, Cheniere has 2.1 million mt/year of volume under long-term contract with Chinese counterparties.

Venture Global did not issue a statement or announcement about the contracts with Sinopec, formally known as China Petroleum & Chemical Corp. In an email responding to questions, a Venture Global spokesperson declined to comment.

Pricing terms were not disclosed in the letter, which said the contracts were signed Sept. 1.

### Volatile Asian, European prices

New LNG long-term contracting between US producers and Chinese buyers comes amid sharply volatile Asian and European prices that remain high, though down from record levels seen earlier in October.

Venture Global's 10 million mt/year Calcasieu Pass facility in southwest Louisiana is being built using modular trains that are smaller than the traditional liquefaction units used at other US facilities. The modular trains are being constructed in Italy and delivered to the site and plugged in one at a time.

Venture Global has said it plans a phased operational startup. If it does begin production and exports by the end of 2021 as it said earlier in the year it could, that would be about a year earlier than originally anticipated. The company has said full operations at the export terminal were expected in mid-2022.

Plaquemines LNG, which would be built in two phases south of New Orleans and have a production capacity of up to 20 million mt/year, has not yet been formally sanctioned, though a Venture Global executive said at an industry conference in September that initial construction activities would begin "imminently."

### Destination flexibility

The larger contract between VG's Plaquemines LNG and Sinopec calls for the LNG to be delivered free on board. The smaller contract calls for the LNG to be delivered "DPU," according to the letter, which did not define what that means. Sinopec will have destination flexibility, with the promise that it will only deliver the LNG to countries allowed under Venture Global's permits, according to the letter to the DOE.

LNG supplies under the contracts take effect on the commercial operation date of Phase 1 of the Plaquemines LNG facility, the letter said. Sinopec may extend the contract term for up to 10 years by notice to seller in accordance with specified conditions, the letter said.

As for the sale-and-purchase agreement between Cheniere's marketing unit and the ENN Natural Gas affiliate, that deal calls for the LNG to be delivered on a free-on-board basis from July 2022, with the purchase price indexed to the US Henry Hub price plus an undisclosed, fixed liquefaction fee.

Cheniere also has two long-term contracts with PetroChina for a combined 1.2 million mt/year of LNG. Only a small portion is in effect, with shipments on the balance starting in 2023.

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

Posted 11am on July 14, 2021

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

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

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

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

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

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

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

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

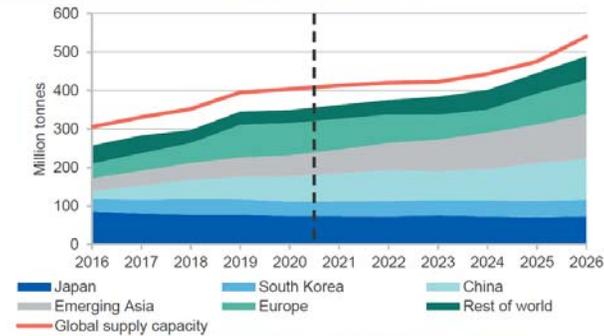
But we still see major LNG suppliers like Australia hinting but not outright saying that LNG supply gap is coming sooner. We have to believe Australia will be unveiling a sooner LNG supply gap in their September forecast. On June 28, we tweeted [\[LINK\]](#) on Australia’s Resources and Energy Quarterly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

demand that we highlight later in the blog. They didn't say anything else specific on Mozambique but, surely they have to also be delaying the follow on Total Phase 2 of 1.3 bcf/d and Exxon Rozuma Phase 1 of 2.0 bcf/d.

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

### March 2021 LNG Outlook

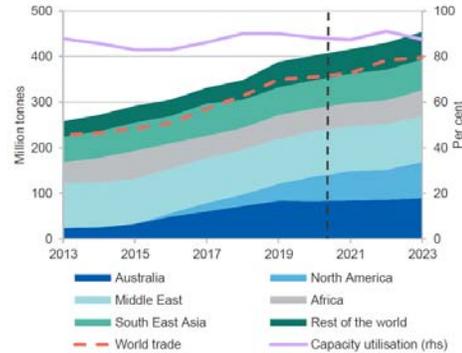
Figure 7.1: LNG demand and world supply capacity



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

### June 2021 LNG Outlook

Figure 7.1: LNG demand and world supply capacity



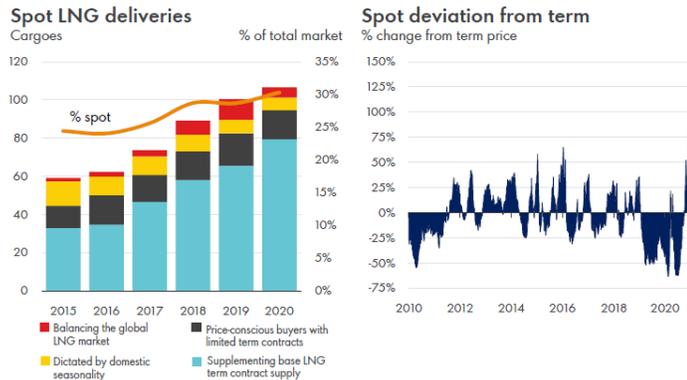
Source: Nexant (2021) World Gas Model; Department of Industry, Science, Energy and Resources (2021)

Source: Australia Resources and Energy Quarterly

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

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

## Spot LNG deliveries and Spot deviation from term price



Source: Shell LNG Outlook 2021 on Feb 25, 2021

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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Source: Xinhua News Agency Weibo

## This winter will form the La Niña event, the probability of low temperatures this winter is greater

According to the latest news from the National Climate Center, since July this year, the sea temperature in the equatorial Central and Eastern Pacific has continued to decline, and it is expected to enter the La Niña state in October and form a weak to moderate La Niña event in the winter. In view of the occurrence of La Niña events in the autumn and winter of 2020-2021, 2021 will be the "Double La Niña Year".

In the winter when most La Niña events reach their peak, the cold air activities that affect China are more frequent and stronger than normal. The temperature in most of the central and eastern parts of China is more likely to be lower than normal in the same period; while the water vapor conditions in southern China Compared with the same period of normal year, there will be obvious deviation, which is not conducive to the formation of precipitation. In addition, it should be noted that cold temperatures do not mean cold winter. "Colder" and "warmer" are only compared to average conditions, while "cold winter" and "warm winter" have strict standards. (Reporter: Huang Yao, image source: China Meteorological Administration)

1950年以来发生的拉尼娜事件

	起止年月	峰值时间	峰值强度等级
1	1950.01-1951.02	1950.01	中等
2	1954.07-1956.04	1955.10	中等
3	1964.05-1965.01	1964.11	弱
4	1970.07-1972.01	1971.01	中等
5	1973.06-1974.06	1973.12	中等
6	1975.04-1976.04	1975.12	中等
7	1984.10-1985.06	1985.01	弱
8	1988.05-1989.05	1988.12	强
9	1995.09-1996.03	1995.11	弱
10	1998.07-2000.06	2000.01	中等
11	2000.10-2001.02	2000.12	弱
12	2007.08-2008.05	2008.01	中等
13	2010.06-2011.05	2010.12	中等
14	2011.08-2012.03	2011.12	弱
15	2017.10-2018.03	2018.01	弱
16	2020.08-2021.03	2020.11	中等

数据来源:国家气候中心

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数据来源:国家气候中心

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判定冷 / 暖冬的国家标准

单站平均气温距平  
大于等于标准差的

**0.43倍**

**暖**

单站平均气温距平  
小于等于标准差的

**-0.43倍**

**冷**

冬季平均气温距平值

暖冬站数  
超过总站数的

**50%**

**冬**

冷冬站数  
超过总站数的

**50%**

**冬**

区域总站数

暖冬面积超过  
全国有效面积的

**50%**

冷冬面积超过  
全国有效面积的

**50%**

全国有效面积

数据来源：国家气候中心

中国气象社 中国天气网

[Correction] [Editor in charge: Zhao Wenhan]

## China due to the energy crisis expressed its readiness to increase imports of coal and gas from Russia

According to the Russian Ambassador to China, Andrey Denisov, "China's economy is recovering quite rapidly from the pandemic crisis," and at the same time, certain imbalances are felt, which no one hides.

BEIJING, October 22. / TASS /. Due to the energy crisis that broke out in the country in the second half of this year, China expressed its readiness to dramatically increase imports of fossil fuels from Russia. Russian Ambassador to the People's Republic of China Andrei Denisov said this on Friday in an interview with Russian journalists.

"The Chinese economy is quite rapidly emerging from the pandemic crisis and [at the same time] there are certain imbalances that no one hides here. And ahead, according to the forecasts that we see in the open press, a cold winter, the northeast, which is closer to us, may well face a certain deficit," he said. "For this reason, yes, they really ask us to consider the possibility of increasing supplies. We are, of course, ready," the diplomat added.

"In addition to coal, we [have] a new product that emerged last year - natural gas. Last year we supplied it in a trial mode via pipes [of the Power of Siberia gas pipeline], and brought the supply to about 5 billion cubic meters. This year it was planned to increase it to 10 billion cubic meters, since we cannot bring everything to full capacity yet," he said. "But the Chinese colleagues in such conversations say: how much you can supply us with different types of fossil fuels, we will take as much. Because there is really a rather big problem here," the diplomat explained.

"This is not so much a government issue as a question of companies - mining and transporting companies. Certain difficulties we have not so much in volumes, but in transport capabilities and equipment of border crossings," Denisov emphasized.

He added that significant problems are observed in the road cross-border transportation of goods due to the tightening of sanitary and epidemiological control. "Where we had 120 cars passing [through border crossings], now 40 are passing, and these are living things - the daily supply of our cities [in the Far East of Russia]," the ambassador explained.

In addition, he recalled that the countries have completed the construction of the Blagoveshchensk-Heihe cross-border road bridge, and are also at the final stage of the construction of a railway bridge at the Nizhneleninskoye-Tongjiang border crossing. "Both sides - both the Chinese and ours - are now thinking about how to organize the launch of these two bridge crossings: one road, and the second - a railway one. The railway would probably help a lot in the coal business," Denisov added.

### Energy crisis in China

In September, about 20 provinces and other regions in China imposed various restrictions on electricity consumption due to coal shortages and load on the power grid. The provinces of Heilongjiang, Jilin, Liaoning imposed restrictions not only for industry, but also for households due to a lack of electricity. In the east and south of the country, energy-intensive enterprises were instructed not to reach full capacity or to suspend operations.

According to the Zhongxing Jingwei newspaper, the main reason for the shortage of coal was its rise in price and the tightening of national environmental standards, as well as interruptions in imports.

Against the backdrop of these events, imports of coal to China in September increased by 76% in annual terms and amounted to 32.88 million tons.

# Putin: work on filling the second string of Nord Stream 2 will be completed in December

Russia is ready to start gas supplies the next day after receiving the appropriate permission from the German regulator, the president emphasized.

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SOCHI, October 21. / TASS /. Technological work on filling the second string of the Nord Stream 2 gas pipeline with gas will be completed in mid - late December 2021. At the same time, Russia is ready to start gas supplies the next day after receiving the appropriate permission from the German regulator, Russian President Vladimir Putin said on Thursday, speaking at a meeting of the Valdai International Club.

"The first pipe of Nord Stream 2 is filled with gas. If tomorrow the German regulator gives permission for the supply, the day after tomorrow the delivery will begin, 17.5 billion cubic meters. By the end of this year - in the middle, at the end of December - technological work on filling the second gas pipe of Nord Stream 2. In total, this is 55 billion cubic meters. As soon as the second pipe is filled and as soon as the permission of the German regulator is received, the next day we will start deliveries," Putin said.

The head of state recalled that the volume of carbon dioxide emissions during transportation through Nord Stream 2 is 5.6 times less than through the gas transportation system of Ukraine.

Nord Stream 2 is a modern technology, modern pipes that increase pressure. Movement along the bottom of the Baltic Sea occurs without any emissions at all. These compressor stations are small mini-factories that also run on gas <...> The emissions are 5.6 times

less than during transit through the Ukrainian gas transportation system, simply because it is already old, "the head of state said.

According to Putin, the carbon content of Russian gas is three times less than that of American liquefied natural gas. Putin suggested that environmentalists who care about the future of humanity cannot help but hear this. "By and large, they should not demand construction, but the closure of all terminals for receiving liquefied natural gas," Putin said.

## Gazprom creating record-high amount of working gas inventories in Russia's underground storages at 72.6 billion cubic meters

October 22, 2021, 20:25

- Daily deliverability of Russian [UGS](#) facilities is reaching an unprecedented level of 847.9 million cubic meters.
- All sets of planned preventive maintenance and repair operations are completed.

The Gazprom [Management Committee](#) took note of the information about the operational readiness of the Unified Gas Supply System (UGSS) facilities for peak loads expected in late 2021 – early 2022, as well as the measures necessary to ensure uninterrupted gas supplies to consumers in winter.

It was highlighted that the Company is committed to achieving its top priority in a rigorous manner: ensuring the high reliability of gas supplies to consumers in Russia and abroad. As before, Gazprom continues to fulfill its contractual obligations in the current period of consistently high gas demand.

At the same time, the Company is making large-scale efforts as part of its traditional preparation of gas production, transmission and storage facilities for operation in the winter season, which is notable for substantial increases in gas consumption. All 12 sets of planned preventive maintenance and repair operations have been completed.

Specifically, repairs of 89 comprehensive gas treatment and pre-treatment units are fully completed at production sites. It is planned to, inter alia, bring new booster compressor capacities into operation at the [Bovanenkovskoye](#) and Yamburgskoye fields before the end of this year.

By October 1, the Company repaired more than 416 kilometers of the linear part of gas trunklines and 13 strings of submerged crossings, 395 gas compressor units, and 91 gas distribution stations. Over 27,000 kilometers of gas pipelines underwent in-line inspections.

Analysis of actual weather conditions in Russia and Europe over the past few years confirms that the winter period now includes the spring month of March. Therefore, efforts for ensuring the availability of sufficient reserves in underground gas storage (UGS) facilities and maintaining their high deliverability are among the key factors for successful operation in the season of peak demand.

During the 2020–2021 heating season, 60.6 billion cubic meters of gas were withdrawn from Russian UGS facilities, an all-time high for Russia's gas industry. At present, Gazprom continues to inject gas into UGS facilities to replenish the amounts withdrawn and create a record-high amount of working gas inventories at 72.638 billion cubic meters (taking into account the UGS facilities in Belarus and Armenia – 73.824 billion cubic meters).

The potential maximum daily deliverability of Russian UGS facilities is being brought to an unprecedented level of 847.9 million cubic meters (taking into account the UGS facilities in Belarus and Armenia – 887.9 million cubic meters). The increase in deliverability against the previous withdrawal season (by 4.6 million cubic meters) is commensurate with daily gas consumption for the winter period in such Russian regions as the Republics of Karelia or Ingushetia.

Gazprom's relevant units, subsidiaries, and entities were tasked to complete the preparation of the UGSS facilities for autumn/winter operation in due time and to ensure the reliable and uninterrupted functioning of the production capacities.

<https://www.newswire.ca/news-releases/oil-sands-pathways-alliance-outlines-three-phase-plan-to-achieve-goal-of-net-zero-emissions-881120319.html>

# Oil Sands Pathways alliance outlines three-phase plan to achieve goal of net zero emissions

NEWS PROVIDED BY

**Oil Sands Pathways to Net Zero**

Oct 21, 2021, 09:00 ET

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CALGARY, AB, Oct. 21, 2021 /CNW/ - The Oil Sands Pathways to Net Zero initiative, an alliance between Canada's five largest oil sands producers, has announced additional details of its plan to achieve the goal of net zero greenhouse gas (GHG) emissions from oil sands operations.

"As a significant source of Canada's GHG emissions, we know we must also be part of the solution," says Pathways Director Al Reid. "That's why we're working together on innovative approaches to achieve our shared vision of net zero emissions."

Canadian Natural (CNW Group/Oil Sands Pathways to Net Zero)

Cenovus Energy (CNW Group/Oil Sands Pathways to Net Zero)

Imperial (CNW Group/Oil Sands Pathways to Net Zero)

MEG Energy (CNW Group/Oil Sands Pathways to Net Zero)

Suncor Energy (CNW Group/Oil Sands Pathways to Net Zero)

Pathways alliance members, who operate facilities accounting for 90% of Canadian oil sands output, are **working collectively with the federal** and Alberta governments, with a goal to achieve net zero (neutral) emissions from oil sands operations by 2050 to help Canada meet its climate goals, including its Paris Agreement commitments and 2050 net zero aspirations.

The Pathways alliance has already begun work to eliminate 68 megatonnes (Mt) of annual oil sands production emissions in three phases\*:

**Phase 1 (2021 – 2030) - 22 Mt**

**Phase 2 (2031 – 2040) - 25 Mt**

**Phase 3 (2041 – 2050) - 21 Mt**

\*Emissions reductions for each phase are estimates based on current assumptions and may be subject to adjustment.

Because there is no single solution to achieving net zero emissions from oil sands operations, the initiative will employ several parallel pathways and technologies. These include established and proven technologies such as carbon capture, use and storage (CCUS) as well as other existing and emerging GHG reduction technologies. This includes switching to lower carbon fuels such as clean hydrogen and electricity to power oil sands

operations, implementing advanced production processes and improving energy efficiency at oil sands facilities.

The Pathways initiative will also work to accelerate the development of potential emerging emissions-reducing technologies such as direct air capture of carbon dioxide (CO<sub>2</sub>), more efficient next-generation oil sands production technologies and small modular nuclear reactors. The initiative will help preserve jobs in the oil sands sector, which is one of Canada's largest employers, while also creating thousands of new construction and permanent jobs in the oil and gas and cleantech industries.

In Phase 1 (2021 – 2030), the Pathways initiative will focus on building out a carbon capture network in the oil sands producing region of northern Alberta. This includes plans to install equipment at a number of oil sands plants to capture CO<sub>2</sub> to keep these emissions from entering the atmosphere. At the heart of the network is a proposed carbon transportation line to gather CO<sub>2</sub> from more than 20 oil sands facilities and move it to a proposed hub in the Cold Lake area of Alberta for storage. The line would also be available to other industries in the region interested in capturing and storing CO<sub>2</sub>.

"Carbon capture may be unfamiliar to many Canadians, but it's a technology that has been in use for decades around the world that's proven to be effective and safe," says Reid. "Canada is a leader in this area, and this technology is already being used in Alberta and Saskatchewan to capture and safely store CO<sub>2</sub> from industrial facilities."

The proposed Pathways carbon capture network is similar to other large carbon capture projects already underway in other progressive oil producing nations where industry and government are working together to reduce CO<sub>2</sub> emissions from industry. For example:

- In Norway, oil companies Equinor, Shell and Total are collaborating with the government on the development of the Northern Lights project to capture 0.8 megatonnes per year of CO<sub>2</sub> from cement and waste-to-energy plants near Oslo and transport it to a sequestration hub for safe underground storage. To get the project off the ground, the Norwegian government is funding two-thirds of the capital costs for the project and the first 10 years of operating costs.
- In the Netherlands, the Dutch government is providing up to \$3 billion for the Porthos project which is being developed by the Port of Rotterdam and state-owned natural gas companies EBN and Gasunie to capture CO<sub>2</sub> emissions from refineries and hydrogen plants near Rotterdam and transport it to a safe storage site.

To advance the Pathways vision and help Canada meet its climate goals, alliance members are currently developing detailed project plans for Phase 1, including conducting feasibility studies for the CO<sub>2</sub> transportation line and storage hub as well as pre-engineering work for capturing carbon at multiple oil sands facilities.

For more information on the Pathways vision and to stay up to date on the progress of the initiative, visit [oilsandspathways.ca](https://oilsandspathways.ca) and subscribe to our updates.

SAF Group created transcript of PM Trudeau post G7 press conference June 13, 2021.

At 49:00 min mark of CBC Rosemary Barton Live [\[LINK\]](#)

Question: *“COP-26 coming up as well, the oil sands/tar sands producers, they’ve got a plan to Net Zero by 2050, is that good enough, a lot of it is based on technology, which as of yet is unproven on a mass scale, sequestration as well. Do you Sir, does Canada need to be more ambitious?”*

Trudeau: *“Canada has put in place one of the strongest, broad based prices on pollution in the world. We know putting a price on pollution is one of the strongest ways not just to move forward on fighting climate change, but to incentivize business to make investments that decarbonize the workings of our economy. We also at the same time know that transforming our energy mix is going to be extremely important. that’s why the energy expertise by workers across this country are going to be put forward in initiatives like a recent agreement we signed on hydrogen for example. Investing in critical minerals that will be essential for zero emissions vehicles of the future. when we talk of critical minerals, we know that china is right now a strong provider to the world of critical minerals. But Canada is a place where we have strong and stable supplies of that as well that could be of use in a reliable supply chain to the world. There are many many conversations we have on strengthening our environment and creating good jobs in the future and that involves being ambitious as we have been in setting not just ambitious targets for 2030 but showing a very clear plan on how we are going to reach those targets as well as being deeply committed to being net Zero by 2050, which is something actually we are working very hard to pass in the House of Commons in Canada right now. Hopefully we will see the necessary progressive parties come together to support that Net Zero legislation so Canada can continue to demonstrate real leadership in fighting climate change”.*

<https://www.newswire.ca/news-releases/canada-s-largest-oil-sands-producers-announce-unprecedented-alliance-to-achieve-net-zero-greenhouse-gas-emissions-866303015.html>

## Canada's largest oil sands producers announce unprecedented alliance to achieve net zero greenhouse gas emissions



NEWS PROVIDED BY **MEG Energy Corp.**  
Jun 09, 2021, 06:45 ET

CALGARY, AB, June 9, 2021 /CNW/ - Canadian Natural Resources, Cenovus Energy, Imperial, MEG Energy and Suncor Energy formally announced today the Oil Sands Pathways to Net Zero initiative. These companies operate approximately 90% of Canada's oil sands production. The goal of this unique alliance, working collectively with the federal and Alberta governments, is to achieve net zero greenhouse gas (GHG) emissions from oil sands operations by 2050 to help Canada meet its climate goals, including its Paris Agreement commitments and 2050 net zero aspirations.

Canada's largest oil sands producers announce unprecedented alliance to achieve net zero greenhouse gas emissions (CNW Group/MEG Energy Corp.)

- This collaborative effort follows welcome announcements from the Government of Canada and the Government of Alberta of important support programs for emissions-reduction projects and infrastructure. **Collaboration between industry and government will be critical** to progressing the Oil Sands Pathways to Net Zero vision and achieving Canada's climate goals.
- The Pathways vision is anchored by a major Carbon Capture, Utilization and Storage (CCUS) trunkline connected to a carbon sequestration hub to enable multi-sector 'tie-in' projects for expanded emissions reductions. The proposed CCUS system is similar to the multi-billion dollar Longship/Northern Lights project in Norway as well as other CCUS projects in the Netherlands, U.K. and U.S., all of which involve significant collaboration between industry and government.
- The Pathways initiative is ambitious and will require significant investment on the part of both industry and government to advance the research and development of new and emerging technologies.
- The companies involved look forward to continuing to work with the federal and Alberta governments, and to engaging with local Indigenous communities in northern Alberta to make this ambitious, major emissions-reduction vision a reality so those communities can continue to benefit from Canadian resource development.

As proud Canadian companies, members of the Pathways alliance share the aspiration of Canadians to find realistic and workable solutions to the challenge of climate change. The oil sands industry is a significant source of GHG emissions and the initiative will develop an actionable approach to address those emissions, while also preserving the more than \$3 trillion in estimated oil sands contribution to Canada's gross domestic product (GDP) over the next 30 years. The initiative will create jobs, accelerate development of the clean tech sector, provide benefits for multiple other sectors and help maintain Canadians' quality of life. The members of the Pathways alliance will do their part by making the economic investments needed to ensure that our companies successfully make the transition to a net zero world, and hence, deliver long-term value to shareholders.

Because there is no single solution to achieving net zero emissions, the initiative incorporates a number of parallel pathways to address GHG emissions, including:

- **A core Alberta infrastructure corridor linking oil sands facilities in the Fort McMurray and Cold Lake regions to a carbon sequestration hub near Cold Lake via a CO<sub>2</sub> trunkline. The trunkline would also be available to other industries in the region interested in capturing and sequestering CO<sub>2</sub>. There is also potential to link the infrastructure corridor to the Edmonton region.**
- Deploying existing and emerging GHG reduction technologies at oil sands operations along the corridor, including CCUS technology, clean hydrogen, process improvements, energy efficiency, fuel switching and electrification.
- Evaluating, piloting and accelerating application of potential emerging emissions-reducing technologies including direct air capture, next-generation recovery technologies and small modular nuclear reactors.

In addition to collaborating and investing together with industry, it is essential for governments to develop enabling policies, fiscal programs and regulations to provide certainty for this type of long-term, large-scale investment. This includes dependable access to carbon sequestration rights, emissions reduction credits and ongoing investment tax

credits. We look forward to continued collaboration with both the federal and Alberta governments to create the regulatory and policy certainty and fiscal framework needed to ensure the economic viability of this initiative.

Canada is uniquely positioned to be a global leader in responsible oil production. The country has the world's third-largest oil reserves, some of the most stringent regulations and standards governing energy projects anywhere in the world, a strong track record for technology development and an established reputation of industry working together with Indigenous communities and municipalities. Members of the Pathways initiative believe the most effective way to address climate change is by developing and advancing new technologies and that this unprecedented challenge can and will be solved by Canadian ingenuity, leadership and collaboration.

While alternative energy sources will play an increasingly important role in the decades ahead, all internationally recognized forecasts indicate fossil fuels will continue to be an essential requirement through 2050 and beyond as part of a diversified energy mix, including as a feedstock for carbon fibres, asphalt, plastics and other important products. That's why it's critical to take action now to ensure Canada takes its place as a leading supplier of responsibly produced oil to meet the world's demand for energy well into the future.

#### **QUOTES:**

##### **Government of Alberta**

*"The Oil Sands Pathways to Net Zero initiative is an industry driven, made-in-Alberta solution which will strengthen our position as global ESG leaders," said Sonya Savage, Alberta's Minister of Energy. "Every credible energy forecast indicates that oil will be a major contributor to the energy mix in the decades ahead and even beyond 2050. Alberta is uniquely positioned and ready to meet that demand. This initiative will also pave the way for continued technological advancements, ultimately leading to the production of net zero barrels of oil."*

##### **Canadian Natural Resources Limited**

*"Canada has an opportunity to lead on climate change by delivering meaningful emissions reductions as well as balancing sustainable economic development," said Tim McKay, Canadian Natural President. "Canadian ingenuity has enabled oil sands development and with continued innovation, positions Canada to be the ESG-leading barrel to meet global energy demand. We are committed to working together with industry partners and governments to help meet Canada's climate objectives while providing sustainable long-term economic and social benefits for Canadians from the oil sands."*

##### **Cenovus Energy**

*"This collaborative effort amongst oil sands peers shows our serious commitment to global climate leadership," said Alex Pourbaix, Cenovus President and CEO. "We are doing more than just talking about the need to play a role – we are taking bold action to address our emissions challenge and earn our spot as the supplier of choice to meet the world's growing demand for energy."*

##### **Imperial**

*"Canada has what it takes to be the responsible energy provider to the world," said Brad Corson, Imperial Chairman, President and Chief Executive Officer. "Canada's long-term success in achieving its climate goals lies in a collective commitment to innovation, global competitiveness, supportive public policy and open and ongoing dialogue on constructive solutions. Imperial is collaborating with others in industry and governments to develop and commercialize the breakthrough technologies that will reduce emissions and support society's net zero ambitions."*

##### **MEG Energy**

*"We are pleased to be part of this collaborative effort committed to the critical measures needed to achieve net zero green house gas emissions in the oil sands," said Derek Evans, President and Chief Executive Officer of MEG Energy. "Bold action today demonstrates our commitment to tackling climate change and global climate leadership. This alliance working collectively with the federal and Alberta governments and all stakeholders will ensure that Canada continues to be a leading supplier to the world of responsibly produced oil."*

##### **Suncor Energy**

*"Collaboration among companies, innovators and governments is critical to achieving ambitious goals. That's how we built a budding oil sands resource into one of the world's most reliable and ESG-leading oil basins in the world," said Mark Little, Suncor President and Chief Executive Officer. "Canada - as one of the few jurisdictions with industrial-scale commercial CCUS projects in operation -- coupled with Alberta's abundant natural gas resources, geology and relevant technological expertise - is well positioned to lead in this area."*

#### **About the Pathways initiative member companies**

##### **Canadian Natural Resources Limited**

Canadian Natural Resources Limited (Canadian Natural) is a senior oil and natural gas production company, with continuing operations in its core areas located in Western Canada, the U.K. portion of the North Sea and Offshore Africa. Canadian Natural shares trade under the symbol CNQ on the Toronto and New York stock exchanges. Refer to the Company's website for complete forward-looking statements at [www.cnrl.com](http://www.cnrl.com)

##### **Cenovus Energy Inc.**

Cenovus Energy Inc. is an integrated energy company with oil and natural gas production operations in Canada and the Asia Pacific region, and upgrading, refining and marketing operations in Canada and the United States. The company is focused on managing its assets in a safe, innovative and cost-efficient manner, integrating environmental, social and governance considerations into its business plans. Cenovus common shares and warrants are listed on

the Toronto and New York stock exchanges, and the company's preferred shares are listed on the Toronto Stock Exchange under the symbol CVE. For more information, visit [cenovus.com](http://cenovus.com).

### **Imperial**

After more than a century, Imperial continues to be an industry leader in applying technology and innovation to responsibly develop Canada's energy resources. As Canada's largest petroleum refiner, a major producer of crude oil, a key petrochemical producer and a leading fuels marketer from coast to coast, our company remains committed to high standards across all areas of our business.

### **MEG Energy**

MEG is an energy company focused on sustainable [in situ](#) thermal oil production in the southern Athabasca oil region of Alberta, Canada. MEG is actively developing innovative enhanced oil recovery projects that utilize steam-assisted gravity drainage ("[SAGD](#)") extraction methods to improve the responsible economic recovery of oil as well as lower carbon emissions. MEG transports and sells its thermal oil ([AWB](#)) to customers throughout North America and internationally.

### **Suncor Energy**

Suncor Energy is Canada's leading integrated energy company, with a global team of over 30,000 people. Suncor's operations include oil sands development, production and upgrading, offshore oil and gas, petroleum refining in Canada and the US, and our national Petro-Canada retail distribution network (now including our Electric Highway network of fast-charging EV stations). A member of Dow Jones Sustainability indexes, FTSE4Good and CDP, Suncor is responsibly developing petroleum resources, while profitably growing a renewable energy portfolio and advancing the transition to a low-emissions future. Suncor is listed on the UN Global Compact 100 stock index. Suncor's common shares (symbol: SU) are listed on the Toronto and New York stock exchanges.

# Production figures September 2021

20/10/2021 Preliminary production figures for September 2021 show an average daily production of 2 022 000 barrels of oil, NGL and condensate,

Total gas sales were 8.9 billion Sm<sup>3</sup> (GSm<sup>3</sup>), which is a decrease of 0.5 GSm<sup>3</sup> from the previous month.

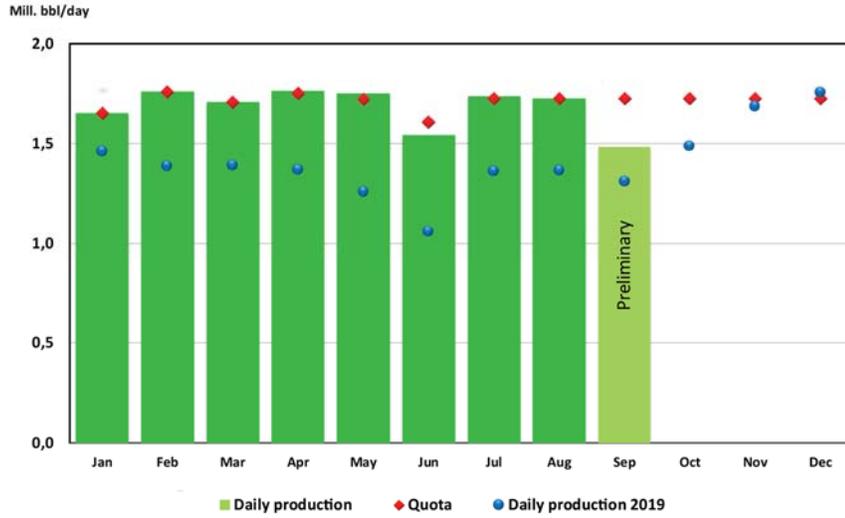
Average daily liquids production in September was: 1 772 000 barrels of oil, 240 000 barrels of NGL and 10 000 barrels of condensate.

Oil production in August is 1.1 percent higher than the NPD's forecast, and 0.8 percent higher than the forecast so far this year.

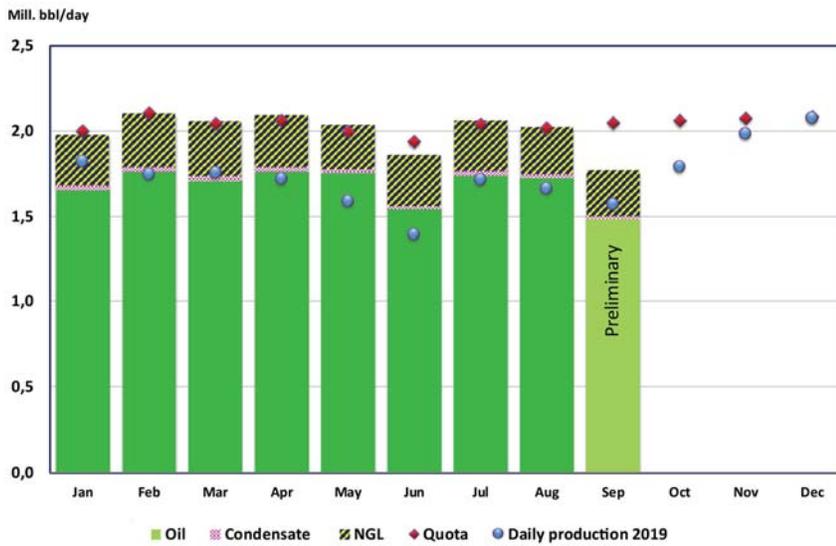
## Production September 2021

		Oil	Sum liquid	Gas	Total
		mill bbl/d	mill bbl/d	MSm <sup>3</sup> /d	MSm <sup>3</sup> o.e/d
Production	September 2021	1,772	2,022	296,8	0,620
Forecast for	September 2021	1,753	2,040	287,9	0,612
Deviation from forecast		0,019	-0,018	8,9	0,008
Deviation from forecast in %		1,1 %	-0,9 %	3,1 %	1,3 %
Production	August 2021	1,813	2,092	304,4	0,637
Deviation from	August 2021	-0,041	-0,070	-7,6	-0,017
Deviation in % from	August 2021	-2,3 %	-3,3 %	-2,5 %	-2,7 %
Production	September 2020	1,492	1,777	277,1	0,560
Deviation from	September 2020	0,280	0,280	19,7	0,060
Deviation in % from	September 2020	18,8 %	15,8 %	7,1 %	10,7 %

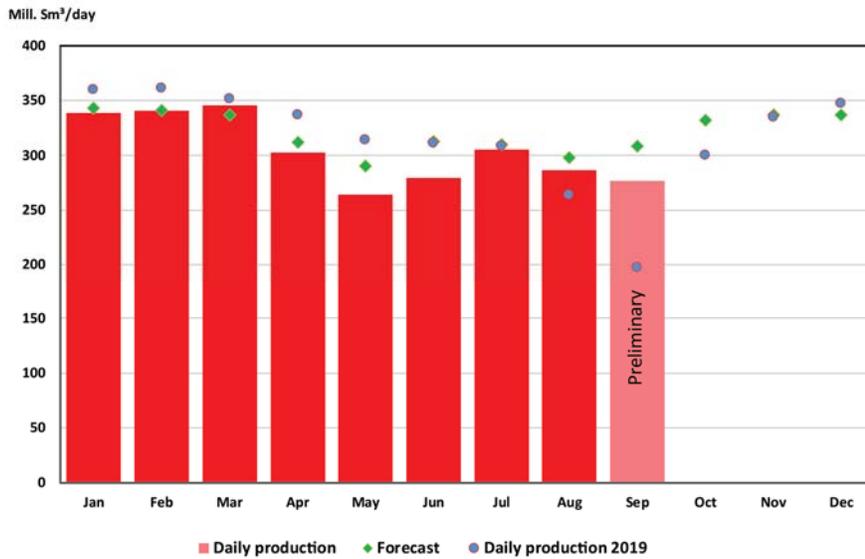
## Oil production 2021



## Liquid production 2021



## Gas production 2021



The total petroleum production for the first ninth months in 2021 is about 170.5 million Sm<sup>3</sup> oil equivalents (MSm<sup>3</sup> o.e.), broken down as follows: about 76.0 MSm<sup>3</sup> o.e. of oil, about 11.6 MSm<sup>3</sup> o.e. of NGL and condensate and about 82.9 MSm<sup>3</sup> o.e. of gas for sale.

The total volume is equal to the 2020-figures.

Updated: 20/10/2021

- 
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-

SAF Group created transcript of excerpts from Bloomberg's Yousef Gamal El-Din interview with Saudi Arabia energy minister Abdulaziz, posted Oct 23 11:41pm MT. <https://www.bloomberg.com/news/videos/2021-10-24/saudi-energy-minister-oil-rebound-can-t-be-taken-for-granted>

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

At 4:20 min mark, Bloomberg asks how he responds to Biden's town hall blaming Saudi Arabia for high energy prices. Abdulaziz *"I don't, I wouldn't reflect on that, its above my paygrade, but I am a technician. And I deal with technical issues. Gasoline prices are high because it is mixed with ethanol that went ten-fold. Gasoline prices are high because there is no stocks in the US. Gasoline prices are high because there are still 2 to 2.5 million barrels per day of capacity shut down because of the hurricane. Crude oil import would not help it. what would help it is making gasoline more available or, as a technician and I don't know how valid it is, limiting export of gasoline. But I am not here reflecting on anybody's opinion."*

At 5:40 min mark, Bloomberg says will followup on the Biden point on a technical point asks if Saudi Arabia can step up and bring OPEC+ compliance down from 115% to closer to 100%. Abdulaziz *"well we still have a lot of compensation to do. but even with the, first of all, we don't call them quota, we call them voluntary cuts. but even with the voluntary cuts, if you look at the trajectory of 2022, and even if you look at the 400's we will doing all the way until September, if you continue to do until September, without enclosure of any other country like for example Iran coming back or Venezuela coming back. Even with that, if you look at, if you talk to your experts at Bloomberg they will tell you that you will have a huge uplift in stocks by the end of year 2022. This is a reality. Not our numbers, its actually eight sources numbers, one of them is the IEA they all are saying there will be a huge stock build in 2022. If you do more now, you are actually accelerating the problem even to a worse level. But if you do it, you have to have it for a purpose. Show me any utility that will take fuel oil today, show me any utility that will take crude. This is the gap. Its about filling or substituting for gas or coal. And unfortunately, this is limited. With regards to gasoline, as I said I think the remedy is indigenous, it has to do with doing something about ethanol and It has to do with about limiting exports"*

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

<https://www.argusmedia.com/en/news/2265401-saudi-arabia-again-pushes-back-on-calls-for-more-crude#.YXBNtsLhcVk.twitter>

# Saudi Arabia again pushes back on calls for more crude

Published date: 20 October 2021

Share:

Saudi energy minister Prince Abdulaziz bin Salman today again pushed back against calls for Opec and its non-Opec partners to raise their collective crude output more aggressively to help temper rising prices, and said the current energy crunch is not down to a shortage of crude.

"[Saudi Arabia] has been the guardian of energy security when it comes to oil. And in doing so, we have asked ourselves deliberately here what we can do as an additional contribution to mitigate the situation," Prince Abdulaziz told the India Energy Forum by CERAWEEK.

"Unfortunately, for the first time, we see our role extremely limited... because the issue is not availability of crude," he said. "Even if we made the crude available in tons and tons, who is going to burn it? Where are the refineries that will convert it? And who is in need? Are they in need of crude? Or gas?"

Opec+ is three months into a deal to restore the production it took off the market last year in response to the Covid-19-induced collapse in demand. The plan envisages monthly rises of 400,000 b/d until April 2022, and then of 432,000 b/d every month until all the 9.7mn b/d it originally cut from the market is returned. At the group's most recent meeting it opted to stick to that plan in the face of calls, notable from the US, that it consider raising production more quickly. With front-month Ice Brent futures up further since the meeting, topping \$86/bl briefly this week, the calls have grown.

India's petroleum minister Shri Hardeep Singh Puri, who was also speaking at the event, said prices need to "remain predictable stable and affordable" or the economic recovery "could be undermined".

"I am sure that when our friends who are in Opec... will factor in the sentiment that is being voiced," he said.

## Scaremongering

Echoing comments [he made in Moscow](#) last week, Prince Abdulaziz today said the current situation is an anomaly.

"A good chunk of the tightness today that we see is [down to] some sort of scaremongering," he said. "There is always this human thing, you know the crowding effect kicks in and panic buying picks up."

Oil prices are being supported by the ongoing shortage of gas and coal that has encouraged gas-to-oil switching in the power industry ahead of the northern hemisphere winter. The IEA has predicted that, if temperatures get exceptionally low, this switching could generate an additional 500,000 b/d of demand in the season.

Prince Abdulaziz said the incremental demand could amount to "500,000-600,000 b/d," but said this was not a foregone conclusion.

"I do respect weathermen but if you... check what the weatherman says and check the weather tomorrow... you would probably [question] how reliable they are," he said.

The Opec+ group will next meet on 4 November, when it will decide on policy for the following month.

By Nader Itayim and Adal Mirza

# Kuwait sets ambitious roadmap to raise crude capacity

Published date: 22 October 2021

Share:

Kuwait has set ambitious targets to increase its crude production capacity following a few years of decline.

The country is aiming for 3.5mn b/d by 2025, chief executive of state-owned KPC Hashem Hashem said today. Earlier this week, Kuwaiti oil minister Mohammed Abdul Latif al-Fares outlined a 4mn b/d target by 2035, to be retained until 2040. Kuwait's current capacity is near 3mn b/d, including half of the 550,000 b/d of capacity in the Neutral Zone that the country shares 50:50 with neighbouring Saudi Arabia.

KPC said its upstream subsidiary KOC plans to achieve the 3.5mn b/d target by commissioning two more gathering centres, building new water treatment and injection plants, upgrading existing Jurassic production facilities and adding two more plants to increase light crude production. It is also planning an integrated drilling programme that will average 500 wells a year and 2,000 workover wells.

KPC expects around 3.2mn b/d of the 2025 capacity to be within mainland Kuwait and 350,000 b/d in the Neutral Zone. This suggests that overall capacity in the Neutral Zone will rise to 700,000 b/d. Output from the Neutral Zone's 250,000 b/d offshore Wafra field and 300,000 b/d onshore Khafji field has languished some way below capacity since restarting in early 2020 after a more-than-four-year hiatus, but Hashem said he expects production from the area to return to pre-2015 levels by 2022.

KOC, which is responsible for all of Kuwait's upstream operations outside the Neutral Zone, revealed in its annual report a few days ago that its crude capacity was 2.58mn b/d at the end of March, down from 3.15mn b/d three years earlier. The lion's share of the capacity decline has been in the main producing region of southeastern Kuwait, where the ageing, giant Burgan field is located. Regional capacity has fallen by almost 300,000 b/d to under 1.4mn b/d in the last three years.

Hashem said the decline in KOC's capacity in recent years does not provide a complete picture of Kuwait's upstream sector as the company has 500,000 b/d of potential extra capacity waiting to be unlocked over the next two years.

## Spare capacity

Kuwait's plans to boost its crude capacity coincide with mounting concerns over the Opec+ coalition's ability to fully unwind last year's production cuts by the end of next year. Some members of the group, notably Angola and Nigeria, have been having difficulty raising output because of infrastructure problems and natural decline at mature fields.

Kuwait is one of the few Opec+ members with spare capacity. [It produced 2.46mn b/d last month](#), according to *Argus* estimates, and its Opec+ baseline is 2.81mn b/d. As of May next year, the country will work off a higher 2.96mn b/d reference production level.

Al-Fares reiterated yesterday that Kuwait is able to carry on increasing production within the confines of the Opec+ agreement to help meet international demand. *Argus* estimates Kuwait produced an average of 2.37mn b/d in January-September and exported around 1.8mn b/d over that period.

It is not alone in targeting capacity growth. [Saudi Arabia plans to add 1mn b/d by 2027](#), which would take its capacity to 13mn b/d, while the UAE is pursuing a similar-sized increase to 5mn b/d by 2030. Compared with its Middle Eastern allies, Kuwait's decarbonisation targets are modest and perhaps less likely to hamper fossil fuel investment.

By Ruxandra Iordache and Nader Itayim

Oct 20, 2021 08:23:28

## OIL DEMAND MONITOR: India Diesel, Brazil City Traffic Higher (1)

- India's diesel sales near to eclipsing same period in 2019
- Sao Paulo had busiest Monday, Tuesday traffic so far in 2021

By Stephen Voss

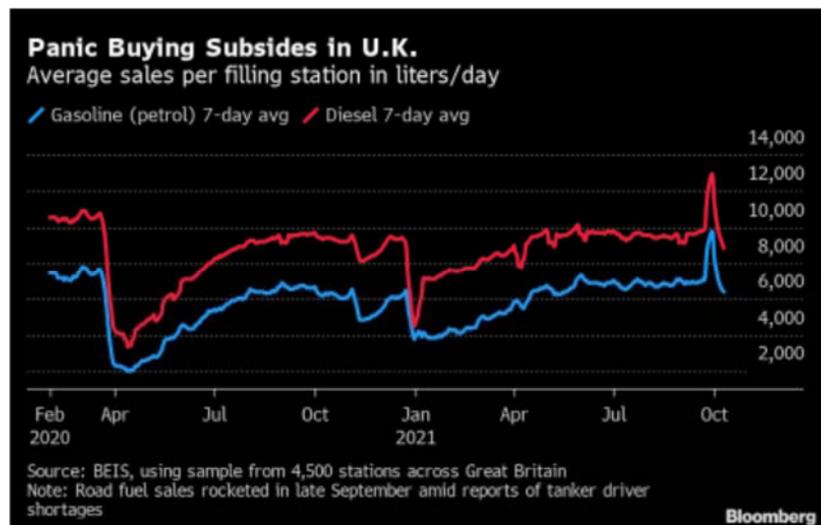
(Bloomberg) -- Surging traffic levels in Brazilian cities and stronger diesel sales in India highlight a continued improvement in oil demand in key regions, while fuel sales stabilized in the U.K. after an unusual peak.

Indian diesel sales in the first half of October were 15% higher than a month earlier -- narrowing a deficit versus 2019 to about 1% from 7% -- helped by the onset of annual festivals, according to preliminary data from officials with direct knowledge of the matter. Gasoline sales in the subcontinent are already comfortably above the pre-pandemic level.

Traffic levels in Sao Paulo moved up a gear. The Brazilian city had the most congestion for a Monday and the most for a Tuesday so far this year, according to daily average measurements from TomTom NV. Traffic has also intensified recently in Rio de Janeiro, though the trend is less clear nationwide. The volume of cars on Brazilian toll roads was only 0.6% above 2019 levels in the week ended Oct. 10, its weakest showing in four weeks, according to motorway operator Atlantia Group, and a far cry from Chile where volumes are up 16%.

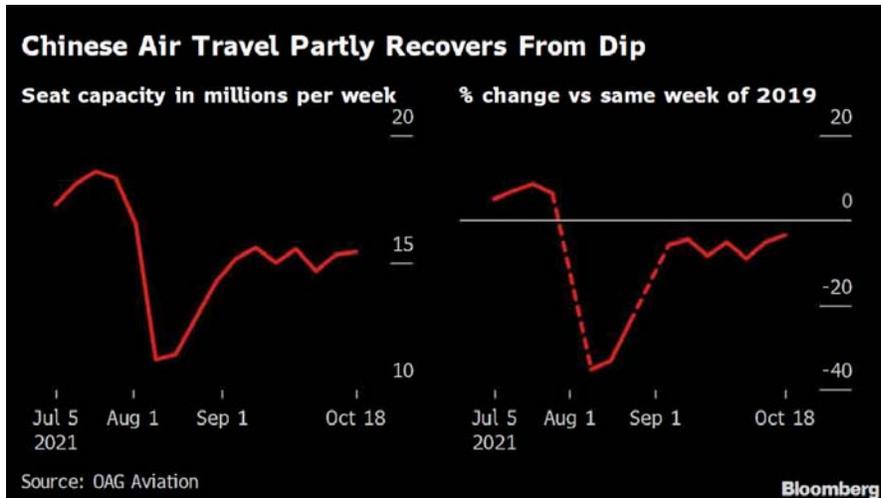
Atlantia also tracks toll roads in France, Spain and Italy, with all three hovering a few percentage points above or below the same week of 2019 in the past five weeks.

Elsewhere, road fuel sales in the U.K. have reverted back to a little below normal 2019 levels, after a spate of panic buying in late September, according to sales data collected by the government from 4,500 filling stations.



Air travel in China easily outperformed other nations for most of the pandemic but had its own slump in August and September amid a raft of travel restrictions as the country sought to contain coronavirus outbreaks in various cities. The number of seats offered by airlines there has recovered but hasn't yet risen above levels seen for the same week in 2019, according to weekly estimates from OAG Aviation.

Among major markets, China's seat capacity is 3.5% below two years ago, and the runners-up are Mexico and the U.S., with deficits of 7.5% and 13%, respectively. Singapore is one of the furthest behind, with capacity down 81% from 2019. The city state recently announced it is opening up air travel again to some countries, without needing passengers to quarantine.



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

Information due later Wednesday will show the latest weekly demand estimates for U.S. gasoline, diesel and jet fuel consumption, according to the Energy Information Administration. In the week ended Oct. 8, the EIA's estimate for gasoline was 1.8% lower than the equivalent period of 2019 while jet fuel was down 17%.

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

Demand Measure	Location	% y/y	% vs 2019	% m/m	Freq	Latest Date	Latest Value	Source
Gasoline	U.S.	+7.1	-1.8	+3.3	w	Oct. 8	9.19m b/d	EIA
Distillates	U.S.	-5.8	-9.9	+3.6	w	Oct. 8	3.93m b/d	EIA
Jet fuel	U.S.	+14	-17	-3.1	w	Oct. 8	1.33m b/d	EIA
Total oil products	U.S.	+2.1	-5.1	-0.2	w	Oct. 8	19.9m b/d	EIA
All vehicles miles traveled	U.S.		+0.8		w	Oct. 10	16.3b miles	DoT
Passenger car VMT	U.S.		-3		w	Oct. 10	n/a	DoT
Truck VMT	U.S.		+14		w	Oct. 10	n/a	DoT
All motor vehicle use index	U.K.	+10	-2	-2	d	Oct. 11	98	DfT
Car use	U.K.	+11	-6	-2.1	d	Oct. 11	94	DfT
Heavy goods vehicle use	U.K.	+4.7	+11	+1.8	d	Oct. 11	111	DfT
Gasoline (petrol) avg sales per filling station	U.K.	+2.2	-13	-7.9	m	Oct. 4-10	6,341 liters/d	BEIS
Diesel avg sales per station	U.K.	-5.9	-16	-8.3	m	Oct. 4-10	8,833 liters/d	BEIS
Total road fuels sales per station	U.K.	-2.6	-15	-8.1	m	Oct. 4-10	15,173 liters/d	BEIS
Gasoline	India		+8.3	+2	2/m	Oct. 1-15	1.05m tons	Bberg
Diesel	India		-0.9	+15	2/m	Oct. 1-15	2.41m tons	Bberg
LPG	India		+2.5	-3.2	2/m	Oct. 1-15	1.12m tons	Bberg
Jet fuel	India		-37	+11	2/m	Oct. 1-15	201k tons	Bberg
Total Products	India	+5.2	-1.7	+0.1	m	September	15.9m tons	PPAC
Toll roads volume	Italy	+5.9	-4.5		w	Oct. 4-10	n/a	Atlantia
Toll roads volume	Spain	+40	+6.5		w	Oct. 4-10	n/a	Atlantia
Toll roads volume	France	+15	+4.3		w	Oct. 4-10	n/a	Atlantia
Toll roads volume	Brazil	-1.8	+0.6		w	Oct. 4-10	n/a	Atlantia
Toll roads volume	Chile	+49	+16		w	Oct. 4-10	n/a	Atlantia
Toll roads volume	Mexico	+8.9	+5.3		w	Oct. 4-10	n/a	Atlantia

Passenger car traffic	Poland	+3	+4	-10	m	September	24,062	GDDKiA
Heavy goods traffic	Poland	+5	+9	+6	m	September	4,786	GDDKiA
All vehicles traffic	Italy	+5.7		-7.1	m	September	n/a	Anas
Heavy vehicle traffic	Italy	+5.7		+25	m	September	n/a	Anas
Gasoline	Portugal	+5.8	+9.4	-12	m	September	91k tons	ENSE
Diesel	Portugal	+1.8	+4	-2.5	m	September	411k tons	ENSE
Jet fuel	Portugal	+67	-41	-5	m	September	95k tons	ENSE
Gasoline	Spain	+17	+5.2		m	September	498k m3	Exolum
Diesel	Spain	+12	-0.4		m	September	2272k m3	Exolum
Jet fuel	Spain	+128	-41		m	September	421k m3	Exolum

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

\* In Dfr 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, which is only released once per month, 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	Oct. 18	Oct. 11	Oct. 4	Sep. 27	Sep. 20	Sep. 13	Sep. 6	Aug. 30	Aug. 23
		(Oct. 18)		Congestion minutes added to 1 hr trip at 8am local time								
Congestion	Tokyo	-6	n/a	35	12	34	35	0	32	28	28	28
Congestion	Mumbai	-84	-50	6	1	7	11	12	11	10	5	8
Congestion	New York	+6	-7	33	8	35	31	35	39	0	15	16
Congestion	Los Angeles	-17	+4	29	23	27	30	28	31	2	29	27
Congestion	London	-10	-22	34	44	43	53	44	44	37	1	16
Congestion	Rome	-19	-28	40	64	44	53	55	41	31	13	5
Congestion	Madrid	+3	+3	37	3	41	35	35	33	20	6	3
Congestion	Paris	+5	-11	47	49	52	52	53	52	49	27	14
Congestion	Berlin	-45	-35	19	20	38	31	29	32	38	32	38
Congestion	Mexico City	-43	-4	28	28	29	26	29	28	27	24	23
Congestion	Sao Paulo	-19	+35	35	10	29	26	26	27	10	30	26

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

NOTE: m/m comparisons are Oct. 18 vs Sept. 20. TomTom has been unable to provide Chinese data since late April. In India, Oct. 18 fell between two public holidays.

## 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.	+115	+4.1	+6.6	d	Oct. 17	2,21m people	TSA
Commercial flights	Worldwide	+40	-19	+2.2	d	Oct. 18	96,123	FlightRadar24
Air traffic (flights)	Europe		-27	-3.3	d	Oct. 18	23,765	Eurocontrol
Seat capacity	Worldwide	+40	-29		w	Oct. 18	79.16m	OAG
Seat cap.	U.S.	+68	-13		w	Oct. 18	19.13m	OAG
Seat cap.	China	-0.8	-3.5		w	Oct. 18	15.42m	OAG
Seat cap.	India	+45	-22		w	Oct. 18	3.28m	OAG
Seat cap.	Spain	+130	-29		w	Oct. 18	2.29m	OAG
Seat cap.	Japan	-4.5	-48		w	Oct. 18	2.11m	OAG
Seat cap.	U.K.	+81	-45		w	Oct. 18	1.91m	OAG
Seat cap.	Germany	+89	-44		w	Oct. 18	1.86m	OAG
Seat cap.	Brazil	+52	-23		w	Oct. 18	1.97m	OAG
Seat cap.	Mexico	+51	-7.5		w	Oct. 18	1.67m	OAG
Seat cap.	France	+65	-36		w	Oct. 18	1.48m	OAG
Seat cap.	Australia	+25	-73		w	Oct. 18	560k	OAG
Seat cap.	S. Africa	+80	-45		w	Oct. 18	330k	OAG
Seat cap.	Singapore	+143	-81		w	Oct. 18	157k	OAG

NOTE: Comparisons versus 2019 are a better measure of a return to normal.

## Refineries:

Measure	Location/area	y/y chg	vs 2019 chg	m/m chg	Latest as of Date	Latest Value	Source
Changes in ppt unless noted							
Crude intake	U.S.	+11%	-2.4%	+4.7%	Oct. 8	15.1m b/d	EIA
Utilization	U.S.	+12	+3.6	+4.6	Oct. 8	86.7 %	EIA
Utilization	U.S. Gulf	+16	+3	+15	Oct. 8	87.5 %	EIA
Utilization	U.S. East	+10	+17	-10	Oct. 8	76.4 %	EIA
Utilization	U.S. Midwest	+2.5	+1.4	-8.3	Oct. 8	87.3 %	EIA
Apparent Oil Demand	China	-2%		-2.8%	September 2021	13.23 b/d	NBS
Indep. refs run rate	Shandong, China	-1.1	+6.1	+1.7	Oct. 15	72 %	SCI99
State refs run rate	East China	+0.8	-3	+0.8	Oct. 15	79.6 %	SCI99
State refs run rate	South China	+1.7	+4.9	-1.4	Oct. 15	82.8 %	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. Changes are shown in percentage point except for the rows on crude intake and apparent oil demand, which are shown in percent change.

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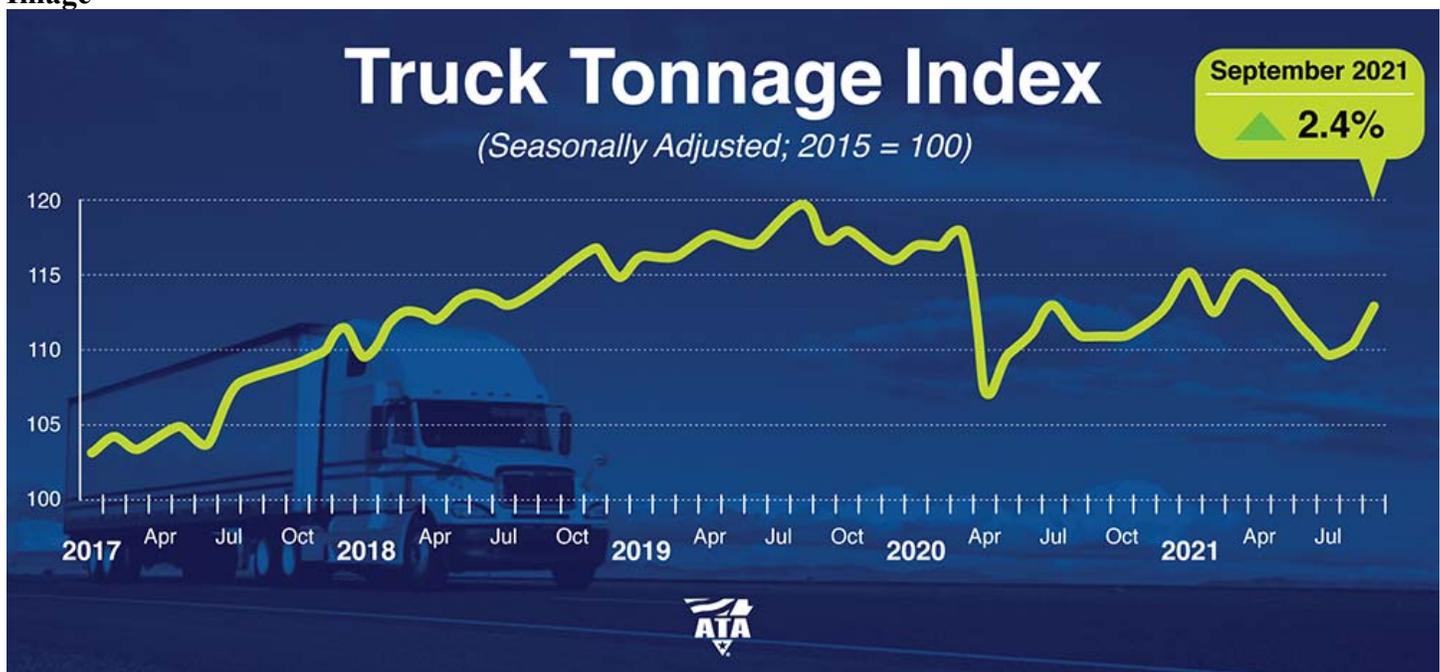
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## Index 1.7% Above September 2020

**Arlington, Virginia** — American Trucking Associations’ advanced seasonally adjusted (SA) For-Hire Truck Tonnage Index increased 2.4% in September after rising 0.3% in August. In September, the index equaled 112.9 (2015=100) compared with 110.2 in August.

### Image



“September’s sequential gain was the largest in 2021,” said **ATA Chief Economist Bob Costello**. “It is good that tonnage rose in September, but it is important to note that this is happening because each truck is hauling more, not from an increase in the amount of equipment operated as contract carriers in the for-hire truckload market continue to shrink from the lack of new trucks and drivers.

“The drivers of truck freight, including retail, construction, and manufacturing, plus a surge in imports, are helping keep demand high for trucking services,” he said.

August’s reading was revised down slightly to 0.3% from our September 21 press release.

Compared with September 2020, the SA index rose 1.7%, which was the first year-over-year gain since May. In August, the index was down 0.7% from a year earlier. Year-to-date, compared with the same nine months in 2020, tonnage is unchanged.

The not seasonally adjusted index, which represents the change in tonnage actually hauled by the fleets before any seasonal adjustment, equaled 113.2 in September, 1% below the August level (114.3). In calculating the index, 100 represents 2015. ATA’s For-Hire Truck Tonnage Index is dominated by contract freight as opposed to spot market freight.

Trucking serves as a barometer of the U.S. economy, representing 72.5% of tonnage carried by all modes of domestic freight transportation, including manufactured and retail goods. Trucks hauled 11.84 billion tons of freight in 2019. Motor carriers collected \$791.7 billion, or 80.4% of total revenue earned by all transport modes.

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

## Operator

Good day, ladies and gentlemen, and welcome to the Baker Hughes Company Third Quarter 2021 Earnings Call. At this time, all participants are in a listen-only mode. Later we will conduct a question-and-answer session and instructions will follow at that time. [Operator Instructions] As a reminder, this conference call is being recorded. I would now like to introduce your host for today's conference, Mr. Jud Bailey, Vice President, Investor Relations. Sir, you may begin.

## Jud Bailey

Thank you. Good morning, everyone, and welcome to the Baker Hughes Third Quarter 2021 Earnings Conference Call. Here with me are Chairman and CEO, Lorenzo Simonelli, and our CFO, Brian Worrell. The earnings release we issued earlier today can be found on our website at bakerhughes.com. As a reminder, during the course of this conference call, we will provide forward-looking statements. These statements are not guarantees of future performance and involve a number of risks and assumptions. Please review our SEC filings and website for a discussion of some of the factors that could cause actual results to differ materially. As you know, reconciliations of operating income and other GAAP to non-GAAP measures can be found in our earnings release. With that, I will turn the call over to Lorenzo.

## Lorenzo Simonelli

Thank you, Jud. Good morning, everyone, and thanks for joining us. We are pleased with the way the team has continued to execute on our strategy over the course of the third quarter. At the total Company level. We had a strong orders quarter grew adjusted EBITDA, and adjusted operating income margin rates sequentially and year-over-year. And had another solid quarter of free cash flow. While we did experience some mixed results across our product companies, on the positive side, TPS generated strong orders, operating income, and margin rates, and our fee had a solid orders quarter. On the more challenging side, our business was negatively impacted by Hurricane Ida, cost inflation in our chemicals business and delivery issues stemming from supply chain constraints, while DS also faced supply chain delays that impacted product deliveries.

As we look at the macro environment, the global economy continues to recover. However, the pace of growth is being hampered by lingering effects from the COVID-19 Delta Variant, global ship shortages, supply chain issues, and energy supply constraints in multiple parts of the world. Despite these headwinds, global growth appears to be on a relatively solid footing, underpinning a favorable outlook for the oil market, aided by continued spending discipline by the world's largest producers. In the natural gas and LNG markets, fundamentals remain strong with a combination of solid demand growth and extremely tight supply in many parts of the world. In fact, we believe the positive case for structural demand growth in natural gas as part of the broader energy transition is becoming increasingly evident.

The current environment illustrates the need for policy makers to focus on the utilization of natural gas as a base load fuel that can be combined with renewable energy sources to provide a cleaner, safer, more affordable, and more reliable source of energy to populations around the world. A number of developed economies have had great success over the last 10 to 15 years, lowering their carbon emissions by switching from coal to natural gas. However, some policy scenarios have seen a more rapid conversion straight to renewables, which limits the role of natural gas as a transition fuel and

can lead to broader grid instability. We believe that there is a strong and logical combination of a secure, stable baseload of natural gas that is needed to complement renewable energy sources, and in turn offset intermittencies.

As we can see from recent events, the cost of moving too aggressively are beginning to surface, as multiple parts of the world are experiencing energy shortages, unprecedented increases in energy prices, and shutdowns and brown outs across multiple industries. The increase in natural gas prices has been most acute due to a number of factors, including under-investment in gas reserves, a decline in contribution from hydroelectric and renewable power, and continued increases in energy demand. Ironically, the four-line from higher prices has also led to an increase in coal consumption, leading to coal shortages and a spike in coal prices. Natural gas has been a key contributor to lowering emissions in the United States over the last 15 years. As power generation consumption switch from coal to natural gas. U.S. power consumption of natural gas has increased from around 16% of total generation to roughly 40% over the past 20 years. While coal consumption has declined from over 50% of the energy supply mix to approximately 25% over the same period.

By comparison, today roughly 60% of Asia-Pacific's power generation comes from coal, and about 10% from natural gas. As more countries step-up their carbon reduction commitments, we believe that natural gas will play a critical role in displacing higher emission sources, like coal and by supporting the growth in renewable energy technologies, with relatively cheaper, and affordable base load power. Natural gas and LNG are core to Baker Hughes ' strategy and we will continue to play a key role in providing natural gas as a safe, reliable resource to the world. In addition to our focus on natural gas and LNG, Baker Hughes are spent considerable time over the last few years to move and accelerate our broader strategy forward. During the third quarter, we outlined how we are working to best position Baker Hughes for today and in the coming years. We have given a lot of thought around how to service the oil and gas and energy markets today, while also investing for the future across the industrial space and various new energy initiatives.

While we continue to execute our strategy through the three pillars of transform the core, investor growth, and position for new frontiers, the way that we're thinking about the Company and our broader long-term strategy is clearly evolving. As we recently highlighted at an investor conference at the beginning of September, we are starting to view our Company in two broad business areas: Oilfield Services & Equipment and Industrial Energy Technology. On the OFSE side of the Company, we have a technology-leading global enterprise with core strengths in drilling services, high-end completion tools, flexible pipe, artificial lift, and production and downstream chemicals. We strongly believe that these businesses can generate top-tier returns and free cash flow conversion. Our FSC is poised to benefit from cyclical growth in the coming years as we believe that we are in the early stages of a broad-based multiyear recovery that will be characterized by longer-term investments into the core OPEC plus countries.

The way we think about industrial energy technology or IUG is essentially our TPS and DS businesses, both product companies have compelling portfolios that are beginning to see significant secular growth opportunities, particularly in the areas like hydrogen and CCUs. With core competencies across a number of offerings like power generation, compression, and condition monitoring, as well as the growing presence in flow control, industrial asset management, and digital. We have a strong foundation on which to build an even more comprehensive presence in the broad industrial energy technology markets.

We believe that focusing on 2 major business areas with close alignment, will enhance our flexibility, improve execution, increase shareholder returns, and provide long-term optionality as the energy markets evolve. Now, I will give you an update on each of our segments. In Oilfield Services, activity levels continue to increase during the third quarter with North America outpacing the international markets broadly. As I just mentioned, we believe the OFS market is in the early stages of a broad-based, multiyear recovery. Internationally, we saw the strongest rig count growth during the third quarter in Southeast Asia, followed by a more modest growth in the North Sea and Latin America.

The return to growth in Russia and the Middle East has been slower as OPEC+ is taking a measured approach to increasing production. However, based on discussions with our customers, the pipeline of opportunities in these regions continues to grow and will likely be a major driver of international growth in 2022. In North America, offshore activity was disrupted by hurricanes during the month of August. While U.S. land continues to steadily move higher. The underlying trends in North America remains the same with public EMPs and IOCs remaining disciplined in deploying capita, while private EMPs remain more active.

Based on conversations with our customers, we expect firm activity during the fourth quarter and continued strong growth in 2022. While activity levels and pricing discussions are both moving in the right direction. Our OFS business has also had to navigate multiple challenges during the third quarter. They include: Hurricane Ida, COVID related impacts, supply chain constraints, and higher input costs in our production chemicals business. Despite these challenges, we remain focused on growing our margin rate through a combination of cost reduction and efficiency initiative, as well as pricing increases to offset higher cost. As a result, we remain committed to driving OFS EBITDA margins to 20% level over the medium term. Moving to TPS, the outlook continues to improve, driven by opportunities in LNG onshore/offshore production, pumps and valves, and new energy initiative. We still expect the order outlook for TPS in 2021 to be roughly consistent with 2020.

Importantly, the case for a multiyear growth opportunity beginning next year continues to improve. While we expect the majority of the order growth in TPS to be driven by LNG over the next couple of years, we anticipate that we will start to book more meaningful equipment orders related to hydrogen and CCUs in 2022. In LNG, while we did not book any awards during the fourth quarter, we still expect to book 1 or 2 additional awards by the end of 2021. Based on the pace of discussions with multiple customers and the positive fundamentals in the global gas markets, we still see the opportunity for an additional 100 to a 150 MTPA of awards over the next 2-3 years with a bias towards the upper end of that range. For the non LNG segments of our TPS portfolio, we see multiple opportunities for continued growth. Most notably, our onshore-offshore production segment is poised to benefit from a strong project pipeline for FPSO awards, driven by a number of opportunities in Latin America.

In the third quarter, we were pleased to book 2 largest TSO awards in Brazil for power generation and compression equipment. Building on our recent success earlier in 2021 and in 2020. We have now booked 8 FPSO and offshore topside equipment awards so far in 2021, which follows 5 awards in 2020. We also continue to see success in the industrial market, where TPS recently secured wins for our NovaLT industrial gas turbine technology in India and China. We are deploying our NovaLT turbines for power generation across several industrial segments, including electronics, ammonia production, and pharmaceutical manufacturing. In carbon capture, TPS was selected to supply booster and export centrifugal pumps to the Northern Lights CO2 transport and storage project in

Solutions. With higher volumes, we expect strong improvements in DS margins. Overall, I am pleased with our continued strong free cash flow execution and TPS business performance. While we faced short-term challenges in our DS and OFS businesses, we are confident in our ability to execute in the fourth quarter and into 2022. With that, I will turn the call back over to Jeff.

### **Question-and-Answer Session**

Thanks, Brian. Operator, let's open the call for questions.

### **Operator**

[Operator Instructions] one follow-up. Our first question comes from James West with Evercore ISI.

### **James West**

Hey, good morning, guys.

### **Lorenzo Simonelli**

Hey, James.

### **Brian Worrell**

Hi, James.

### **James West**

So Lorenzo, TPS for 2022, I'm curious to hear your thoughts on both order rates, growth rates for that business. There's a lot of really positive momentum as you know in LNG and the natural gas in general, as you highlighted in your prepared comments. I'd like to kind of hear your -- broad outlook for that business, as we go into next year because I think we should be -- and maybe even '23, we should be going to a major cycle for TPS.

### **Lorenzo Simonelli**

Yeah, James, and we feel good about the TPS orders outlook, and we do expect, as was mentioned, that we'll see double-digit order growth in 2022. and a lot of that driven by the LNG opportunities.

We've spoken about LNG before and as you look at the outlook for 2030, we increase the capacity requirement LNG to 800 MTPA. And during the course of the next few years, we see projects of 100 to 150 MTPA being awarded, and we've got a bias towards the upper end of that and feel very good about the projects coming through. A number of customer discussions that have been ongoing and you've seen what's happening in the industry at the moment.

So we feel good about LNG with some large FID as well as small mid-size opportunities. And then also in the other segments of our TPS business, when you look at the offshore-onshore production site, most notably with some of the FPSO s and a strong number of opportunities in Latin America coming through, continue traction on the services business, both transactional contractual. And then as we go through '22 and beyond also, a continued pipeline of good growth opportunities for our

pumps, valves, as well as the new energy markets of hydrogen and CCUS. So this is a good cycle for TPS and orders outlook positive.

**James West**

Okay. Good to hear. And maybe leveraging of the -- that last statement you made on the new energy's business. What are you thinking about growth there in '22 and '23 and beyond? Are you starting to mean business and now we're going through a period of everyday, there's announcement in hydrogen or CCUS, but are -- is this starting to translate now into concrete business, or is that still in the comm? How are we going to think about that, the new?

**Lorenzo Simonelli**

Hey, James. We're definitely seeing the pipeline of opportunities getting more firmed up and you'll that seeing that even in 3Q we announced the selection of TPS to supply booster and exports centrifugal pumps to Northern Light CO2 transport and storage project in Norway. So previously we've also made announcements around the linkage with that product. So you're starting to see the market mature and also the opportunities per market.

We look to 2022, we expect to see \$100 to \$200 million of orders from the new energy spaces and as we go forward during the course of the next 3 to 4 years, we think that it could be around 10% of our TPS orders coming from the new energy spaces and as we said before, by the end of the decade, we could have as much a \$6 to 7 billion of orders in the new energy spaces. So good traction. And as you know we're coming up to COP 26 and there's a lot activity and we think that with continued regulation and continued support and policies, this is going to be more firming up in the new energy space as we go forward.

**James West**

Okay. Great. Thanks, Lorenzo.

**Lorenzo Simonelli**

Thanks.

**Operator**

Our next question comes from Chase Mulvehill with Bank of America.

**Chase Mulvehill**

Hey, good morning, everybody.

**Brian Worrell**

Hey, Chase.

**Chase Mulvehill**

we feel good about the margin track that we laid out for OFS and being able to deliver on that 20% plus EBITDA here in the near to medium term.

**Chase Mulvehill**

All right. Perfect. Please, Brian, I'll turn it over.

**Brian Worrell**

Thanks, Chase.

**Operator**

Our next question comes from Neil Mehta with Goldman Sachs.

**Neil Mehta**

Good morning, Lorenzo team. The kick --

**Lorenzo Simonelli**

Hi, Neil

**Neil Mehta**

The kick-off question for me is around Digital Solutions. The operating margins have lingered in that 5% range for the last 3 quarters. You identified some supply chain concerns in the release. How do you see the margin dynamics in the business moving in 4Q, especially with year-end sales and supply chain concerns? And when do you see some of those issues abating?

**Brian Worrell**

Yes, Neil. Hi. Look, as we did say, we did see a few challenges in the quarter and I'd say the supply chain is primarily focused around electrical component shortages, largely around semiconductors boards and displays that led to really some lower convert ability in the quarter. And there's real tightness in supply in that market. We did have a quality issue from one of our suppliers that came out late in the quarter. And with the tightness in the supply chain and in the supplier base, that typically could have been rectified within the quarter that is certainly had an impact and made some -- made some of the shipments slip out.

I'd say overall, the component shortages and a little bit around logistics and similar things we saw in Asia in OFS, we also saw in DS, roughly impacted the top line about 3% to 4% in the quarter. Look, we've been well aware of this, we've been taking preemptive steps to make sure we have got the right products to fulfill. And I'd say the teams do daily production meetings on this and move things around accordingly. We have started to see that stabilize a little bit and it feel good that we've got what we need to deliver in the fourth quarter from a supply chain standpoint and we're obviously working on 2022 as we speak today. Look, to get margins back up into the mid-teams, which is where they should be, it will require higher volume and more recovery from our biggest businesses like

Bently Nevada, Nexus, and Waygate. And for fourth quarter in particular, we do see a strong sequential revenue in line with traditional year-end seasonality.

As I said, the supply chain constraints around electrical components is stabilizing, and the logistics, we've worked too similar to what we've done in OFS and have that lined up for the quarter as well. So look, we should see margin rate growth in line with the traditional seasonality as well. And then for 2022, the team is working hard to make sure supply chain is certainly not an issue. And again, it comes down to getting those orders in the big businesses which we've got a really solid pipeline. And as we see the economy recover, we should see strength in those businesses, particularly in the industrial sector.

### **Neil Mehta**

That's really helpful.

### **Lorenzo Simonelli**

Neil, just to add, maybe. I think we have a good understanding of what we need to do at Digital Solutions. And clearly it's an aspect of organizational changes, supply chain improvements, and also commercial intensity, besides Brian laid out going into 2022, those margin rates should improve and we see again Digital Solutions getting back to where it needs to be. So a big focus by myself and Brian on getting it back on track.

### **Neil Mehta**

That make sense, Lorenzo. I have got follow-up here in terms of, can you provide some incremental color on how the strategy of operating OFS and OFE and TPS and DS as more distinctly different group is going? And then how are you thinking about potential opportunities for maximizing shareholder value eventually if the long-term plan here that businesses are separated?

### **Lorenzo Simonelli**

Neil, again, you may have seen at a Investor Conference in September, we really laid out the way in which we view the business from two areas: one being the upstream Oilfield Services, and equipment side which has tailwind. But it's also a mature marketplace and then the emerging higher growth in industrial energy technology. As you look at it, we also said it makes sense to keep it together and really run the full product companies as we do today, but it provides optionality as we go forward as well, and we'll always look at it from what's best for the shareholder return standpoint.

There are benefits from a customer-based perspective. There's also synergies from a technology standpoint, and we'll continue to run it on that basis and also continue to review what's best for the shareholders going forward. So that's really -- the key-in focus was to try and to pick really the 2 growth areas that we have, one and more mature space, but then the evolving space of energy transition and also industrial applications for us.

### **Brian Worrell**

moving forward. I heard your guidance on the TPS revenue and the orders, but just maybe a little bit more color on the mix between those two categories, please. Thank you.

### **Brian Worrell**

Yes. Yes. David, look, I mean, Ron and the team have done an outstanding job this year, and I'd say from a backlog conversion standpoint, and I've seen this for almost 20 years now in TPS. Things can move around from a project timing step -- project timing perspective. It's mostly customer schedules that move that with some moving forward and some being pushed back. I'd say what we're seeing right now is just typical movement across the backlog. Our actual capability and capacity to fulfill has certainly gotten better over the last few years. And so we can have that flexibility for our customers.

And so I'd say what you've seen this year is you've seen some projects move in, you've seen some projects move out, and just given the order cadence and how that cycle is -- has played out, that's really what's driven the uptake in what we see in equipment revenue for 2022. As far as services go, look, we saw a bit of a dip last year. Contractual services has performed exactly in line with how we thought. We did see some movement in transactional services. And then we started to see an uptake and upgrades coming through this year and the tailwinds for services look pretty good for next year as well.

So while you may not see the same level of growth that you do in equipment because of the way the backlog is going to convert, we're pretty happy with the trajectory that we see in TPS services side, just break that down again. Contractual services have performed right in line with what we expected. Transactional orders are up this year. We expect revenue to be up next year for that. And the upgrade cadence looks pretty good as well. So listen, overall, next year margins for both businesses within TPS are going to be strong. The overall margin rate is really going to depend on the mix of equipment versus services. And the other thing I'd just add about the performance here is cost productivity has been outstanding this year, With how Ron and the team have been executing.

I would expect that they would drive productivity next year. Given everything we're seeing in the commodity markets, not prudent right now to count on it falling through at the same level, given some of the potential inflation that's coming through. But I think we've demonstrated this year that that team can drive productivity and it's shown up in the margin rates and they are ahead of where we thought they'd be at this time, and I'm really pleased with that, and feel good about the outlook for next year.

### **David Anderson**

That's great, Brian. Thank you very much. Lorenzo -- okay. Sure.

### **Lorenzo Simonelli**

Just to add on the -- if you look at the LNG outlook that we indicated and the potential for the 100 to a 150 MTPA, and we're on the upper end of that. You're going to be increasing our installed base, which obviously, we're seeing an additional 30% of install base by 2025, which then gives us a good outlook for services as well going forward.

### **David Anderson**

expect to get back up to 2019 demand level. So we'll continue to evaluate the prospects on each of the businesses. And again, it's more a margin focuses, as we said before, for the OFSC business.

**Ian Macpherson**

Okay. And then either Lorenzo or Brian, I was going to ask a follow-up on the near-term outlook for orders in TPS. Just thinking, reconciling your full-year guidance for this year for orders to be fairly similar to last year, and yet you could have -- sounds like you could have materially more big LNG quarters in Q4 versus essentially none in Q3, which seems like that could tilt the scales to a positive year-on-year comp. Am I thinking about that correctly or are there other pieces below the surface that would iron that out?

**Lorenzo Simonelli**

Yeah, Ian, and just as you correctly state, we didn't book any LNG orders in third quarter. And as you know, there's a bit of lumpiness when it comes to LNG, their large-scale orders. And we do expect to book 1 or 2 additional awards in the fourth quarter. Base on the current discussions we're having with customers and also some of the seasonality, as you look at TPS orders, we're likely be modestly up sequentially and flat year-over-year for the fourth quarter in 2021. And then as you go into 2022, again, we stated before, we expect double-digit order growth led by the LNG opportunities. And there is some timing elements there, but feel very good about the 2022 double-digit orders expectation.

**Ian Macpherson**

Indeed. And I -- did I hear correctly you said that up to 10% of that could be for the new energy pieces next year verses a very low comp this year?

**Lorenzo Simonelli**

No, not next year. It's as you look out to the next 3 to 4 years.

**Ian Macpherson**

Okay. Thanks for clarifying that.

**Brian Worrell**

Yeah, we said about 100 to 200 for the new energy next year.

**Ian Macpherson**

Thanks for fixed me on that. Appreciate it.

**Brian Worrell**

Yes.

**Operator**

Now I'll turn the call over to Jeff.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Thank you, David, and good morning, everyone. Last quarter, we discussed a longer view of a recovering market and our confidence in a multi-year upcycle. I am pleased that the steady march of activity and Halliburton's performance in the third quarter, internationally and in North America, all **reinforce our enthusiasm today and for what we expect in 2022 and beyond.** Our results demonstrate the effectiveness of both our strategy and our execution as the market recovery accelerates.

Here are some highlights. Total Company revenue increased 4% sequentially with topline improvements across all regions, while adjusted operating income grew 6% with solid margin performance in both divisions. Our Completion and Production division revenue grew 4%, driven by increased global activity. Operating margin was essentially flat in the third quarter as we made operational choices to prepare for higher demand for our services in 2022. Our Drilling and Evaluation division revenue grew 4% with increased activity across multiple regions. Operating margin of 11% was about flat sequentially.

North America revenue increased 3% as growth in U.S. land was partially offset by a decline in our Gulf of Mexico business due to Hurricane Ida. International revenue grew 5% sequentially in line with the international rig count growth. Our year-to-date free cash flow generation of almost \$900 million puts us solidly on track to deliver our full year free cash flow objective. Finally, we retired \$500 million of our long-term debt and ended the quarter with \$2.6 billion of cash on hand.

**As this upcycle unfolds in both the international and North America markets,** Halliburton is executing on our strategy to deliver profitable growth and generate industry leading returns. In the international markets, third quarter activity momentum continued and I believe it will accelerate into year-end and support mid-teen second half revenue growth compared to the second half of last year. This expected outcome is better than we anticipated a quarter ago.

In the third quarter, we started long term projects across all regions in spite of COVID-19 interruptions. While mobility restrictions and daily precautions remain in place, business activity around the world has adjusted and continues to improve. In the Middle East, countries relaxed border restrictions and OPEC members prepared for activity increases. We started work on several rigs, offshore UAE, mobilized our workover project in Bahrain, and completed multiple ESP installations on our artificial lift contract in Kuwait. We expect the Middle East to exit the year with solid activity momentum.

In Asia Pacific, we launched operations on an integrated project, offshore Malaysia, with full implementation of Halliburton's digital well construction capabilities. We also ramped up for an increase in our Indonesia drilling operations for the local NOC plans to boost production from its assets.

In Europe/Africa/CIS region, the start of operations on a 23-well offshore integrated development campaign for Woodside and Senegal marked a new country entry for Halliburton. In Russia, we are mobilizing for a multi-year IOC-operated project on Sakhalin Island. In the UK sector of the North Sea, work continues on several new development drilling and workover projects for local independent operators.

Finally, Latin America delivered its best quarterly performance since 2015. We spudded the first well on a three-year integrated project in Brazil, deployed our new drilling technologies on multiple wells in Argentina, and prepared to mobilize for new work in Ecuador and Colombia.

**In addition to contract start-ups, our pipeline of new tenders continues to grow. While large Middle East tenders and Latin America projects received most of the headlines, customers in Africa, Russia and Southeast Asia among others are also issuing tenders for new work. All of this points to increasing international customer urgency** and demand for our services.

**Let me describe what I'm seeing that gives me this conviction. Global supply and demand balance continues to tighten, resulting in a strong commodity price environment. In response, asset owners are eager to reverse baseline production declines caused by multiple years of under-investment. We expect, then NOCs, and other operators with short cycle production opportunities will commit additional capital and gain share to meet future oil demand. Additionally, new fields are smaller and more complex, more customers work harder to produce more barrels. Finally, as mature assets change hands, new owners**

move quickly to revitalize the assets they acquire and unlock remaining reserves. They require service partners who can deliver proven technology and decades of experience. All of these things have one thing in common, they require higher service intensity, more dollar spent on the wellbore rather than on infrastructure.

As the international recovery accelerates, we remain committed to a clear strategic priority: deliver profitable growth, and we have unique competitive advantages to deliver on this priority. We have the established footprint, geographic presence, and customer and supplier relationships to capitalize on growth. We have a strong presence in all major international markets. The substantial majority of our workforce is local and within the regions where we operate, our supply chain spend is primarily with local suppliers. We have proven capabilities to ramp up our services as customers enter new markets. We demonstrated this in Guyana, Suriname, and most recently in Senegal. The Halliburton team mobilized personnel and built a multifunctional operational base to support Woodside as we embarked together on a development campaign offshore Senegal.

We also engineer innovative solutions, both digital and hardware to meet the complex reservoir challenges faced by our international customers. For example, in well construction this quarter, we introduced the iStar comprehensive measurement platform. This next generation intelligent platform provides multiple logging and drilling measurements that enabled reservoir evaluation, faster drilling, and consistent well delivery. For multiple customers in the Middle East and North Sea, the iStar platform provides insight into the impact of drilling parameters on wellbore conditions and optimizes the drilling process in real time.

In completions, we are the global leader in downhole completion solutions. As our customers increase their activity, our e-completions ecosystem integrates manufacturing digital twins and technology development processes to increase our speed to market for these long lead complex systems. In many regions, as customers drive for better performance in the face of increasing operational challenges, I expect adoption of integrated and bundled contracts will continue to grow. Halliburton has strong project management capabilities and a proven track record that deliver efficiencies and reduce total customer cost of ownership.

Our digital innovations reframe customer project economics through greater efficiencies and improve decision-making. For example, in the third quarter, we deployed our Well Construction 4.0 digital solution to deliver further operational efficiencies for our customer in the Middle East. Finally, our customers call on us for collaboration from an IOC looking to reduce emissions on its operations in Mexico to a European independent working to remotely monitor and control all of its global drilling operations. Halliburton's value proposition to collaborate and engineer solutions to maximize asset value for our customers is working for both our customers and Halliburton.

Now turning to North America, the bifurcation between public and private company activity continued in the third quarter. Public E&Ps remain committed to their spending plans for 2021, while private operators continued to take advantage of a strong commodity price environment. As expected, completions growth moderated in the third quarter as operators shifted their focus from completions to drilling activity. Just like in the international markets, customer urgency and demand for our services keep growing in North America. Drilled but uncompleted well counts reached the lowest level since 2013 as operators depleted the surplus of DUCs accumulated in 2020. We expect customers to drill and complete more new wells to offset steep base decline rates and deliver production into an anticipated attractive market next year.

Completions equipment availability is tightening. Customers have responded by starting the 2022 tender process earlier in an attempt to lock in access to quality services for next year's programs. Private companies now operate about 60% of the U.S. land rig count and current commodity prices provide a strong incentive for their activity to expand. Our market leading position in North America is rooted in the groundbreaking technologies we put to work in this market. We are the only fully integrated service provider in North America and this gives us a unique competitive advantage. We combine the full breadth of our technology disciplines, geosciences, physics, chemistry, material science, and mechanical, electrical, and software engineering to deliver innovative solutions at scale around the world and uniquely in North America to maximize production and minimize costs.

Our SmartFleet intelligent fracturing services transitioned from pilot to campaign mode. Several large operators today have SmartFleet working on multi-pad completion programs. SmartFleet, for the first time, allows operators to measure treatment placement in real time which, among other things, has demonstrated up to 30% improvement in cluster uniformity.

In the third quarter, we introduced the IsoBond cement system and prompted for multiple customers in the DJ Basin and in the Marcellus shale. By removing liquid additives, this dry blended cement provide significant operational efficiencies and lowers capital requirements for land operations. Taking advantage of the increasing demand for our services require strategic execution on many fronts, particularly in the current environment of stretched supply chains, tight labor and inflationary pressures.

Against that reality, I believe that Halliburton is best prepared to provide reliable execution for our customers. Our sophisticated supply chain organization translates Halliburton size and scale into real savings for us and our customers. We are seeing that in action as our supply chain delivers what our customers require for their projects. The labor market is tight today. We've seen this situation before and our human resources team knows how to navigate it. Over the last few years, we compressed our on-boarding time, strengthened our National Recruiting Network, and used digital solutions to significantly reduce our field personnel requirements. Despite real challenges, we have the scale, speed, and systems to recruit talent nationally and quickly deploy it for our customers.

In logistics, we have ready access to a fleet of drivers to make deliveries to the job site. We expanded our collaboration with Vorto, an artificial intelligence supply chain platform. Our early adoption of Vorto's platform that connects drivers, asset owners, and maintenance charge allows us to effectively manage trucking inflation and availability constraints.

Now let me spend a few minutes on our activity and pricing outlook for 2022. First in the international markets, and then in North America. Next year, we expect international activity momentum to accelerate and international leading edge pricing to move upward in pockets as a result of higher activity. This is what we are seeing today. Large tenders remain competitive, but we are already seeing modest price increases on discrete work in underserved markets. We see increasing customer demand for Halliburton's high-end technology and a recognition of its value.

Finally, as a result of lower spending by service companies for more than half a decade, international markets face tightening equipment supply. To meet these demands, we are strategically reallocating assets to drive improved utilization and returns. Let me be clear, Halliburton prioritizes profitable growth internationally and this will drive our capital allocation decisions to the best returning product lines, geographies, and contracts.

In North America, we expect customer spending to increase in and around 20% next year, including solid net pricing gains. Many factors drive that spending in pricing, including customer urgency, equipment tightness, and a desire to align with a reliable and differentiated service provider like Halliburton.

Last quarter, we highlighted the pricing traction that exists for low emission equipment. Today, as we tender for 2022 work, we are seeing price increases for the rest of our fracturing fleet as well. Net pricing has also increased across different non-frac product service lines, drilling, cementing, drill bits, and artificial lift. To generate the highest returns as this market grows, we are taking steps to maximize the value of our North America business. Specifically, we are repositioning our fracturing fleets to customers in areas where we can maximize returns in 2022, securing longer term premium pricing contracts for our existing and planned electric fleets, and accelerating fleet maintenance and deployment of the next generation fluid end technology, which extends the life of our equipment. Halliburton is committed to North America, and I expect we will benefit more than others as activity and pricing momentum accelerates across the board.

Next, let me turn to how we are executing on our strategic priority to advance a sustainable energy future. As we are witnessing now and saw in the third quarter, the world requires a greater supply of oil and gas. As an oilfield services company, we have the core competency to help our customers deliver the supply in the most efficient and technologically-advanced ways possible. With our customers, we are bringing our technical expertise and over a century of industry experience to actively participate in the transition to a cleaner economy.

One of the most meaningful contributions we can make today to this transition is to help our customers reduce emissions from their existing production base. Emissions reduction is a critical part of our technology development process and our innovative low carbon solutions are helping oil and gas operators reduce their carbon footprint. Halliburton's electric fracturing solution delivers results now for our customers.

In the third quarter, Halliburton completed an all-electric pad operation on a multi-year contract with Chesapeake Energy in the Marcellus shale. We deployed our electric fracturing spread with electric blending, wireline and ancillary equipment and an advanced power generation system from VoltaGrid. This high performing solution reduced Chesapeake's emission using over 25 megawatts of lower carbon power generation from Chesapeake's local field gas.

We are collaborating with an IOC in Mexico on their total carbon footprint reduction. Because we provide both well construction services and logistics services on this contract, we changed supply boat fueling mechanisms and optimized usage to achieve emissions reductions in the first year of operations. We are now using a similar contract structure to collaborate with this IOC on its other projects in Latin America.

We are also advancing renewable energy solutions through Halliburton Labs, our clean energy accelerator. In the third quarter, we doubled our size by increasing the number of Halliburton Labs companies from four to eight, welcoming Alumina Energy from California; Ionada from Ontario; and Parasanti, and SurgePower Materials from Texas. We help these companies scale their exciting technologies from innovative energy storage solutions to modular carbon capture systems.

In September, Halliburton Labs hosted its third Finalists Pitch Day featuring nine early-stage companies and an audience of several hundred entrepreneurs, investors, academics, and other professionals looking to engage with companies that advance cleaner affordable energy. The Halliburton Labs participants are achieving results. Enexor BioEnergy completed a \$10 million Series A round of financing. Enexor's patented modular system uses locally-sourced organic or plastic waste to generate clean onsite energy even in the most remote and inaccessible location. Other accelerator participants achieved important scaling milestones in the third quarter.

With both current and expected demand increases, Halliburton remains committed to the priorities we set in 2020. We prioritize profitable growth and returns, remain focused on capital efficiency, and are keeping our overall capital investment in the range of 5% to 6% of revenue. I'm excited about the multi-year upcycle we see in front of us. I believe our value proposition, technology differentiation, digital adoption, and capital efficiency will allow us to deliver profitable growth internationally and maximize value in North America. Halliburton will continue to execute our key strategic priorities to deliver industry-leading returns and strong free cash flow for our shareholders.

Now I'll turn the call over to Lance to provide more details on our third quarter financial results. Lance?

**Lance Loeffler** — *Executive Vice President and Chief Financial Officer*

Thank you, Jeff, and good morning, everyone. Let me begin with a summary of our third quarter results compared to the second quarter of 2021. Total company revenue for the quarter was \$3.9 billion and adjusted operating income was \$458 million, an increase of 4% and 6%, respectively. During the third quarter, Halliburton closed the structured transaction for our North America real estate assets that I described earlier this year, which resulted in a \$74 million gain. We also discontinued the proposed sale of our Pipeline and Process Services business, leading to a depreciation catch-up related to these assets previously classified as assets held for sale. As a result, among these and other items, we recognized a \$12 million pre-tax charge.

Now, let me take a moment to discuss our division results in more detail. Starting with our Completion and Production division, revenue was \$2.1 billion, an increase of 4%, while operating income was \$322 million or an increase of 2%. These results were driven by increased activity across multiple product service lines in the Western Hemisphere, higher cementing activity in the Middle East/Asia region, as well as increased well intervention services in the Europe/Africa/CIS region. These improvements were partially offset by reduced completion tool sales in the Eastern Hemisphere, lower stimulation activity in the Middle East/Asia region and accelerated maintenance expenses for our stimulation business in North America,

which related to upgrading our fluid and technology in preparation for the anticipated market acceleration that Jeff described earlier.

In our Drilling and Evaluation division, revenue was \$1.7 billion or an increase of 4%, while operating income was \$186 million or an increase of 6%. These results were due to improved drilling-related services internationally and in North America land, additional testing services and wireline activity across Latin America, along with increased project management activity in Mexico and Ecuador. Partially offsetting these increases were reduced drilling-related services in Norway and the Gulf of Mexico.

Moving on to our geographic results. In North America, revenue increased 3%. This increase was driven primarily by higher well construction, artificial lift, and wireline activity in North America land, increased completion tool sales in the Gulf of Mexico, and additional stimulation and drilling activity in Canada. Partially offsetting these increases were reduced drilling-related wireline and stimulation activity in the Gulf of Mexico as a result of the impact from Hurricane Ida.

Turning to Latin America, revenue increased 17% sequentially. This improvement was driven by increased activity in multiple product service lines in Argentina, Mexico and Brazil, as well as higher well construction services in Colombia and improved project management activity in Ecuador. These increases were partially offset by reduced fluid services in the Caribbean.

In Europe/Africa/CIS, revenue was essentially flat sequentially. These results were driven by higher well intervention services across the region, increased well construction services and completion tool sales in Nigeria, additional pipeline and fluid services in Russia, and increased activity across multiple product service lines in Senegal. These improvements were offset by decreased activity across multiple product service lines in the North Sea and Algeria and lower completion tool sales in Angola.

In the Middle East/Asia region, revenue increased 2% resulting from improved well construction activity in the Middle East and Australia. These improvements were partially offset by lower completion tool sales across the region, along with reduced wireline and stimulation activity in Saudi Arabia, lower project management activity in India and lower stimulation activity in Malaysia.

In the third quarter, our corporate and other expense totaled \$50 million. For the fourth quarter, we expect our corporate expense to moderately increase. Net interest expense for the quarter was \$116 million. In the third quarter, we retired \$500 million of 2021 senior notes using cash on hand. As a result, our net interest expense in the fourth quarter should decline modestly. Our effective tax rate for the third quarter came in at approximately 24%. Based on our anticipated geographic earnings mix, we expect our fourth quarter effective tax rate to be approximately 22%.

Capital expenditures for the quarter were approximately \$190 million. In response to higher demand for our services in both international and North America markets, we are pulling forward spending on long lead-time items for our premium equipment and now expect our full-year capital expenditures to be closer to \$800 million for the full year.

Turning to cash flow. We generated approximately \$620 million of cash from operations and almost \$470 million of free cash flow during the third quarter. I am very pleased with our working capital performance this quarter as we delivered net cash proceeds from working capital, despite our revenue growth.

Now let me describe our near-term outlook. In North America, we expect moderate pricing and activity improvements in drilling and completions to drive sequential growth. In the international markets, we expect continued improvement in rig counts, the pace of which will vary across regions. As a result, for our Completion and Production division, we anticipate mid single-digit revenue growth sequentially, with operating margins expected to expand by approximately 50 basis points. The higher year-end completion tool sales will be partially offset by seasonal North America land activity, impacted by the holidays and lower efficiency levels typically experienced in the winter months.

In our Drilling and Evaluation division, we anticipate sequential revenue growth of 5% to 7% and a margin increase of 150 to 200 basis points due to seasonal software sales and higher overall global activity.

I'll now turn the call back over to Jeff. Jeff?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Thanks, Lance. To summarize our discussion today, Halliburton is on track to deliver strong results and our financial commitments for this year. We see customer urgency and demand for our services increasing internationally and in North America. We expect to benefit from the accelerating recovery and deliver profitable growth in the international markets and maximize value in North America. We prioritize our investments to the highest returns opportunities and are committed to capital efficiency. As our forward outlook unfolds, we expect to deliver strong free cash flow and industry-leading returns for our shareholders.

And now, let's open it up for questions.

### Questions and Answers:

#### Operator

Thank you. [Operator Instructions] Our first question comes from James West with Evercore ISI. Your line is open.

**James West** — *Evercore ISI — Analyst*

Hey, good morning, guys.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Good morning, James.

**Lance Loeffler** — *Executive Vice President and Chief Financial Officer*

Good morning, James.

**James West** — *Evercore ISI — Analyst*

Jeff, clearly very bullish, your global outlook, both North America and international. It seems though the international really stepped up even further than you thought maybe initially in the last three months since the last conference call. Could you perhaps describe where these pleasant surprises are coming from?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Well, thanks, James. Look, I think, broadly, if I look out at the improvements, it's really a function of the tightening macro, and what we see, and so, I think supply is clearly short. I mean this underspending that's been happening for really seven years is starting to have an effect on the supply side and that drives clearly urgency, but it's harder to do and then along with that, we've got short supply of service assets and that is also driving great environment for us, and Halliburton is in the right places. And so, when I think about profitable growth internationally and also maximizing value in North America, that's right in the fairway of where we want to be. And so this beginning of an upcycle, I think what we'll see are our operators work very hard to improve production, but it's — short cycle style barrels are just going to take a lot more work around the wellbore and all very good and it's really — as I said, the beginning of what I see as a very strong upcycle for services.

**James West** — *Evercore ISI — Analyst*

Sure, no doubt about that and we certainly agree. One follow-up for me on North America. The 20% number that you put out there, which is actually the same number that we're using, but how much of that increase is activity versus kind of pricing in the inflationary environment that we're now seeing in North America? Meaning, is activity in that scenario up 10%, 12%? Is it up 15%? What — how are you thinking about activity levels versus the overall spend level?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Look, I think clearly, it's a combination of both. I think that we will see certainly inflation, I'm not going to give you a number today, but I think that we're seeing strengthening pricing into 2022. So, I think that will be a part of it. Back to our strategy of maximizing value in North America, I think that we're going to be really sharp around where we work and how we generate those returns. So I would — I think that pricing will move up more and I think there'll be a lot of effort put into activity, but the combination of equipment

shortages that drive prices are going to probably be a headwind to a degree on activity as we get into the year.

**James West** — *Evercore ISI — Analyst*

Right.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Biased more to price than activity, probably.

**James West** — *Evercore ISI — Analyst*

Okay, got it. Thanks, Jeff.

**Operator**

Thank you. Our next question comes from Neil Mehta with Goldman Sachs. Your line is open.

**Neil Mehta** — *Goldman Sachs — Analyst*

Good morning, team. I want to go back to the comps last quarter as a 400 basis points set of margin improvement by 2023. Given we're in a firmer oil macro environment and the activity pickup up that you anticipate, do you see potential for that to actually get pulled forward? And how are we tracking relative to the 400 basis points there, upside or downside as you tested out real-time?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

So, thanks, Neil. But, look, I'm really excited about the outlook and the possibility to pull that forward. Certainly, that's a possibility. I think that we're on track, I mean, everything that I see indicates that that's well in our viewfinder in terms of getting to the sort of '23 outlook that I had. The pace at which oil demand comes back, which I would say is surprising a little bit to the upside in spite of what's out there with respect to COVID, certainly encouraging, certainly highlights what we've been saying for some time, which is how important oil is, and more importantly, sort of the impact that not spending at sort of normal rates for quite a long time has on the supply of oil. And of course, operators are going to work really hard to accelerate that, which is fantastic for Halliburton. So, I'm very encouraged about the outlook and the pacing.

**Neil Mehta** — *Goldman Sachs — Analyst*

All right, Jeff. And the follow-up is just return of capital. You knocked off \$500 million of debt this quarter, next year set up to be a good free cash flow year. How do you think about getting the dividend or capital returns profile to be more competitive relative to the rest of energy?

**Lance Loeffler** — *Executive Vice President and Chief Financial Officer*

Yeah, Neil, this is Lance. Look, we certainly — no doubt we see an environment that provides us with a lot more flexibility as we look towards 2022. And I would just say, this year, 2021, we've had a strategy and we're continuing to execute that. It starts with EBITDA growth, capex control, and a focus on deleveraging throughout the course of the year. The dividend raise is certainly in the viewfinder as our outlook plays out. We're still going to continue to be focusing on deleveraging our business and, to a certain extent, accelerating it when it makes economic sense. So there's still work to do there, but I think the message is that we've got a great opportunity to address all of these things as we move into next year.

**Neil Mehta** — *Goldman Sachs — Analyst*

Thanks, Lance.

**Operator**

Thank you. Our next question comes from Dave Anderson with Barclays. Your line is open.

**David Anderson** — *Barclays — Analyst*

Hey, good morning, Jeff. So, the question on everyone's mind right now is net pricing in the U.S. and whether or not you're getting that now. I was wondering if you could just confirm. You have, in fact, recently put through a pricing increase in U.S. pumping business and in addition, if you could address the topic of labor inflation and how much of that offsetting pricing and what could that mean if the industry looks to add say 20 or so fleets in the coming quarters. E&Ps seem to think pricing is going to stay flat outside of inflation. So, I'm just kind of curious where you think that disconnect could be.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

I think the disconnect will be around supply of equipment and also the type of equipment. There is a lot of demand out there. I'll talk about pricing maybe, first. Yeah, we're seeing it now. It looks a little different than maybe in prior cycles in the sense that it's more of a process than it is a point in time, but yes, making a lot of progress around that. We've talked about premium equipment and clearly that's — a lot of demand for that and it's in short supply and likely stays that way. And so, that's certainly positive. The — and our outlook is that, we are going to certainly get net pricing, getting some net pricing now and we expect to continue that particularly as equipment tightens. It starts with the premium equipment, but my view is that we will see that across the entire fleet as we go into 2022.

And so with respect to inflation, yes, seeing that. I think that's been passed along fairly straightforward manner, but that's not the pricing that actually we're looking forward to and seeing some of now. From a labor perspective, if you describe 20 more fleets into 2022, 84% [Phonetic] to 85% utilization today, that takes us, what, like close to 100. That drives a lot of pricing activity around equipment. And the labor, I think will exacerbate that. And we're very fortunate at Halliburton, that we're able to manage the labor and other elements of transportation, I think, more effectively than the market. Described some of that in my comments. But, I think that will continue to get tight now like the way we're differentially positioned around those things also.

**David Anderson** — *Barclays — Analyst*

Yeah. Clearly, labor is an issue everywhere and I'd have to think at oilfield especially, acutely. A separate question, you touched on this a little bit. But I'm really wondering about the inventory of kind of both directional drilling and completion tools globally. Now, you're spending only about 5% of revenue on capex, it's less than half the rate of just a few years ago. Your competitors have also been very capital disciplined. So obviously, not just the E&Ps are capital disciplined, but you guys have been as well. But now we're on this cusp of this global recovery in activity, as you said multi-year upcycle unfolding, and we're also seeing the supply chain issues across the industry.

I guess my question is, if there is going to be the shortage of type of specialized equipment next year, and where do you see it most acute? You talked about reallocating equipment, but I think we've done this already a couple of times, and I know you've been moving it around, but it feels like we're kind of coming to this inflection on a lot of this equipment out there and I'm just kind of curious, your views on that.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Well, we likely are and we are — it's getting tight, it's tighter and we're going to reallocate equipment to the highest return opportunities. And I think we're just going to see some tightness, which is a healthy thing, which is going to drive better asset allocation to projects. We're — we see capital velocity as a strategic plank for us that we are very focused on and we think that's sort of the key to driving profitable growth. And I say it that way because there'll be many opportunities, our focus is on the profitable slice of that and on things that we're seeing set up as it gets more active internationally. Short cycle barrels, clearly, will ease equipment. But as we see some element of offshore activity creep into that, that soaks up more capacity. And so I expect we'll see quite a bit of tightness, which is very, very positive for Halliburton and our outlook. I mean, I don't — I think that the returns haven't been there and we expect to see solid returns and growth in returns and free cash flow and a tight market is what makes that happen.

**David Anderson** — *Barclays — Analyst*

Looking forward to it. Thanks, Jeff.

**Operator**

Thank you. Our next question comes from Chase Mulvehill with Bank of America. Your line is open.

**Chase Mulvehill** — *Bank of America — Analyst*

Hey, good morning, everyone.

**Lance Loeffler** — *Executive Vice President and Chief Financial Officer*

Good morning, Chase.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Good Morning, Chase.

**Chase Mulvehill** — *Bank of America — Analyst*

Good morning. I just wanted to follow up on kind of the commentary around North America capex being up 20%. Obviously U.S. onshore will be up a little bit more. But, I just wanted to kind of connect the dots there and just try to understand kind of how you're getting to the 20%, because if you just kind of look at operating cash flow of E&Ps, I mean those could be up 30% to 40% year-over-year. So that would imply that they would spend less of operating cash flow, where today, they're spending about 50% of operating cash flow. And if you just look at consensus for public E&Ps, we're talking high-teens already for growth. So that implies kind of a more modest pace of growth for the private E&Ps. So I just want to kind of understand kind of the 20% bogey that you kind of put out there for North America?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Thanks, Chase. Look, 20% is a good starting point. Obviously, could it be more? It could be, certainly, and I think the more activity there is, the more price there will be and so kind of take those in tandem.

When we look at 2022, clearly there is a call on U.S. production at the current commodity prices that we see today, and particularly given the supply shortage. So, we've always expected that we would see North America move first and strongest as we got into sort of the real heavy lift around short supply. That said though, I do believe that it has moderated to a degree, because there are formulas in place around how reinvestment — around reinvestment rates, around dividend requirements, around compensation scheme. So, all of that's in place, which serves to certainly moderate activity for the publics, and I suspect we'll — those budgets aren't out, but I certainly expect that we'll see those.

I think, the privates clearly are very active. An evidence to me that we see sort of that strengthening is we're finding more work. I mean the reality is, as we readjust pricing and look at the market that requires moving around to different operators at different times and we're doing some of that now, but the old adage, you don't quit a job till you have a job, and we're finding jobs. And so, I mean all of that's positive, but I think that there'll be tightness around equipment in that environment. I don't — we're in and around 20% is just sort of a current outlook on '22. I don't mean that to be prescriptive. Could it be more? Clearly, it could be more, but I also think it will be very tight.

**Chase Mulvehill** — *Bank of America — Analyst*

Okay. Great. I mean, can I follow up on the frac maintenance expense? I mean you noted in the press release, you talked about it during the earnings call. I don't know if you would offer up how material it was, does it recur again in 4Q, and so maybe that's impacting margins on the C&P side a little bit. I mean, then also maybe is — should we think about this as an indication that you think you're going to be able to get the pricing you need in 2022 to really kind of drive more activity on the frac side?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Yeah, look, the right answer to this is, maybe a penny, but clarity around where that equipment will go, I mean that's an indicator that we have certainty around where that equipment will go to work and the kind of things we're doing are like the Q-10X fluid end are things that drive better margins for us and a longer life over the life of that, so, it's just wise to do. I think more important is that we've got real clarity around where that equipment goes in '22 and we want to make certain that we're ready and it goes to work at prices that clearly eclipse any cost of maintenance on the equipment. It's just the sort of thing that we want to do. Q4, we've given you our guidance and all that's in that guidance. So, look, I think it is a real positive that we've got the clarity that we have and just sort of the concrete evidence of where this equipment will go and we just want to make certain that we're taking care of everything in real time.

**Chase Mulvehill** — *Bank of America — Analyst*

All right, perfect. I'll turn it back over. Thanks, Jeff.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Thank you.

**Operator**

Thank you. Our next question comes from Scott Gruber with Citigroup. Your line is open.

**Scott Gruber** — *Citigroup — Analyst*

Yes, good morning.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Hey, Scott.

**Lance Loeffler** — *Executive Vice President and Chief Financial Officer*

Morning, Scott.

**Scott Gruber** — *Citigroup — Analyst*

I just want to come back to the domestic inflation question again. Are there any numbers you could put on the delta in your inflation versus the market inflation just given your advantages? And now that you're securing, what I assume is market-based price increases, kind of what that combination to be, on the framework is, if the market pricing is up 15% but peers are seeing like 10% inflation, they're only getting kind of net side, but there is a meaningful gap for Halliburton, maybe your net inflation or your net pricing gains are at 10%, because you're only experiencing half the inflation. So is there any color on kind of what that inflation gap could be? And, I would say, just made this figures out, so any color on the potential net pricing gains for Halliburton vis-a-vis the competition would be great.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Yeah, look, very competitive information. I'd say, we outperformed the numbers you laid out but the — maybe I'll just walk through the components of how we manage these things. It's very — we have very sophisticated supply chain organization and they are working over time but absolutely getting it done. Price fairly passed on to customers. The labor [Technical Issues] the ability to recruit nationally in the U.S. and the ability to have a strong local workforce internationally, both are key elements of managing inflation for Halliburton. From a raw materials perspective, again, supply chain bias from the entire world, we manage logistics and we actually see that improving in terms of tightness as we go into 2022. Particularly, we're seeing sort of space on airplanes as the world opens up and we see more carriers sort of get back to work. We actually believe, the international logistics around raw material, it's better.

And then in North America, our relationship with Vorto is having quite an impact. I mean we are able to add drivers. We were able to retain drivers. It's been quite disruptive but very effective and so — look, I'm confident that we outperform in terms of managing inflation for Halliburton, but that's sort of the separate topic from where we see pricing going in 2022 and in many cases now.

**Scott Gruber** — *Citigroup — Analyst*

Got it. And then just a quick one on international, Jeff. You mentioned an acceleration in international activity next year. Any early read on where that figure could go? Or are you thinking potentially mid-teens, high teens? We've seen 20% growth in past years, very strong upcycles. Just any early read on kind of where international activity growth could ascend to next year?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Yeah, look, I mean the entire international market is a huge market and so to move all of that at a high rate is probably more difficult to do, particularly, given where the supply chain actually and project backlog is for clients. But, nevertheless, could it be low-teens to mid-teens? Yes, certainly it could be, super excited about Latin America and the paces of growth and the outlook there. Middle East should be very

strong. And I think we're going to see the kind of broad-based improvement that allows sort of pricing in pockets of places to continue to get better. So, it's going to be good. It should be really, really good market internationally. I think we've built into it throughout '22 as well.

**Scott Gruber** — *Citigroup* — *Analyst*

Got it. Appreciate the color. Thank you.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Thank you.

**Operator**

Thank you. Our next question comes from Arun Jayaram with J.P. Morgan. Your line is open.

**Arun Jayaram** — *J.P. Morgan* — *Analyst*

Yeah, good morning. I wanted to get a bit more color on some of the implications of HALs decision to reposition some of your frac fleets to get better pricing. You mentioned an exposure to long-term contracts. So, I wanted to maybe get a sense of, are you mobilizing that equipment today so is that going to be a little bit of a drag on 4Q and as you get that equipment into those newer markets, does that give you some tailwinds as we think about 2022?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Yeah, I think it does give us tailwinds as we go into 2022. Drag or headwind near-term, not much — any of that would be in our guidance. But look, this is making — maximizing the value in North America, which is clearly what strategically we want to do and plan to do and are doing. It involves making decisions around what we do with the assets that we have. And I think you're seeing that and you'll continue to see that from Halliburton. And so I'm super encouraged and a lot of the discussions we're having today with customers are around 2022, most of that dialog is 2022 and beyond, actually, even into some sort of '23-type discussion. So I'm super encouraged.

What we want to make sure is that our assets are deployed where they are the most valuable for us and our clients. And yes, that does include moving them around. When we're moving them around, we tend to do more maintenance on it and whatnot. That's the opportunity that we take typically to do high grades of fluid ends and that kind of thing. And so, it should be interpreted in a very positive way, what we're doing and particularly a demonstration of really two strategic planks. One is maximizing value in North America and the second is capital velocity — capital efficiency.

**Arun Jayaram** — *J.P. Morgan* — *Analyst*

Got it. Got it. Any color, Jeff, on which basins that you sense is a better opportunity to get better pricing in these long-term commitments?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Well, fortunately we're in all the basins and so I don't really take a view basin-by-basin as much as we do sort of customer opportunity-by-customer opportunity and that can be sort of wherever it might fall. So, I'm not going to necessarily carve out a particular location. Clearly, there is more activity nearly in all of the basins today and so that's very encouraging.

**Arun Jayaram** — *J.P. Morgan* — *Analyst*

Okay. My follow-up is just on international. There is 3.5 million, 4 million barrels offline by OPEC+. I wanted to get your views on, are you seeing any shifts internationally from customers perhaps shifting from a focus on maintenance capex, sustaining capex projects to growing productive capacity and if so which markets are you seeing perhaps some shift towards that into a bit more growth?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Look, I think what we're going to find internationally is there has been a lot of underspend for quite a long time and a lot of countries are declining today. Declining is hard to overcome, they'll work hard to do that, but that doesn't necessarily move the needle in terms of production and might get it back to flat and

steady, even with extra work. It takes extra work to just stem the decline. All of that's positive for us. I mean, clearly, we see more activity as we go into 2022 in the Middle East and Latin America. But again, I think that those that can spend and are in a position to do so will, but there is the sort of the capital austerity by a number of clients is still well in place. And so I think that — and I say that in the sense that I think that production is going to all be near wellbore, which is very good for us and I think that a lot of work will get done.

But I still see supply as tight for really quite some time. I mean it doesn't turn back on. Maybe a point worth remembering, in 2014, the number of big multi-billion dollar projects with 30-year payouts that were being completed or in the process of finishing, we don't see those today. And the reality is that means there's less spend on infrastructure and a lot more spend on what we do, and I think that's all very, very positive.

**Arun Jayaram** — *J.P. Morgan* — Analyst

Thanks a lot.

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Thank you.

**Operator**

Thank you. Our next question comes from Ian Macpherson with Piper Sandler. Your line is open.

**Ian Macpherson** — *Piper Sandler* — Analyst

Thanks, good morning.

**Lance Loeffler** — *Executive Vice President and Chief Financial Officer*

Good morning, Ian.

**Ian Macpherson** — *Piper Sandler* — Analyst

Jeff, it seems like an unsung hero of your year so far has been Latin America. It's — that's where you've had really outsized growth and the market there, the total activity has grown, but it looks like you've punched above your weight in Latin America. Can you speak to those strengths and you said — I think you — not to put words in your mouth, but synchronized global international growth going into next year. For Latin America, in particular, do you expect to see continued momentum on par with the rest of Eastern Hemisphere growth into next year as well?

**Jeff Miller** — *Chairman, President and Chief Executive Officer*

Yes, I do. Look, I'm very encouraged about Latin America and that team has punched above its weight in Latin America. Got an excellent team, great position, we're in every country and the technology introduction has been effective there which I talked about, sort of our drilling tools and what we've been able to accomplish. Our project management capabilities are very strong in Latin America and has allowed us to outperform, in my view. And so — and I think that continues into 2022 as more work comes on. And again, that's a part of the world where oil production and — is very important to economies and to operators, and I think that we'll continue to see a strong Latin American business.

**Ian Macpherson** — *Piper Sandler* — Analyst

Great. Thanks, Jeff. And then I was going to ask a follow-up to Lance, after. You had a really good quarter here with free cash, with the disposals and some working capital as well. Any indicators for Q4, Lance, with regard to extras outside of the basics of free cash with respect to net disposals and working capital movements to close the year?

**Lance Loeffler** — *Executive Vice President and Chief Financial Officer*

Yeah, I think — look, I think we certainly expect continued strength in operational profit piece of the equation. That's pretty obvious based on our guidance for the quarter. Some of that will be offset by some of that acceleration in capex spend that we've talked about in my prepared remarks. So, we'll be looking to round out the year around capex. And look, I think we'll have to see how working capital continues to

## Billion-Dollar Weather and Climate Disasters: Overview

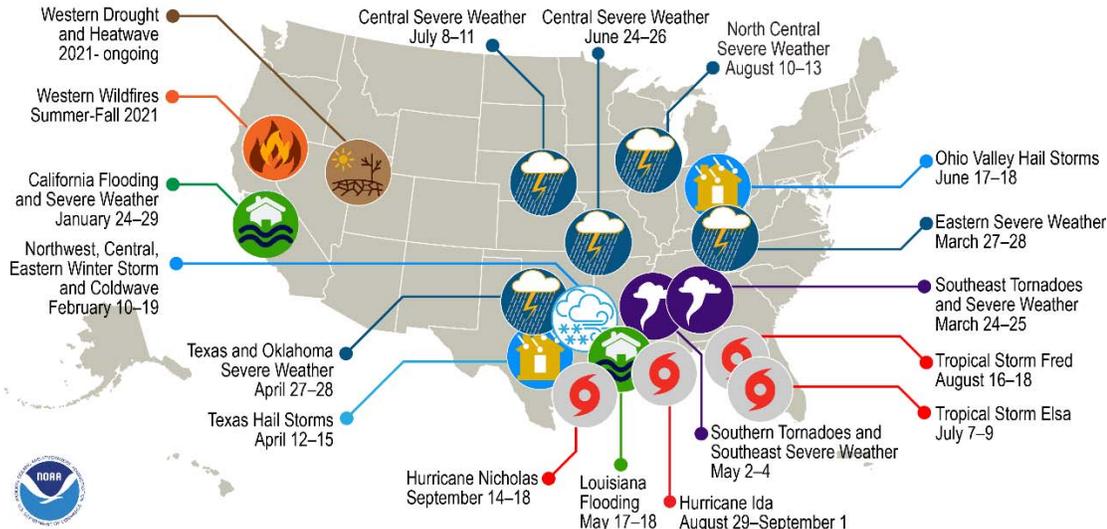
The U.S. has sustained 308 weather and climate disasters since 1980 where overall damages/costs reached or exceeded \$1 billion (including CPI adjustment to 2021). The total cost of these 308 events exceeds \$2.085 trillion.



# 2021 in Progress...

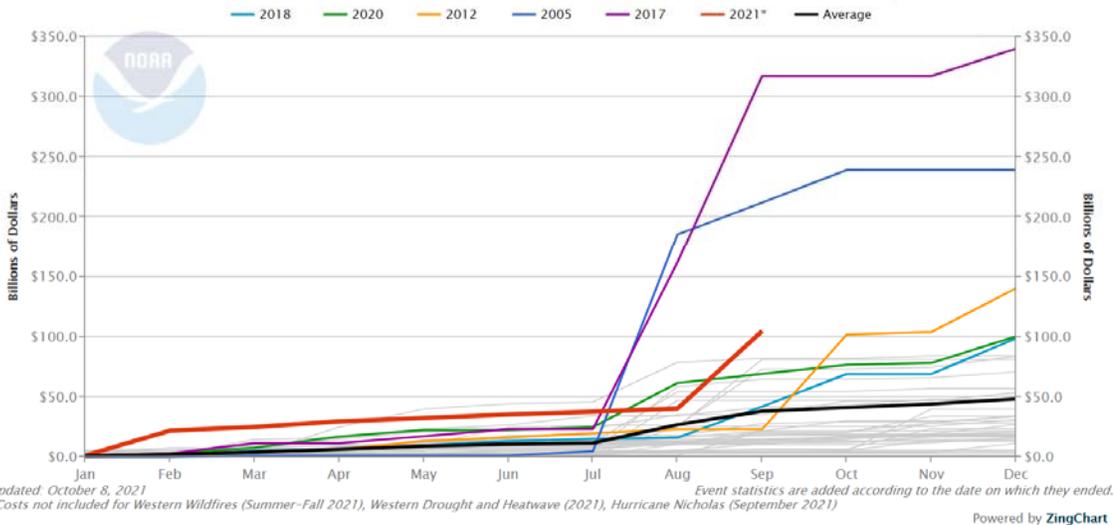
In 2021 (as of October 8), there have been 18 weather/climate disaster events with losses exceeding \$1 billion each to affect the United States. These events included 1 drought event, 2 flooding events, 9 severe storm events, 4 tropical cyclone events, 1 wildfire event, and 1 winter storm event. Overall, these events resulted in the deaths of 538 people and had significant economic effects on the areas impacted. The 1980–2020 annual average is 7.1 events (CPI-adjusted); the annual average for the most recent 5 years (2016–2020) is 16.2 events (CPI-adjusted).

U.S. 2021 Billion-Dollar Weather and Climate Disasters



This map denotes the approximate location for each of the 18 separate billion-dollar weather and climate disasters that impacted the United States January–September 2021.

1980–2021 Year-to-Date United States Billion-Dollar Disaster Event Cost (CPI-Adjusted)



## Methodology and Data Sources

The National Centers for Environmental Information (NCEI) is the Nation's Scorekeeper in terms of addressing severe weather and climate events in their historical perspective. As part of its responsibility of monitoring and assessing the climate, NCEI tracks and evaluates climate events in the U.S. and globally that have great economic and societal impacts. NCEI is frequently called upon to provide summaries of global and U.S. temperature and precipitation trends, extremes, and

comparisons in their historical perspective. Found here are the weather and climate events that have had the greatest economic impact from 1980 to 2021.

In 2012, NCEI -- then known as National Climatic Data Center (NCDC) -- reviewed its methodology on how it develops Billion-dollar Disasters. NCEI held a workshop with economic experts (May, 2012) and worked with a consulting partner to examine possible inaccuracy and biases in the data sources and methodology used in developing the loss assessments (mid-2013). This ensures more consistency with the numbers NCEI provides on a yearly basis and give more confidence in the year-to-year comparison of information. Another outcome is a published peer-reviewed article ["U.S. Billion-dollar Weather and Climate Disasters: Data Sources, Trends, Accuracy and Biases" \(Smith and Katz, 2013\)](#). This research found the net effect of all biases appears to be an underestimation of average loss. In particular, it is shown that the factor approach can result in an underestimation of average loss of approximately 10–15%. This bias was corrected during a reanalysis of the loss data to reflect new loss totals.

It is also known that the uncertainty of loss estimates differ by disaster event type reflecting the quality and completeness of the data sources used in our loss estimation. In 2019, six of the fourteen billion-dollar events (i.e., three inland floods events, California/Alaskan wildfires, tropical cyclones Dorian and Imelda) have higher potential uncertainty values around the loss estimates due to less coverage of insured assets and data latency. The remaining eight events (i.e., the severe storm events producing tornado, hail and high wind damage) have lower potential uncertainty surrounding their estimate due to more complete insurance coverage and data availability. Our newest research defines the cost uncertainty using confidence intervals as discussed in the peer-reviewed article ["Quantifying Uncertainty and Variable Sensitivity within the U.S. Billion-dollar Weather and Climate Disaster Cost Estimates" \(Smith and Matthews, 2015\)](#). This research is a next step to enhance the value and usability of estimated disaster costs given data limitations and inherent complexities.

In performing these disaster cost assessments these statistics were taken from a wide variety of sources and represent, to the best of our ability, the estimated total costs of these events -- that is, the costs in terms of dollars that would not have been incurred had the event not taken place. Insured and uninsured losses are included in damage estimates. Sources include the National Weather Service, the Federal Emergency Management Agency, U.S. Department of Agriculture, National Interagency Fire Center, U.S. Army Corps, individual state emergency management agencies, state and regional climate centers, media reports, and insurance industry estimates. Please see [Calculating the Cost of Weather and Climate Disasters](#) for more information. For more in-depth analysis, the following report offers the latest summary on the [2020 U.S. billion-dollar weather and climate disasters in historical context](#).

## Citing this information:

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# Jesse Kline: A historic alignment of Calgary and Ottawa against Canada's oil and gas sector

*Until now, we could at least count on the government of Alberta and municipalities like Calgary to defend the interests of the natural resource sector*

Author of the article:

**Jesse Kline**

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Mayor-Elect Jyoti Gondek speaks with media at City Hall on Thursday, October 21, 2021. PHOTO BY AZIN GHAFARI /Postmedia

“As your new mayor, my first order of business will be to shoot us all in the collective foot”: this is essentially what Calgary mayor-elect Jyoti Gondek said when she told an interviewer that her first big act would be to declare a “climate emergency,” so the city can “move past” oil and gas. It’s a foolhardy mission that will see political leaders in Ottawa and Calgary aligned in their opposition to Canadian energy.

The ink hadn’t even dried on the ballots when Gondek appeared on the [“Real Talk” podcast](#) with former Edmonton radio host Ryan Jespersen the morning after Monday’s municipal vote. Asked what her “top priority” would be, Gondek responded by saying that, “We have had the opportunity to declare a climate emergency for years ... so let’s get serious, let’s declare this.”

Which would be an odd thing for any mayor to say. After all, even if Calgary’s over 1.3 million residents gave up their pickup trucks and steaks and started driving Teslas and eating Beyond Meat, it would have absolutely no effect on global temperatures.

And unlike declaring an emergency over a flood or some other natural disaster, climate change is not going to be solved any time soon. What could possibly be the point of declaring an “emergency” that is likely to last for decades, if not centuries?

But it is even more preposterous for the incoming mayor of Calgary to say, because it is a city whose entire economy is underpinned by fossil fuels. According to Statistics Canada data cited by the City of Calgary, the oil and gas extraction industry directly employs nearly 48,000 Calgarians. And that doesn't include all the people working in utilities, construction, transportation, technical services and the many other industries that depend on the energy sector.

Calgary has long prided itself on having more corporate headquarters per capita than any other major Canadian city, boasting 6.6 head offices per 100,000 residents, compared to 4.4 in Toronto. And given that she has had a seat on city council since 2017, Gondek surely knows that there is a specific type of business that chooses Calgary as its home.

Of the top 15 corporations headquartered in Calgary, 11 are in the energy industry, one produces plastics and other petrochemicals, and another is in the electricity business.

This “heavy concentration of key energy companies,” according to the city's own propaganda, “has helped forge Calgary's reputation as an energy leader.” So what does it say when a city that prides itself on being an “energy leader” elects a mayor who wants to “move past” the industry that fuels its economy?

To be fair, Gondek didn't say she wants to disavow energy companies, per say. “I don't believe that talking about a climate emergency and oil and gas are mutually exclusive ideas,” she said. “We are very good at energy production and we are also leaders in innovative ways to practice energy production. We became fixated on that end product being oil and gas ... we don't need to be hung up on what it is we're producing.”

In other words: don't get rid of the energy companies, just get them to produce green energy instead. Easy-peasy. Except there is a reason why big players like Enbridge, Suncor and Imperial Oil have set up shop in Calgary, and it's not because their executives really like skiing.

Energy companies locate in the city due to its proximity to Alberta's abundant oil and gas supplies. The same could not be said for green energy.

Yes, Calgary is the sunniest big city in the country, experiencing an average of 333 days of sunshine on a yearly basis. And yes, Alberta is a viable location for generating wind power.

But that is missing the point. The benefit of fossil fuels is that they're a store of energy. Unless someone comes up with a way to shove sunshine into a bottle and ship it to Asia, there will be no particular benefit to green energy companies locating in Calgary over practically anywhere else in the world. Nor have past attempts

Of course, Gondek was not elected premier, and in Calgary, the mayor is little more than a glorified councillor. She will, in other words, have little ability to fundamentally alter the nature of the economy, especially if she is met by a hostile city council and business community. (What's she going to do: rezone the downtown core so only sustainable energy companies and vegan restaurants can operate there?)

The real threat — to the city, and to the broader economies of Alberta and Canada as a whole — is not so much that the mayor-elect will be successful in getting the city to move past oil, but that there

will be one fewer politician willing to defend the interests of Alberta's economy. Our hopes of becoming an energy superpower have already been dashed by anti-pipeline politicians in British Columbia and Quebec, along with an increasingly hostile government in Ottawa.

Since Prime Minister Justin Trudeau's anti-energy Liberal government was elected in 2015, the number of Albertans employed in oil and gas has decreased by about 22 per cent, despite a growing population; meanwhile, the number of head offices located in Calgary dropped from 132 in 2013, to 102 today.

Until now, we could at least count on the government of Alberta and municipalities like Calgary to defend the interests of the natural resource sector. Even former NDP premier Rachel Notley understood that environmental concerns need to be balanced with economic development. Judging by the comments of Calgary's newly elected mayor, the interests of political leaders in the nation's capital and the energy-producing capital of Canada will soon be aligned against the economic interests of the Canadian people.

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## Canada oil producers grapple with Trudeau's demand for faster emissions cuts

By Rod Nickel

WINNIPEG, Manitoba, Oct 22 (Reuters) - Canada's oil producers face new pressure from Prime Minister Justin Trudeau to reduce emissions in just three years, a sudden acceleration of their plans that at least one major company said looks unrealistic.

Suncor Energy ([SU.TO](#)), the second-largest Canadian crude producer, says it remains focused on cutting emissions by 2030, not 2025 as the Canadian government will require. "Honestly, 2025 is going to be tough," Martha Hall Findlay, Suncor's Chief Sustainability Officer, told Reuters. "That's not a number we've used, it's a number the feds have used."

Trudeau's advanced timetable for cuts to the oil sector's total emissions by 2025, announced last month, comes as the oil sector has focused on longer-term targets, and on reducing emissions on a per-barrel basis.

"That is light speed for an oil sands company. That's tomorrow," said Kevin Birn, chief analyst of Canadian oil markets at consultancy IHS Markit, of Trudeau's demand. "They're a very hard ship to turn because they have so much emissions."

Previously, Ottawa had a target of cutting national emissions by at least 40% by 2030, but it did not single out the oil sector. Canada's crude industry generates some of the highest emissions per barrel worldwide. Suncor is the only big producer that has laid out a plan - in May - to cut total emissions by 2030, depending heavily on carbon capture, greener power sources and energy efficiency.

But Trudeau's 2025 demand came as a surprise.

"We had obviously been having conversations with the feds long before the budget came out last spring, long before the (election) campaign," Hall Findlay said. "None of those discussions have mentioned 2025. At Suncor, we're laser-focused on 2030."

Canadian Natural Resources Ltd ([CNQ.TO](#)) and Cenovus Energy ([CVE.TO](#)), have been planning for months to unveil their emissions targets by year-end.

Cenovus intends to cut emissions on an absolute and per-barrel basis, said spokesman Reg Curren, but he would not say if cuts would occur by 2025.

Canadian Natural is working on "mid-term" targets connected to the Pathways carbon capture project with its peers, said spokesperson Julie Woo. She would not say if they would address Trudeau's 2025 requirement. Governments and business would need to spend C\$60 billion annually to cut Canada's emissions by 75% in the next 30 years, RBC Economics said.

Canadian producers are expected to report big quarterly profits in coming weeks as oil and gas prices have soared. The companies have prioritized repaying debt and returning cash to investors, but Trudeau wants producers to spend some profits on curbing emissions.

He plans to unveil his new cabinet on Tuesday, just ahead of the United Nations' Climate Change Conference in Glasgow, Scotland.

Ottawa wants to ensure there are ambitious emission reductions from the oil and gas sector, making a meaningful contribution to Canada's climate goals, said Joanna Sivasankaran, spokesperson for the Canadian environment department.

Trudeau's 2025 goal is "ambitious for sure" and it would be more realistic to expect the sector to cut emissions sharply by a decade later, said Steve MacDonald, CEO of Emissions Reduction Alberta, an arms-length corporation funded by the provincial government.

### 'EASIER THAN ANYONE THINKS'

Some small conventional oil producers are already showing deep emissions cuts are possible, however, using methods that big producers Canadian Natural and Cenovus could widely apply. Both companies produce crude in the oil sands and by conventional methods.

Yangarra Resources ([YGR.TO](http://YGR.TO)), which produces 10,000 barrels of oil equivalent per day, says it will cut total emissions by 47%, or 50,000 tonnes of carbon dioxide equivalent, by the end of 2022. Its plans involve powering 80 pumpjacks with electricity from the Alberta grid, instead of burning natural gas, and replacing older instruments that emit high amounts of methane.

"Cutting carbon in the oil patch is going to be a whole lot easier than anyone thinks," said Yangarra CEO Jim Evaskevich. "All of the changes we are implementing make incredible economic sense."

The moves are likely to generate substantial credits next year that Yangarra can sell to bigger emitters, although the monetary value has not yet been determined, Evaskevich said.

Cenovus, which generates 18% of its production from conventional operations, has cut its methane emissions by nearly half from 2015 levels, a spokesperson said. Canadian Natural has cut methane emissions by 28% since 2016, Woo said.

"They're big, large operations, and they can't pivot quite as quickly," MacDonald said. "But that doesn't mean they aren't moving forward in the same areas."

Emissions reductions are difficult for oil sands operations because of the energy they require, while conventional methane emissions are easier to tackle, said Keith Stewart, senior energy strategist at Greenpeace Canada.

Oil sands producers are counting on expanded carbon capture and sequestration facilities to cut emissions. But the economics require government funding, said Greg McNab, a partner at the Baker McKenzie law firm. Using renewable power to run oil sands facilities may be the quickest way to curb emissions, he said.

Reporting by Rod Nickel in Winnipeg; Editing by David Gregorio  
Our Standards: [The Thomson Reuters Trust Principles.](#)

## A Cleaner, Greener Future: The Liberal Climate Plan

August 29, 2021

Cambridge, Ontario – A re-elected Liberal government will **move forward to accelerate climate action** for more jobs, cleaner communities, and less pollution.

The Liberal climate plan is a jobs plan. It is building, and will continue to build, a green recovery to create jobs and grow the middle class, while ensuring a cleaner future for our children and grandchildren. Climate change is the greatest long term threat of our time, but it is also our greatest economic opportunity — and Canada has the skilled workforce, innovative spirit, and natural resources at our fingertips to succeed. But we need to keep moving forward.

“A serious plan for the environment is a plan for the economy,” said Justin Trudeau, Leader of the Liberal Party of Canada. “We have done more to fight climate change and protect our environment than any other government in Canadian history, and our plan has created new jobs and growth across the country. But we can’t stop now. We can’t go back to the inaction of the Harper years. **A cleaner and greener future is within our reach.**”

A re-elected Liberal government will accelerate climate action to continue to create more jobs, cleaner communities, and less pollution:

- **More jobs:** We will create new, middle class jobs for Canadians by making Canada a world leader in batteries to power the clean economy, helping industries adopt clean technologies to cut pollution, and supporting all workers to ensure no one is left behind.
- **Cleaner communities:** We will create cleaner communities with cleaner air, by providing \$5,000 toward zero emission vehicle purchases for over half a million Canadians, building 50,000 more zero emission vehicle chargers, **requiring at least half of all passenger vehicles sold in Canada to be zero emission by 2030 and all to be zero emission by 2035, and charting a path toward net-zero buildings across the country,** which will help Canadians save on their energy costs.
- **Less pollution:** **We will build a net-zero electricity grid by 2035, ensure we drive down emissions from oil and gas to meet our shared goal of net-zero emissions by 2050, and continue to phase-out coal by ending thermal coal exports by 2030.**

This builds on the work that the Liberal team has been doing since 2015 to fight climate change and grow the economy, by:

- **Putting a price on pollution** and more money in the pockets of hard working Canadians;
- Making zero emission vehicles more affordable and accessible for Canadians, through rebates of \$5,000 and more charging stations across the country;
- Investing historic amounts in public transit, supporting over 1,300 projects;
- Protecting a historic amount of our nature, including lands 3.5 times the size of Nova Scotia; and
- Advancing a ban on harmful single-use plastics and moving forward with our plan to end plastic waste by 2030.

“Even with wildfires increasing in frequency and severity across western Canada, Erin O’Toole’s Conservatives deny the existence of climate change,” said Mr. Trudeau. “If Erin O’Toole is in charge, it’s no surprise he would take us backward on climate action – and the good jobs that go with it. We can’t

afford to go back to the Harper years that left workers behind and put our future in danger. We need to keep moving Canada forward – for everyone.”

**Backgrounder:** [More Jobs. Less Pollution. Cleaner Communities.](#)



# More Jobs. Less Pollution. Cleaner Communities.

Find A Cleaner, Greener Future here: [liberal.ca/climate](https://liberal.ca/climate)

Climate change is the greatest long term threat of our time. But it is also our greatest economic opportunity – and Canada has the skilled workforce, innovative spirit, and natural resources at our fingertips to succeed.

Since 2015, Justin Trudeau and the Liberal team have made significant progress to protect the environment and grow the economy. We made sure pollution isn't free anywhere in Canada, while putting more money in the pockets of hard-working Canadians. We provided rebates for Canadians to upgrade their homes and purchase zero emission vehicles, which will help Canadians save on energy costs. And we protected historic amounts of our lands and oceans.

**We're just getting started**, because we need to continue to take strong climate action to build a cleaner future, create new jobs, and grow the middle class. But we need to keep moving forward to achieve it. We can't go backward to the inaction of the Harper years.

Our kids and grandkids are counting on us.

The Liberal plan will continue to create more jobs, cleaner communities, and less pollution. Here's how we'll get there:

## More jobs

### Make Canadian industries cleaner

We will ensure that Canadian workers and businesses continue to benefit from Canada's clean industrial advantage so we can grow the middle class and create new jobs, by:

- Utilizing the minerals at our fingertips, along with our manufacturing expertise, to build the batteries needed for zero emission vehicles and other clean energy solutions through measures to attract investment and position Canada as a world leader in this space.

- Advancing emissions reductions across heavy industries through the Net-Zero Accelerator Fund;

- Ensuring Canada continues to be among the leaders in clean technology with measures to attract additional investment, support emerging Canadian companies, and further invest in clean technologies for farmers; and

- Advancing a Buy Clean Strategy to support and prioritize the use of made-in-Canada clean products in infrastructure projects, both public and private.

### Leave no one behind

We will ensure no Canadians workers are left behind as we build a cleaner and greener economy and future, by: Investing \$2 billion in a Futures Fund for Alberta, Saskatchewan and Newfoundland and Labrador to partner with local workers and communities to create jobs;

- Introducing Just Transition legislation, guided by consultations and feedback from workers, labour groups, and more;

- Launching a Clean Jobs Training Centre to help workers upgrade or gain new skills to succeed in the net-zero future.

**FORWARD. FOR EVERYONE.** 

## Cleaner communities

### Shift to zero-emission vehicles, faster

We will make the air in our communities cleaner and support our workers in Canada's auto manufacturing sector to re-tool to build zero emission vehicles, by:

- Making zero emission vehicles more affordable and accessible for Canadians by extending consumer rebates of up to \$5,000 to half a million Canadians and building 50,000 more charging stations across the country; and
- Requiring that at least half of all passenger vehicles sold in Canada are zero emission by 2030, and all are zero emission by 2035.

### Make homes and buildings cleaner

We will create jobs in every community across the country, make the air in our communities cleaner, and help Canadians save on their energy bills, by:

- Helping nearly a million Canadians upgrade their homes and save on energy costs, with retrofit grants of up to \$5,000, interest-free loans of up to \$40,000 for deeper retrofits, and additional supports for Canadians to transition off home heating oil; and
- Launching a national strategy to chart a path to net-zero emissions from buildings by 2050, with ambitious milestones along the way.

## Less pollution

### Power our communities with clean energy

We will create more jobs for Canadians in the clean energy sector that will also reduce pollution and make our communities cleaner, by:

- Reaching a net-zero electricity grid by 2035 by implementing a Clean Electricity Standard, developing additional investment tax credits for clean energy, and creating a Pan-Canadian Grid Council, in partnership with the provinces and territories, to make Canada the most reliable, cost-effective and carbon-free electricity producer in the world; and
- Ending thermal coal exports from and through Canada no later than 2030. This builds on our work to phase-out coal-fired electricity by 2030.

### Reduce emissions from the oil and gas sector

We will reach our shared goal of getting our oil and gas sector to net-zero emissions by 2050, while also supporting Canadian workers and businesses along the way, by:

- Making sure the oil and gas sector reduces emissions from current levels at a pace and scale needed to achieve net-zero by 2050, with 5-year targets starting in 2025.
- Requiring oil and gas companies to reduce methane emissions by at least 75% below 2012 levels by 2030.

<https://www.wsj.com/articles/to-strike-a-climate-deal-poor-nations-say-they-need-trillions-from-rich-ones-11634568010>

## Strike a Climate Deal, Poor Nations Say They Need Trillions From Rich Ones

Industrialized countries were already struggling to pay earlier commitments to help with clean-energy development and other infrastructure needs. Now the cost of buying cooperation has skyrocketed.

A coal-fired power station in Mpumalanga, South Africa. WALDO SWIEGERS/BLOOMBERG NEWS

By Matthew Dalton

Oct. 18, 2021 10:40 am ET

At a July global climate gathering in London, South African environment minister Barbara Creecy presented the world's wealthiest countries with a bill: more than \$750 billion annually to pay for poorer nations to shift away from fossil fuels and protect themselves from global warming.

The number was met with silence from U.S. Climate Envoy John Kerry, according to Zaheer Fakir, an adviser to Ms. Creecy. Other Western officials said they weren't ready to discuss such a huge sum.

For decades, Western countries responsible for the bulk of greenhouse-gas emissions [have pledged to pay to bring poorer nations along with them in what is expected to be a very expensive global energy transition](#). But they have yet to fully deliver on that promise. Now the price of the developing world's cooperation is going up.

At the end of the month, negotiators from nearly every country will meet in Glasgow, Scotland, for a two-week climate summit, the first major gathering [since governments signed the Paris accord in 2015](#). The goal is to strike a deal to [keep the climate targets of the Paris agreement within reach](#).

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Without poorer countries on board, the world stands little chance of preventing catastrophic climate change, say many climate scientists. Emissions in the U.S. and Europe are falling as [both regions push to adopt renewable energy and phase out coal-fired electricity](#). But emissions in the developing world are expected to rise sharply in the coming decades as billions rise out of poverty—unless those economies can shift onto a lower-carbon path.

Before signing on, poorer countries are demanding a big increase in funding from the developed world to adopt cleaner technologies and adapt to the effects of climate change such as rising sea levels and more powerful storms.

Bangladesh says it needs cyclone-resistant housing. Kenya wants its countryside dotted with solar farms instead of coal or natural gas-fired plants. India says its climate-change plan alone will cost more than \$2.5 trillion through 2030.

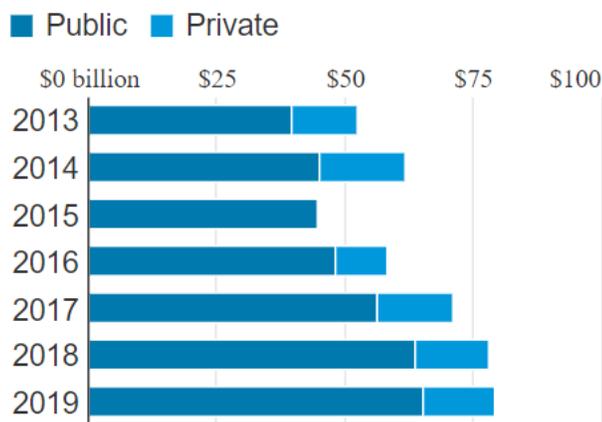
“We cannot be talking about ambition on the one hand, and yet you show no ambition on finance,” said Mr. Fakir who is coordinating climate finance policies for the Group of 77, a coalition of developing nations.

Developed nations say it is unrealistic to put them on the hook for such a large sum without also getting middle-income countries—China in particular—to provide funds. In Paris in 2015, the U.S., Europe and a few other wealthy nations committed to funding poorer countries to the tune of \$100 billion a year from 2020 through 2025. They have so far fallen short.

### Climate Control

Rich countries have increasingly channeled funds to the developing world for climate-change projects, but the Paris agreement calls for even more money.

Climate-change funding from developed countries



Note: Private contributions not available in 2015  
Source: Organization for Economic Cooperation and Development

Developing-world negotiators say the money isn't financial aid. Rather, they say wealthy countries have a responsibility to pay under the U.N. climate treaties because most of the Earth's warming since the industrial era is the result of emissions from the rich world. Moreover, poor nations now face the task of raising living standards without burning fossil fuels unchecked as the U.S. and other rich nations did for almost two centuries.

“If you’re going to ask a much poorer country to forgo that option, then there is a moral claim that they need support to go on a lower emissions development pathway,” said Joe Thwaites, a climate-finance expert at the World Resources Institute, an environmental think tank.

Even developed countries are [struggling with the transition to renewables](#). A surge in demand for power from nations recovering from the pandemic has forced governments to lean on fossil fuels; though investment in renewables has increased, it accounts for only about a quarter of the world’s power.

Western officials say the Glasgow negotiations need to focus first on how to raise enough money to meet the Paris goal. Then they are planning to begin talks on a finance goal for after 2025. That sum is expected to be too large to pay from the government budgets of rich nations alone, officials say. Instead they are counting on private investors to pick up most of the bill.

“There isn’t enough official development funds in the system to close the gap of climate finance,” said Gustavo Alberto Fonseca, director of programs at the U.N.’s Global Environment Facility, which funds climate infrastructure in the developing world. “There has to be a market-based solution.”

Developing nations want a big portion of the money to come as government grants, not loans from private investors that would saddle them with debt. They’re demanding control over how the money is spent, wary of dictates from wealthy governments and financiers in the U.S. and Europe.

The developing world also questions whether the U.S. is committed to delivering its portion of the funds over the long haul. The Biden administration has pledged to double climate funding to developing countries to \$11.4 billion annually by 2024, which would make the U.S. by far the biggest single benefactor. President Donald Trump reneged on previous promises the Obama administration made to finance the Green Climate Fund, the U.N.’s main vehicle for delivering money to the developing world, saying the fund “was costing the United States a vast fortune.”

The Organization for Economic Cooperation and Development, a club of wealthy countries, says the developed world had accounted for \$80 billion in climate financing to poor countries in 2019, the most recent year for which data are available. It is unlikely that they reached the \$100 billion target in 2020, officials say.

Private-sector investors haven’t piled into investment projects as expected. Only \$14 billion of the \$80 billion came from the private sector, according to the OECD. That’s because pension funds, insurance companies and other major institutional investors are uncomfortable funding renewable-energy projects in countries they perceive to be higher risk.

Officials say private investors are ill-suited for underwriting other pressing needs: projects that help developing nations adapt to the effects of climate change. Seawalls that protect against rising sea levels and programs to teach farmers to grow drought-resistant crops don't generate revenue to compensate investors, unlike a solar farm that sells electricity onto the grid.

To entice private investors, wealthy governments are putting taxpayer money on the line, accepting first losses on projects that don't work out. BlackRock Inc, the giant investment manager, has launched a \$250 million facility alongside the development agencies of France, Germany and other countries to provide climate financing to the developing world.

"If we just had institutional capital alone, we might be much more constrained in where we could go," said Jim Barry, BlackRock's chief investment officer for alternative investments.

Climate funding is channeled through more than two dozen different agencies, each with their own rules and requirements. Some of the requirements—such as one demonstrating that a climate project advances gender equality—reflect the prerogatives of wealthy nations. Others are designed to give developing countries more say over how the funds are spent.

"Sometimes I argue it's not worth pursuing some little amount of money, because the energy, time and resources for developing a proposal are not worth it," said Mizan Khan, a climate negotiator for Bangladesh, one of the countries most vulnerable to the effects of climate change.

The Green Climate Fund is the cornerstone of the U.N.'s strategy for channeling funds to the developing world. Launched in 2015, the fund can dole out grants or use its money to enlist private investors. By taking on the riskiest slice of financing on climate-change projects, the fund aims to leverage huge sums of private capital with a relatively small contribution of its own funds.

The GCF helped launch renewable energy in Egypt by financing a huge solar farm in Benban, 400 miles south of Cairo, and wind turbines on the Gulf of Suez. The GCF gave a \$15 million grant for technical consulting for the Egyptian electricity sector and lent \$150 million for the project in 2017, when Egypt's political turmoil meant foreign capital was only available at high interest rates. Other investors put \$850 million into the project. Since then, investors have flooded into Egyptian solar projects, driving down the price of solar power sharply.

Efforts to scale up the GCF's financial firepower, however, have been beset with disputes between wealthy and developing countries as well as frequent leadership changes.

“The work environment in the fund is very adversarial,” said Wael Aboulmagd, a senior Egyptian diplomat who is on the fund’s board.

At a July 2018 meeting, board members spent days arguing over new policies sought by wealthy countries, such as an update to the fund’s stance on gender equality and allowing the board to make decisions without unanimity. Developing-world officials feared rich nations, which were due to pledge more money, were using the moment as leverage to impose their priorities.

The executive director unexpectedly resigned during the three-day meeting, citing personal reasons. By the end, the bickering left no time for the board to approve funding proposals.

“After this meeting, I cannot see how I can come home and defend why we should put more money into this fund,” said Lars Roth, a Swedish representative on the board. “We haven’t made any decision of significance. This has to end.”

One project that had already been approved, the Global Energy Efficiency and Renewable Energy Fund Next, aimed to use \$250 million in capital from the GCF to raise another \$500 million from private-sector investors. The money was to be seeded into an array of subsidiary funds with more leverage, bringing the project’s total investment firepower to \$30 billion, to pay for renewable energy and energy-efficiency projects in dozens of countries across the developing world, from Belize to Uganda. It was the Green Climate Fund’s most ambitious attempt yet to amplify its money with private-sector finance.

In June 2020 the project was canceled. Under GCF rules, sponsors had asked developing-world governments to preapprove a series of hypothetical projects that could be used to raise money from private investors. That provoked resistance from India, Rwanda and others that wanted more control over specific projects in their territories.

“I’ve sweated blood and tears on that,” said an official involved in the project. “We spent an incredible amount of time discussing how we could sue each other if something went wrong.”

Yannick Glemarec, the GCF’s executive director, said the project was a great idea but beyond the fund’s capacity when it was proposed. “We had to start everything from scratch,” he said, adding that cooperation between developed and developing nations “is a challenge at times, but I wouldn’t swap the legitimacy this gives GCF for any other model.”

As Glasgow approaches, wealthy countries are drafting a new plan to hit the Paris agreement’s finance target and to make up for the fact they have likely fallen short in 2020.

**"We should be focused on delivering the \$100 billion before we start talking about huge numbers," said an adviser to French President Emmanuel Macron.**

**The developing world disagrees. When Ms. Crecy, the South African minister, demanded \$750 billion in annual climate finance, she wanted to start a discussion that poorer nations felt developed countries were avoiding, said Mr. Fakir.**

The figure is based on a formula the Global Environment Facility, a U.N. fund, has used to finance projects in the developing world for decades. The facility typically requires recipient countries and private investors to put up \$12 for every dollar provided by the fund. So South African officials simply took the amount of public funds provided directly by developed countries in 2019—around \$62 billion, according to the OECD—and multiplied by a factor of 12. Then they rounded up.

In September, African nations used the South African methodology to settle on an even bigger finance demand to be presented in Glasgow: \$1.3 trillion annually by 2030.

Alok Sharma, the U.K. climate minister who is leading Glasgow negotiations, said he is focused on pressuring wealthy countries to deliver on the \$100 billion target and to provide more money as grants rather than loans. "Every nation has taken a huge hit to their public finances because of Covid," he said. "If you're going to ladle more debt on developing nations, that's not going to be particularly helpful."

October 18, 2021 10:59 AM MDT Last Updated 18 hours ago

## Poland seeks EU climate policy rethink amid high energy prices

By Kate Abnett

BRUSSELS, Oct 18 (Reuters) - Poland on Monday called for the European Union to cancel or delay parts of its plan to tackle climate change ahead of a summit at which EU leaders will wrangle over their response to surging gas and electricity prices.

EU country leaders, who meet on Thursday and Friday, are divided over whether short-term national measures like tax cuts are sufficient to address the recent energy price spike, or whether deeper reforms of EU energy regulation are needed.

In a paper circulated to other countries ahead of the EU summit, Poland said Brussels should change or delay parts of its planned climate policies, warning that if an "excessive burden" is put on consumers, they may reject the EU's climate aims.

"We should analyse in detail all elements of the Fit for 55 package that can have a negative impact on the energy price and consider their revision or postponement," the paper said.

"Fit for 55" refers to the EU policy package to cut emissions by 55% from 1990 levels by 2030.

The paper, seen by Reuters, singled out the EU's plan to launch a carbon market for transport and buildings, which has faced resistance from some countries over concerns it could increase consumer bills. The European Commission has said a new multi-billion-euro EU fund would shield vulnerable consumers from any price increase.

Poland also said the EU should maintain its current minimum energy tax rates. Brussels wants to overhaul the system to end tax exemptions for kerosene - a move supported by countries including the Netherlands and France - and increase rates on other polluting fuels.

EU tax changes require unanimous approval, meaning one country can block them.

While other states have warned that high energy prices could erode support for ambitious climate policies, Poland's demands are likely to face opposition from countries which say the recent gas price spike should encourage Europe to accelerate its green shift away from volatile fossil fuel prices.

Meeting the EU's legally binding climate targets will require huge investments. Brussels says this will create jobs and economic growth in green industries, while the cost of not tackling climate change would be far higher, in the form of devastating floods, droughts and wildfires.

Poland also called for the EU to create new financial mechanisms to reduce energy poverty, limit speculators' participation in the EU carbon market and introduce a gas storage obligation for each EU country.

Reporting by Kate Abnett; Editing by Nick Macfie

Our Standards: [The Thomson Reuters Trust Principles.](#)

## HRH Crown Prince Inaugurates Saudi Green Initiative Forum with Wide Regional and International Participation

Saturday 1443/3/17 - 2021/10/23

Riyadh, Oct. 23, 2021, SPA -- His Royal Highness Prince Mohammed bin Salman bin Abdulaziz, Crown Prince, Deputy Prime Minister, who is also Chairman of the Supreme Committee for Green Saudi Arabia, launched the inaugural edition of the annual forum of the Saudi Green Initiative in Riyadh, concerned with launching new environmental initiatives for the Kingdom and monitoring the impact of the previously-announced initiatives, in order to achieve the goals of the Saudi Green Initiative.

In a key opening speech at the Saudi Green Initiative Forum, His Royal Highness the Crown Prince announced the launch of the first package of qualitative initiatives in the Kingdom, to set a roadmap for protecting the environment and confronting climate change, designed to contribute to achieving the ambitious goals of the Saudi Green Initiative.

His Royal Highness pointed out that the Kingdom has launched initiatives in the energy sector designed to reduce carbon emissions by 278 million tons annually by 2030, thus voluntarily more than doubling the targeted emissions reduction.

His Royal Highness confirmed the start of the first phase of afforestation initiatives by planting more than 450 million trees, in addition to rehabilitating eight million hectares of degraded lands, and allocating new protected areas, bringing the total protected areas in the Kingdom to more than 20% of its total area.

His Royal Highness the Crown Prince stressed his determination to transform Riyadh into one of the most sustainable cities in the world.

His Royal Highness announced the Kingdom's intention to join the Global Oceans Alliance, the Alliance to Eliminate Plastic Wastes in Oceans and Beaches, the Sports for Climate Action Agreement, in addition to establishing a global center for sustainable tourism, and a non-profit foundation to explore the seas and oceans.

His Royal Highness the Crown Prince further announced that the Kingdom of Saudi Arabia aims to reach Net Zero in the year 2060 through the Carbon Circular Economy approach, in line with its development plans and enabling its economic diversification, in accordance with the Dynamic Baseline, while preserving and reinforcing the Kingdom's leading role in the security and stability of global energy markets, amid the availability and maturity of the required technologies to manage and reduce emissions.

His Royal Highness further added that this first package of initiatives represents investments worth more than 700 billion Saudi Riyals, which contributes to developing the green economy, creating quality job opportunities and providing significant investment opportunities for the private sector in accordance with the Kingdom's Vision 2030.

-- SPA

13:36 LOCAL TIME 10:36 GMT

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## Li Keqiang presided over a meeting of the National Energy Commission, emphasizing on ensuring stable energy supply and safety, enhancing the ability to support green development and Han Zheng attended the meeting

2021-10-11 21:06 Source: Xinhua News Agency

Xinhua News Agency, Beijing, October 11th. On October 9, Li Keqiang, member of the Standing Committee of the Political Bureau of the CPC Central Committee, Premier of the State Council, and Director of the National Energy Commission presided over a meeting of the National Energy Commission to deploy energy reform and development work and deliberate the "14th Five-Year Plan" modern energy system plan. , Energy and carbon peak implementation plan, suggestions on improving the system and mechanism of energy green and low-carbon transition and policy measures, etc.

Han Zheng, member of the Standing Committee of the Political Bureau of the CPC Central Committee, Vice Premier of the State Council, and Deputy Director of the National Energy Commission attended the meeting.



On October 9, Li Keqiang, member of the Standing Committee of the Political Bureau of the CPC Central Committee, Premier of the State Council, and Director of the National Energy Commission hosted a meeting of the National Energy Commission in Beijing. Han Zheng, member of the Standing Committee of the Political Bureau of the CPC Central Committee, Vice Premier of the State Council, and Deputy Director of the National Energy Commission attended the meeting. Photo by Xinhua News Agency reporter Ding Haitao

At the meeting, the Development and Reform Commission and the Energy Administration made reports. Li Keqiang said that energy is a major issue related to the overall economic and social development. During the "Thirteenth Five-Year Plan" period, under the strong leadership of the Party Central Committee with Comrade Xi Jinping as the core, all parties worked together to achieve remarkable results in my country's energy development, structural optimization, and efficient and clean utilization. At present, the international environment and global energy structure and system are undergoing profound changes, and my country's energy development and security are facing new challenges. It is necessary to adhere to the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, implement the deployment of the Party Central Committee and the State Council, follow the requirements of building a new development pattern, building a new development pattern, and promoting high-quality development based on the new development stage, implement the new development concept, and proceed from the actual conditions of the country. Improve the relationship between development and emission reduction, current and long-term development, coordinate stable growth and structural adjustment, deepen market-oriented reforms in the energy sector, promote green and low-carbon transformation of energy, improve energy security capabilities, and provide solid support for modernization.

Li Keqiang pointed out that energy security is related to development security and national security. my country is still a developing country, and development is the foundation and key to solving all problems. At this stage, industrialization and urbanization are intensifying, and energy

demand will inevitably continue to grow. Supply shortage is the biggest energy insecurity. We must build a modern energy system on the premise of ensuring safety, and strive to improve the ability of independent energy supply. Aiming at the endowment of coal-based energy resources, the layout of coal production capacity should be optimized, advanced coal-fired power should be constructed rationally according to development needs, and backward coal-fired power should be eliminated in an orderly manner. Increase domestic oil and gas exploration and development, actively develop shale gas and coalbed methane, and carry out diversified international oil and gas cooperation. Strengthen the construction of gas and oil storage capacity, promote the large-scale application of advanced energy storage technology, and continuously enrich the insurance tools for safe energy supply.

Li Keqiang said that achieving carbon peak and carbon neutrality is a requirement for the transformation and upgrading of my country's economy, and it is also a requirement for jointly responding to climate change. To advance the realization of the "dual carbon" goal in a scientific and orderly manner, long-term arduous efforts must be made. It is necessary to take into account the recent situation of dealing with the contradiction between power and coal supply and demand, in-depth calculations and demonstrations, and study and put forward the timetable and roadmap of the steps to reach the peak of carbon. All localities and all relevant parties must insist on breaking first and then breaking, insisting on a game of chess across the country, and not rushing away. Proceeding from reality, we should correct the "one size fits all" power restriction or campaign-style "carbon reduction" in some places, to ensure that the people in the north can survive the winter warmly and safely, and ensure the stability of the industrial supply chain and the sustained and stable economic development. Vigorously promote the clean utilization of coal, increase the proportion of clean energy, deepen the transformation of energy conservation and emission reduction in key areas, advocate energy conservation in the whole society, and continuously improve the capacity for green development.

Li Keqiang pointed out that innovation is an important driving force for the high-quality development of energy. It is necessary to speed up the research on key core technologies and equipment in the energy field, and strengthen the research and development of green and low-carbon cutting-edge technologies. Improve the intelligent level of the power grid, and enhance the ability to absorb new energy and safe operation. Improve tiered electricity prices, deepen reforms in key areas such as power transmission and distribution, rely more on market mechanisms to promote energy conservation, emission reduction and carbon reduction, and improve energy service levels.

Sun Chunlan, Hu Chunhua, Liu He, Wang Yong, Wang Yi, Xiao Jie, He Lifeng, and relevant units and heads of some enterprises attended the meeting.

<https://www.arabnews.pk/node/1953386/saudi-arabia>

## Saudi Arabia's carbon-rich mangroves are key to combating climate change



Mangroves are mainly found off the south-western waters in the Jizan region. (Supplied)

<https://arab.news/jqatf>

Updated 17 sec ago

ARAB NEWS

October 23, 2021 02:05

- Mangrove forests are vital for climate change, as highly productive and biodiversity-rich inter-tidal forests sequester carbon faster than terrestrial forests
- Saudi Green Initiative starts on Oct. 23-24 and aims to assert the country's work to achieve change domestically and regionally regarding climate change

JEDDAH: Plans to establish Saudi Arabia's first national mangrove park are underway to enhance the Kingdom's efforts in environmental protection and tourism development through vast green spaces.

The plans were announced by the Ministry of Environment, Water, and Agriculture. They are part of the ministry's initiative to add more green spaces and national parks in the country, which currently has 27 national parks.

Mangroves are mainly found off the south-western waters in the Jizan region. They help to protect marine habitats, seagrass, coral reefs, and more from harmful runoffs from passing boats and human waste.

They are known to residents of the Farasan Islands and Jizan as shura trees, and the area is frequented by residents and visitors all year round.

To further protect mangrove forests, the ministry planted more than 875,000 mangrove trees in the southern regions of the Red Sea coast.

The first is in a location dubbed Bahar1 and is near the cultural village south of Jizan city where 440,000 trees were planted. There were 435,000 mangrove trees planted in Bahar2 in the town of Al-Sawarmah.

Greenhouse gases drive climate change.

Mangrove forests are vital for climate change, as highly productive and biodiversity-rich inter-tidal forests sequester carbon faster than terrestrial forests. The more CO<sub>2</sub> the mangroves capture, the

faster the greenhouse gases are removed from the atmosphere. The distinctive ecosystems also protect shores and can help prevent direct damage in case of storms.

More than a quarter of the world's mangroves have been lost over the past decade due to artificial intrusions.

The Saudi Green Initiative starts on Oct. 23-24 and aims to assert the country's work to achieve change domestically and regionally regarding climate change, to build a better future, and improve the quality of life. The country has made significant efforts to protect the environment and mitigate the effects of climate change. Reducing carbon emissions is crucial to slow the impact of climate change and restore environmental balance.

Ten billion trees will be planted throughout the Kingdom to transform the desert into green land and rehabilitate 40 million hectares of land in the upcoming decades.

By Ewa Krukowska

(Bloomberg) -- (Sign up for the Green Daily newsletter to follow all the news and analysis of the COP26 talks. You can find all of our coverage here.)

COP climate talks were always going to be difficult: 200 countries in search of a plan to prevent catastrophic warming of the planet with time running out fast.

The backdrop of terrifying weather events had brought a renewed sense of urgency to the matter. Then, the energy crisis struck, leaving Asia and Europe scrambling for fossil fuels, forcing China to double down on coal, and giving climate laggards another excuse not to engage. In the U.S., President Joe Biden's green ambitions have gotten bogged down in domestic politics, undermining his credibility as he tries to push others to curb their emissions.

The aim of COP — the acronym for the conference of parties that's now in its 26th round — is to curb emissions, keep the goal of 1.5 degrees of global warming within reach, reduce coal use, sort out rules for a global carbon market and raise billions in climate finance.

But at the heart of talks is the issue of fairness.

Developing nations say rich countries wrecked the planet as they industrialized, and it's now unfair they're thwarting others' economic progress -- and failing to provide enough cash to help poor countries adjust. That's why there's so much talk about how much money will be on the table.

Here is our guide to what's shaping up to be a fraught two weeks of talks. We'll take you from the grand aims to the small detail, from a leaders' summit in Rome, to the backroom deals where masked delegates will hash out carbon-market rules while trying to keep at a Covid-safe distance.

### **Where It All Begins: Rome**

COP will be held in Glasgow, Scotland. But the Group of 20 summit in Rome just a few days before will set the tone as climate will dominate the agenda, with talks on coal use, net-zero goals and climate finance. So far, the G-20 — which includes major emitters China and India — has little to show for many summit hours. Meetings this month even showed signs of backsliding. If leaders can make progress, it will be a major boost for COP. They wrap up in Rome on Oct. 31, and head straight for Glasgow.

### **To Glasgow: Roll Call**

Some key leaders are going to be missing, including China's Xi Jinping, Russian President Vladimir Putin and Brazilian President Jair Bolsonaro. Still, almost 200 countries will be

represented. Some delegates will be there in person, some will dial in from home, and there will be strict rules on masks, numbers allowed in negotiating rooms, and Covid testing. The pandemic has added extra obstacles, and some countries go into the talks resentful of what they perceive as unequal access.

### **Leaders Mark Their Homework**

Under the landmark Paris Agreement of 2015, countries have to regularly review their pollution-reduction pledges in order to ensure the world stays on track to limit the rise in temperature to close to 1.5 degree Celsius. The first promises – called Nationally Determined Contributions, or NDCs – were submitted in 2016, but it was clear that they were well short of what science says is needed.

While some nations have already submitted new pledges over the past year, several major economies, including China and India, haven't. The plans made so far would lead to a 2.4-degrees increase in temperature by the end of the century, according to the nonprofit research group Climate Action Tracker. At the start of COP there's a moment of taking stock — to see just how far away we still are from keeping 1.5 degrees within reach. U.S. climate envoy John Kerry has already acknowledged the plans probably won't be enough, and one aim of Glasgow is to make sure countries keep coming back with improved goals.

“We need to change and we need to change radically and we need to change fast,” says EU climate chief Frans Timmermans. “That’s going to be bloody hard; that’s the bad news.”

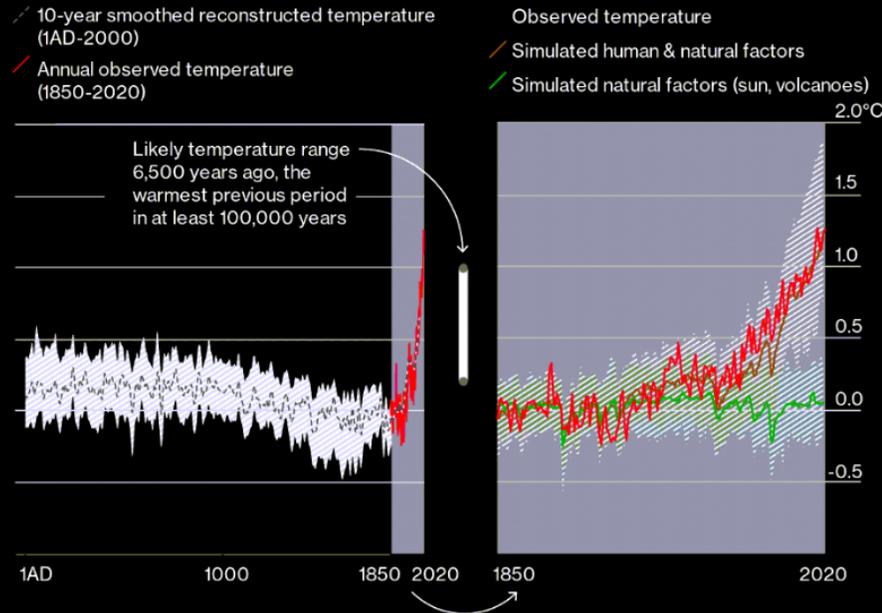
### **The Goals**

The U.K. hosts describe the aims for this COP as “coal, cars, cash and trees.” That means ending the use of the most polluting fossil fuel; phasing out the internal combustion engine; raising cash to help developing countries transition to cleaner energy and protect against the ravages of climate change; and reversing deforestation. They also aim to figure out global rules for pricing and trading carbon globally. Expect posturing and grand statements in the first two days — along with perhaps some new pledges — then the leaders leave, and the real work starts.

## Heat Spike

Humanity has heated the climate to at least a 100,000-year high. All of the warming is caused by human influence.

Global temperature change, compared with 1850–1900



Source: IPCC AR6 Working Group I report

Note: Diagonally shaded areas show 90%-100% certainty range

Bloomberg

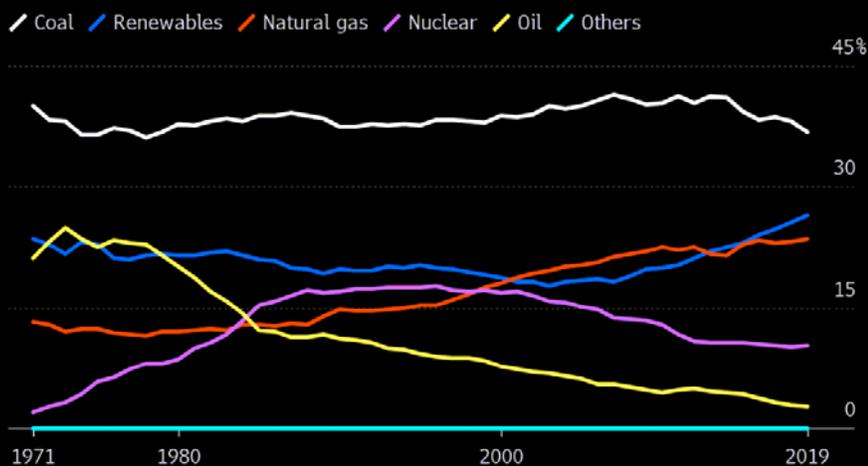
## Priority: Coal

"My personal priority: coal," says COP President Alok Sharma.

The U.K. presidency has set a target for the meeting to consign coal to history — and has been pushing for the goal at G-7 and G-20 meetings this year — with mixed success so far. But coal is still a massive part of the energy mix, and the recent surge in energy prices has forced countries into even greater reliance on the fuel. China is ordering miners to dig up as much as they can and in the U.S. a key lawmaker from coal-rich West Virginia is getting in the way of Biden's plans.

## World Electricity Generation Mix by Fuel

Despite the rise of renewables, coal still dominates global power supply



Source: IEA

Bloomberg

### **The Key: Cash**

More than a decade ago, developed nations pledged that by 2020 they will raise \$100 billion per year to help developing nations transition to cleaner energy. But they still haven't delivered on the promise, a failure that enrages poor countries and undermines developed world leaders' credibility as they push others to make expensive changes. **Total climate finance was \$79.6 billion in 2019, an increase of just 2% from 2018, according to the OECD.**

"We absolutely need to meet the \$100 billion," says Tina Stege, climate envoy for the Marshall Islands. "The delivery of that is a foundational element of the success at COP."

Last month, Biden doubled the latest U.S. pledge to \$11.4 billion annually beginning in 2024, but that still has to be approved by Congress, and activists argue it doesn't come close to the U.S.'s fair share for the fund. ODI, a think tank, puts that figure closer to \$43 billion, based on the U.S.'s wealth, emissions and population size.

### **Finance Day: Follow the Money**

Finance ministers, central banks and Wall Street bank CEOs will be in Glasgow **on Nov. 3 for finance day**, with a focus on how to green the global financial system and funnel money away from polluting industries and into cleaner ones. **Watch out for pledges to phase out, or stop, financing for coal.** Already we've seen a series of promises in the runup, including JP Morgan Chase & Co joining an alliance of lenders aligning their portfolios with net zero by 2050. As always, though, what matters is the detail, and just how rigorously investors hold companies to account.

### **Paris Loose Ends: Carbon Market**

The Paris Agreement left **some unfinished business that negotiators still haven't been able to tie up: how to standardize rules on carbon trading across the world. The buzzword to watch is Article Six** — referring to those lines in the Paris deal that paved the way for a global carbon market but are so complex and controversial that they are yet to be finalized. The good news is negotiators are edging toward a deal on this.

**The basic idea is to match carbon-sucking projects that reduce pollution with counterparties who need to reduce emissions, via a market of so-called offsets**, which could be worth as much as \$100 billion in 2030, according to some estimates. The mechanism in theory should drive money to places where the biggest gains can be made most cheaply.

"Offsets are becoming an increasingly important element of decarbonization strategies," says Lidia Wojtal, of think tank Agora Energiewende. "While there are already various voluntary carbon markets that can provide such credits, a deal on Article Six would make a difference: it would guarantee a truly global

standard.”

The difficulty is in creating a robust financial instrument that would translate work on national emissions-reduction pledges into comparable, exchangeable units. The framework needs to be flexible enough to attract investment, palatable to a range of countries with different priorities, and credible. Some negotiators say a bad deal would be worse than no deal if the rules that emerge aren't robust enough. There are two big sticking points: **one is the need to avoid double counting**, the other is how to deal with old credits from a now-defunct system launched way back in 1997 under the Kyoto Protocol. A good deal would result in a net reduction of emissions globally — and the risk is that a bad deal does the opposite.

Broadly speaking, developing nations are eager to reap the funds that would come from a new program, while richer nations led by the European Union are focused on the integrity of the system.

### **The Endgame**

At the end of talks there's likely to be some kind of Glasgow declaration. The U.S. and U.K. have both said they want to make sure countries keep ratcheting up their plans. While several leaders are framing COP as a "make or break" deal for the planet, the reality is probably more nuanced. **A clear win on just one issue will probably count as success, and it's possible there will be progress that can be built on down the line.**

Meanwhile the role of business and finance is increasingly important — **banks are mobilizing finance to green the economy, and that momentum is likely to be sustained.**

### **Saving Face: the Side Deals**

But as the main goals of ending coal and getting a net-zero commitment slip out of reach, work is under way to hatch a series of side deals that would go some way to salvaging the talks — or at least saving face. There's a plan on curbing methane, for example, which the U.S. and EU are cajoling others to join, and others in the works on aviation and forests. The risk though is that if the main communique is so weak that all the action is in the mini deals, it raises questions about what's the point of COP — and whether climate multilateralism is coming to the end of the road.

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To view this story in Bloomberg click here:

By Ryan Fisher

(BloombergNEF) -- Electric vehicles (EV) consume more electricity on average in winter months than in summer months, according to data from more than one million home-charging sessions analyzed by BloombergNEF. This is likely due to the lower efficiencies of batteries in cold weather.

In the months November to February, EVs in the U.S. consumed 34% more energy than in the months May to August. This contrasts with U.S. gasoline consumption, where total consumption in 2019 was 6% higher in summer than winter months, partly due to increased travel over the summer period. A rise in electricity consumption could lead to higher peak electricity demand and increased investment in grid upgrades. Companies such as Enel X, Nuvve and EV.energy are designing software to move charging loads to more suitable times for the grid. Grid operators including National Grid, UK Power Networks and Southern California Edison are also bringing grid services to market that will pay companies to shift the load and reduce the need for grid upgrades.

Energy delivered per EV versus motor gasoline consumption in the U.S.  
(Note: Data for EVs from June 2020 to May 2021 (bar chart); motor fuel consumption from January 2019 to December 2019 (line chart).)



For more BNEF analysis on this topic, see here

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<https://blinks.bloomberg.com/news/stories/R1843STOG1KX>



Dan Tsubouchi @Energy\_Tidbits · 1h

Negative to Cdn #Oil #NatGas. No surprise, @SeamusORegan or @JustinTrudeau still haven't acknowledged this plan by #OilSands to achieve #NetZero. But 12 hrs later, @JustinTrudeau did say "need to be bolder and act faster on climate change" #OOTT



Dan Tsubouchi @Energy\_Tidbits · 3h

1/2. Once again, Saudi's Abdulaziz is The Man. See SAF transcript. @youseftv asks how he responds to @POTUS blaming KSA for high energy prices. ABS "i don't, i wouldn't reflect on that, its above my paygrade. But i am a technician" then gives common sense technical reasons. #OOTT





Dan Tsubouchi @Energy\_Tidbits · 3h

...

2/2. Gasoline prices are high. mixed with ethanol that is up 10x, still 2 mmb/d refining capacity off line, no gasoline stocks, and how about limiting exports of gasoline. "but i am not here reflecting on anybody's option". Abdulaziz is The Man. Great interview @youseftv #OOTT

[minister-oil-rebound-can-t-be-taken-for-granted](#)

Items in "italics" are SAF Group created transcript

At 4:20 min mark, Bloomberg asks how he responds to Biden's town hall blaming Saudi Arabia for high energy prices. *Abdulaziz "I don't, I wouldn't reflect on that, its above my paygrade, but I am a technician. And I deal with technical issues. Gasoline prices are high because it is mixed with ethanol that went ten-fold. Gasoline prices are high because there is no stocks in the US. Gasoline prices are high because there are still 2 to 2.5 million barrels per day of capacity shut down because of the hurricane. Crude oil import would not help it. what would help it is making gasoline more available or, as a technician and I don't know how valid it is, limiting export of gasoline. But I am not here reflecting on anybody's opinion."*

At 5:40 min mark, Bloomberg says will followup on the Biden point on a technical point asks if Saudi Arabia can step up and bring OPEC+ compliance down from 115% to closer to 100%. *Abdulaziz "well we still have a lot of compensation to do. but even with the, first of all, we don't call them quota, we call them voluntary cuts. but even with the voluntary cuts, if you look at the trajectory of 2022, and even if you look at the 400's we will doing all the way until September, if you continue to do until September, without enclosure of any other country like for example Iran coming back or Venezuela coming back. Even with that, if you look at, if you talk to your experts at Bloomberg they will tell you that you will have a huge uplift in stocks by the end of year 2022. This is a reality. Not our numbers, its actually eight sources, numbers, one of them is the IEA they all are saying there will be a huge stock build in 2022. If you do more now, you are actually accelerating the problem even to a worse level. But if you do it, you have to have it for a purpose. Show me any utility that will take fuel oil today, show me any utility that will take crude. This is the gap. Its about filling or substituting for gas or coal. And unfortunately, this is limited. With regards to gasoline, as I said I think the remedy is*



2

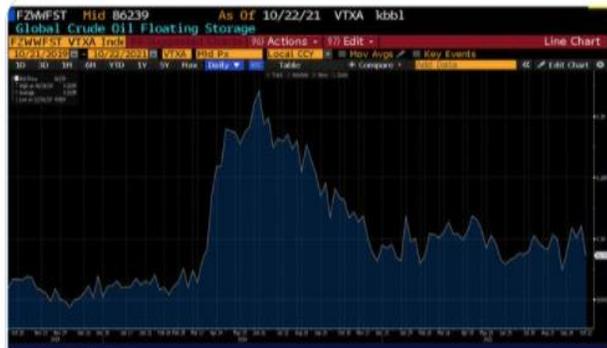
4



Dan Tsubouchi @Energy\_Tidbits · 13h

...

#Vortexa crude oil floating storage for 10/22 est 86.24 mmb. Big revisions to Oct 15 est, now est 110.12 mmb vs 97.41 mm est as of 10/16. 10/22 is +7.31 mmb vs recent 06/25 trough of 78.92 mmb. But -134.3 mmb vs 06/26/2020 peak 220.54 mmb. Thx @Vortexa @TheTerminal #OOTT



Source: Vortexa, Bloomberg



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Dan Tsubouchi @Energy\_Tidbits · Oct 23

Here's why Saudi's Abdulaziz is The Man, says what other global leaders are afraid to say. Technologies aren't yet mature enough for #NetZero #EnergyTransition. "if you impact negatively your economic well being, you are actually impacting the well being of your people". #OOTT

SAF Group created transcript of Saudi Energy Minister Abdulaziz Saudi Energy Minister Abdulaziz on why 2060 and not earlier for a net zero target.

Items in "italics" are SAF Group created transcript from [https://twitter.com/MoEnergy\\_Saudi/status/1451821150594609153](https://twitter.com/MoEnergy_Saudi/status/1451821150594609153)

*"... we know and, in accordance to the latest IPCC report, which says that most of these technologies may not mature before 2040. So if we are relying on this scientific [?] whom we all honor and accept what they submit and if they say that these technologies will only mature by 2040, we need to have that time and that space to allow us to do things properly. And again, we have to do it properly. Yet make sure that we don't lose sight of our economic well being because if you impact negatively your economic well being, you are actually impacting the well being of your people within that sector and within that economy. Which also the 2060 will enable us to have a smooth and vibrant transition, without risking economic or social impacts".*

وزارة الطاقة @MoEnergy\_Saudi · Oct 23



"2060 [net-zero target] will enable us to have a smooth and viable transition, without risking economic or social impacts," HRH Minister of Energy says at #SGIForum.

10 12



Dan Tsubouchi @Energy\_Tidbits · Oct 22

KSA joining mangrove forest push to meet net #Carbon reduction targets. See apr 25 tweet mangroves are 4x higher absorption vs regular forests. Would have thought #Oil co's would have looked at mangrove projects in MEX ID for carbon offsets. #EnergyTransition #NetZero #OOTT



More than a quarter of the world's mangroves have been lost over the past decade due to artificial activities.

The Saudi Green Initiative starts on Oct. 23-24 and aims to assist the country's work to achieve energy efficiency and regulatory regarding climate change, to build a better future, and improve the quality of life. The country has made significant efforts to protect the environment and mitigate the effects of climate change. Reducing carbon emissions is crucial to mitigate the impact of climate change and restore environmental balance.

The initiative will be planned throughout the Kingdom to transform the desert into green land and rehabilitate 20 million hectares of land in the upcoming decades.

Mangrove forests are vital for climate change, as they sequester and store carbon naturally and sustainably with other, less obvious, carbon sinks. Saudi Green Initiative aims to support the country's work to reduce carbon emissions and regulate regarding climate change.

JEDDAH Plans to establish Saudi Arabia's first national mangrove park are underway to enhance the Kingdom's efforts in environmental protection and sustainable development through red-green spaces. The plans were announced by the Ministry of Environment, Water, and Agriculture. They are part of the country's initiative to add more green spaces and national parks in the country, which currently has 27 national parks.

Mangroves are mainly found in the coastal waters in the Jeddah region. They help to protect marine habitats, sequester carbon, and store from harmful pollutants from passing boats and human waste.

They are known to residents of the Jeddah islands and down as where trees, and the area is frequented by residents and visitors on year-round.

To further protect mangrove forests, the country planted more than 875,000 mangrove trees in the southern region of the Red Sea coast.

The first in a nation dubbed "Barni" will be the cultural village south of Jeddah city where 400,000 trees were planted. These were 175,000 mangrove trees planted in Barni in the form of 50,000.

Greenhouse gases drive climate change.

SAF Dan Tsubouchi @Energy\_Tidbits · Apr 25

Did you know carbon absorption of mangrove forests is multiples higher than tropical forests? Indonesia Pres @jokowi says 4 times higher. Makes sense not all plants absorb the same amount of carbon. Good for ID, MEX, others. #OOTT #NetZero

1 2





Dan Tsubouchi @Energy\_Tidbits · Oct 21

good break from speaking to a long term investor friend on on the "drop" in oil price and asked do you know how much cash flow cdn oil companies will generate at \$70 for a couple years? our 3.5 lb maltese straight from her bath. 10 min of fetch and she will be totally dry.



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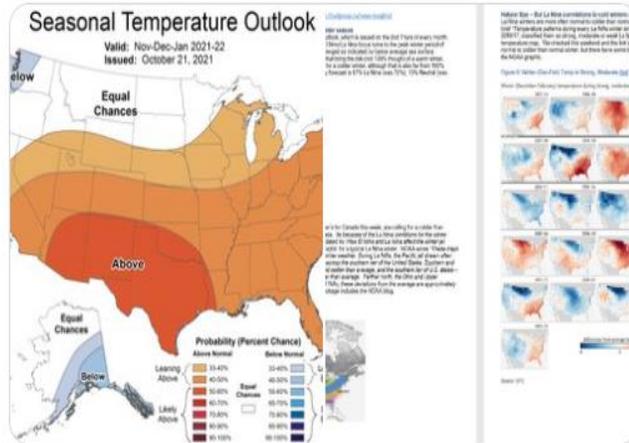


2



Dan Tsubouchi @Energy\_Tidbits · Oct 21

Not all La Nina winters are cold for US and strong for #NatGas. Winter 2021/22 is forecast La Nina. Updated @NOAA temperature outlook for Dec/Jan/Feb calls for warmer than normal US. #OOTT



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Dan Tsubouchi @Energy\_Tidbits · Oct 21

Looks like a warm start to winter in Japan. JMA new Oct 23-Nov 22 temperature probability forecast calls for warmer than normal temps. Should help them maintain the high #LNG storage & potentially redirect some LNG cargos to others. #NatGas

[jma.go.jp/bosai/map.html...](http://jma.go.jp/bosai/map.html...)



Dan Tsubouchi @Energy\_Tidbits · Oct 21

	2017	2018	2019	2020
Q1	12,497	12,726	11,888	11,452
Q2	13,205	14,225	13,531	16,506
Q3	12,812	12,287	11,202	11,170
Q4	16,960	8,947	8,922	7,423
YTD	55,474	48,185	43,623	46,551
Q1	11,244	11,515	10,465	8,254
Q2	9,817	10,664	12,408	16,408
Q3	14,308	10,114	8,770	8,202
Q4	12,205	11,231	10,958	11,487

Japan is looking better than EU for #NatGas #LNG heading into winter. But still only 110 bcf or about 8 days of peak LNG import month. Winter weather is always important to #NatGas but don't ever recall it being such a potential tipping point around the world...



5



3



Dan Tsubouchi @Energy\_Tidbits · Oct 21

"We believe current industry fundamentals are providing the most promising backdrop for our business that we have experienced in almost a decade" "prospects of #LNG exports materializing on the medium term will bolster" outlook for Cdn drilling says \$PD CEO Neveu. #NatGas #OOTT

**PRECISION DRILLING CORPORATION ANNOUNCES 2021 THIRD QUARTER UNAUDITED FINANCIAL RESULTS**

10/21/2021

Precision's President and CEO Kevin Neveu stated:

[Redacted text]

"Our third quarter Adjusted EBITDA of \$59 million, excluding share-based compensation, is a result of our continued focus on strict cost discipline, growing our Alpha revenue base and realizing improved spot pricing in our North American operations. Our results have begun to reflect the considerable operating leverage of Precision Drilling, although we expect the positive impact to be more pronounced in the coming quarters with increasing activity."

"Our Alpha suite of digital technologies continues to act as both the tip of the spear with new customer relationships and as a means to strengthen existing customer relationships with retention levels of nearly 100% for Alpha customers over the past two years. We currently have 65 AC Super Triple rigs active in North America and nearly 40 of these rigs are running Alpha at commercial rates. During the quarter, we increased utilization days of AlphaAutomation, AlphaApps and AlphaAnalytics by 8%, 36% and 4%, respectively, compared to Q2. We continue to see our performance, consistency and scalability of Alpha as key competitive differentiators for Precision."

"In the U.S., during the quarter, activity levels nearly doubled from the third quarter last year and increased 6% sequentially. The higher daily operating costs experienced during the quarter were primarily a result of preparation for increased activity in the fourth quarter and certain mobilization costs which will be recovered over the next several months on contracted rigs. Our current active rig count in the U.S. is 45 rigs, slightly lower than our prior guidance due to some customer delays and the decision to decline certain opportunities based on lower price expectations by customers."

"In Canada, our drilling activity was nearly triple our activity in the third quarter of 2020 and our 51 average active rigs during the quarter represented the highest third quarter average activity since 2018. We are operating 61 rigs today and believe the improved Canadian market structure is due to increased



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Dan Tsubouchi @Energy\_Tidbits · Oct 21

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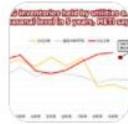
Japan is looking better than EU for #NatGas #LNG heading into winter. But still only 110 bcf or about 8 days of peak LNG import month. Winter weather is always important to #NatGas but don't ever recall it being such a potential tipping point around the world. #OOTT

SAF Group	2015	2016	2017	2018	2019	2020	20/19	2021	21/20
Japan Monthly LNG Imports									
bcfd									
Jan	13.06	11.22	12.85	12.79	11.69	11.63	-0.5%	12.48	7.3%
Feb	13.26	12.30	13.36	14.23	12.61	10.99	-12.8%	13.84	25.9%
Mar	12.60	12.62	12.61	12.28	11.30	11.16	-1.2%	11.04	-1.1%
Apr	10.56	10.21	10.52	8.97	9.00	8.31	-7.7%	7.96	-4.3%
May	8.91	8.55	9.66	9.92	8.62	7.09	-17.7%	7.67	8.1%
June	10.61	10.02	9.90	8.88	8.32	8.42	1.2%	9.13	8.5%
July	10.77	10.19	10.19	10.55	10.56	9.35	-11.5%	9.58	2.5%
Aug	10.93	11.96	11.24	11.73	9.45	9.04	-4.3%	9.75	7.8%
Sept	11.06	10.67	9.31	10.04	10.30	10.41	1.0%	8.66	-16.8%
Oct	9.38	9.73	9.50	10.12	9.75	9.20	-5.7%		
Nov	10.71	12.07	10.26	10.15	10.03	9.63	-4.0%		
Dec	12.51	11.69	12.31	11.23	10.54	11.96	13.4%		

Source: Japan Ministry of Finance



Stephen Stapczynski @SStapczynski · Oct 20



Japan's LNG stockpiles at a 5-year seasonal high ahead of the winter 📈👍

LNG supply held by power utilities are currently at ~2.3 million tons, which is pretty high, METI said. Still, the...

Show this thread



1



Dan Tsubouchi @Energy\_Tidbits · Oct 20

...

Hugely bullish #LNG #NatGas view in \$BRK Q3 call Q&A. @simonelli\_j repeats "we increase the capacity requirement LNG to 800 MTPA" in 2030. Vs @GIIGNL est 2021 capacity 454 MTPA, this is +346 MTP or +45 bcf/d by 2030. See SAF Oct 3, 2021 Energy Tidbits safgroup.ca/news-insights/

WE'VE TAKEN UP OUR ESTIMATE OF THE REQUIRED INSTALLED BASE OF #LNG BY 2030 UP TO 800 MILLION TONNES" & NEED TO BRING ON 100-150 MTPA IN THE NEXT FEW YEARS SAYS @bakerhughesco @simonelli\_j can't be done ... #OOTT", and [LINKS] "22. think of massive demand pull for 2020s on #LNG #NatGas. Vs @GIIGNL liquefaction capacity 454 mtpa, that's growth of 346 mtpa (45 bcf/d) to 2030. #Renewable can't fill in fast enough, will need #Coal for longer for reliable power. #EnergyTransition will be very expensive #OOTT". This is what anyone would call a huge increase at +45 bcf/d in capacity in less than 10 years. And means a massive demand pull in the 2020s for LNG and natural gas. The reality is that we don't see how it is possible for the world to add +45 bcf/d in capacity for 2030, but it will be a huge demand pull. Our tweet also noted that the reality is that it means the coal will be required for longer. Wind/solar are already challenged to grow anywhere as fast as hoped for by the Net Zero drivers. And new nuclear doesn't happen quickly. Our Supplemental Documents package includes the Reuters report.

Excerpt Baker Hughes Q3 2021 Call October 20, 2021  
 Baker Hughes Q3 2021 call, Oct 20, 2021 <https://seekingalpha.com/article/4460906-baker-hughes-company-bkr-ceo-lorenzo-simonelli-q3-2021-results-earnings-call-transcript>  
 Lorenzo Simonelli

Yeah, James, and we feel good about the TPS orders outlook, and we do expect, as was mentioned, that we'll see double-digit order growth in 2022, and a lot of that driven by the LNG opportunities. We've spoken about LNG before and as you look at the outlook for 2030, we increase the capacity.



Dan Tsubouchi @Energy\_Tidbits · Sep 30



1/2. hugely bullish #LNG #NatGas for 2020s. @SonaliPaul2 reports "we've taken up our estimate of the required installed base of #LNG by 2030 up to 800 million tonnes" & need to bring on 100-150 mtpa in the next few years says @bakerhughesco @simonelli\_j. ...

Show this thread



5



6





Dan Tsubouchi @Energy\_Tidbits · Oct 20



Must read @EmilyGlazer report. Bullish to an already bullish #LNG in 2020s if #Exxon abandons Rozuma Mozambique LNG. Pre-Covid, was 1st LNG in 2024. See SAF Group 7-pg Apr 28/21 Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? #OOTT

**Blog Summary**

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

Posted Wednesday April 28, 2021. 9:00 MT

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

Emily Glazer @EmilyGlazer · Oct 20

NEW: Exxon's remade board is debating whether to abandon some major oil and gas projects as it reconsiders the energy giant's investment strategy, sources say

By @cmatthews9 + me...

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Dan Tsubouchi @Energy\_Tidbits · Oct 20



For those not near their laptop, @EIAgov weekly #Oil #Gasoline #Distillates inventory for Oct 15 just out. Prior to release, WTI was \$82.44 #OOTT [ir.eia.gov/wpsr/overview...](https://ir.eia.gov/wpsr/overview...)

Oil/Products Inventory Oct 15: EIA, Bloomberg Survey Expectations, API			
(million barrels)	EIA	Expectations	API
Oil	-0.43	2.00	3.29
Gasoline	-5.37	-0.95	-3.50
Distillates	-3.91	-1.15	-3.00
	-9.71	-0.10	-3.21
Note: In addition, there was 1.7 mmb draw from SPR for Oct 15 week			
Note: Included in the data, Cushing had a draw of 2.32 mmb for Oct 15 week			
Source EIA, Bloomberg			
Prepared by SAF Group			

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Dan Tsubouchi @Energy\_Tidbits · Oct 20



Japan #LNG imports Sept 8.66 bcf/d, -16.8% YoY, -12.2% MoM. No surprise, #Bloomberg @SStapczynski highlighted on 9/24 Japan LNG tanks were full & able to redirect LNG cargoes to China. #OOTT #NatGas

excerpt SAF group sept 26, 2021 energy insights memo <https://safgroup.ca/news-insights/>  
Natural Gas – Japan LNG tanks at highest levels since Jan 2020  
On Friday's, Bloomberg's Stephen Stapczynski tweeted [\[LINK\]](#) "Japan has been busy stocking up on LNG ahead of the winter. LNG inventories held by regional power utilities are currently well above the 4-year average for this time of year, and are at the highest level since at least January 2020. METI said in a presentation today." Stapczynski also added that current value on the graph is 2.5 to 2.6 metric tons of LNG, which is 120 to 125 bcf. But he also noted that this is "JUST for Japan's regional power utilities, which make up about 60% or 70% of the nation's LNG demand".

Figure 8. Japan LNG Storage Held by Japan Power Utilities



Source: METI, Bloomberg

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Dan Tsubouchi @Energy\_Tidbits · Oct 20



"favorable outlook for the #Oil market" #NatGas and #LNG fundamentals remain strong" w/ solid demand growth/extremely tight supply, "case for structural demand growth in #NatGas as part of the broader energy transition is becoming increasingly evident" \$BKR @simonelli\_j #OOTT

excerpt Baker Hughes Q3 2021 Earnings Release <https://www.bakerhughes.com/news-releases/news-release-details/baker-hughes-company-announces-third-quarter-2021-results>

Quotes are from CEO Simonelli

"As we look ahead to the rest of 2021 and into 2022, we see continued signs of global economic recovery that should drive further demand growth for oil and natural gas. However, the pace of growth is being hampered by the COVID-19 Delta variant, global chip shortages, supply chain issues, and energy supply constraints. Despite these headwinds, global growth appears to be on a relatively solid footing, underpinning a favorable outlook for the oil market, aided by continued spending discipline by the world's largest producers. Natural gas and LNG fundamentals remain strong, with a combination of solid demand growth and extremely tight supply in many regions. In addition, we believe the positive case for structural demand growth in natural gas as part of the broader energy transition is becoming increasingly evident."

"We remain committed to evolving our company with the energy and industrial markets while continuing to prioritize higher margins, returning capital to our shareholders, and free cash flow. We look forward to supporting our customers, advancing our strategic priorities, and delivering for our shareholders," concluded Simonelli.

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Dan Tsubouchi @Energy\_Tidbits · Oct 19

A very tight #LNG market with very little floating LNG storage? US #LNG represents almost all of LNG on water for >20 days & US LNG takes a lot more than 23 days to Asia. Thx @BloombergNEF Lujia Cao, Kornelija Dauksaite, Fauziah Marzuki @PlattsLNG #OOTT

**LNG Trade Weekly: No Northern Sea Route Deliveries**  
October 11-17, 2021

Labels: Energy Outlook, Fuel News

Source: BloombergNEF

**LNG on water for 20 days or more**

LNG on water - seasonally  
LNG on water by supply country

**voyage times**  
Lions Guide: Liquefied Natural Gas Assessments and Netbacks, Ju most will need, but there was an excellent table (pasted below) of hand markets in Asia, Europe, US and South America. The Platt is such as BC.

SChina/ Taiwan	West India	Southwest Europe	Northwest Europe	Northeast US	Argentina
13	3	13*	18*	22*	21
7	9	21*	24*	29	21
31*	22*	9	9	5	11
21**					
23	17	9	10	13	11
22*	13*	1	3	9	16
25*	16*	3	N/A	8	16
24	27	23	24	24	9
6	15	27*	29*	35*	27
22*	14*	N/A	3	7	14
25*	20*	8	3	9	29
er of below 2, until Panama Canal starts	er of below 2, until Panama Canal starts	12	12	N/A	17
31*	24*	N/A	N/A	N/A	N/A
26	21	N/A	N/A	N/A	N/A
28**	N/A	N/A	N/A	N/A	N/A

in cents/MMBtu for canal fees \*\* Results using Panama Canal, adds 21 cents/MMBtu for canal fee

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Dan Tsubouchi @Energy\_Tidbits · Oct 19

Positive for #LNG. Singapore to buy more spot LNG for winter energy security. warns high LNG price means higher #Electricity prices. #OOTT

**Pre-emptive Measures to Enhance Singapore's Energy Security and Resilience**

Singapore imports almost all of its energy needs. Having a secure and reliable energy supply is critical to Singapore's economic and societal competitiveness. In line of the developments in the global energy sector, Singapore is taking the following measures to enhance its energy security and resilience.

**Developments in the Global and Domestic Energy Sector**

- A combination of increased gas consumption from increasing economic activity, severe weather events and a series of gas production outages have disrupted supplies and sent global market prices to new highs. This has been compounded by the inventory levels in the major economies for the coming winter season. The tight gas market has also caused more effects on domestic supplies, pushing prices up and driving fuel substitution in power and oil. Governments around the world are taking measures to reduce or offset fuel supplies.
- In addition, the rise of supply disruptions has also seen pressure from South America has decreased due to higher demand from gas users both upstream and in Singapore. The global energy sector has seen a significant rise in prices for the power generation companies around the world.
- Major consumers have been cautioned from their stability as they are either on standard price plans with retailers or the regulated tariff rate. These on-site sites may however, see an increase in electricity prices at the point of contract renewal, which reflects the increased costs of electricity production. Electricity retailers who have not hedged their positions may be exposed to the volatility in the wholesale electricity market. They may now face a challenging to sustain their operations and may choose to exit the market. For retailers that are selling the market, the Energy Market Authority (EMA) will ensure a smooth transition for their affected customers. This will not have any electricity supply disruption and retailers will not be allowed to charge an exit termination fee. This affects consumers who have their security depends on them after outstanding obligations.

**Pre-emptive Measures to Enhance Energy Security and Resilience**

- This year, EMA appointed two new LNG suppliers on top of the existing two. In winter gas users in Singapore will have options to procure gas from multiple sources. Nevertheless, plan the developments in the global energy sector. EMA is working with industry stakeholders on three pre-emptive measures to further secure our fuel and electricity supply.
- EMA will continue to monitor the global and domestic energy sector closely and will continue to take measures to ensure energy security and resilience.

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Dan Tsubouchi @Energy\_Tidbits · Oct 19



"I see a multi-year upcycle unfolding. Structural global commodity tightness drives increased demand for our services, both internationally and in North America" says @Halliburton CEO. Demise of #Oil #NatGas will take longer than #EnergyTransition hopes. #OOTT



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Dan Tsubouchi @Energy\_Tidbits · Oct 18



A big reason #EnergyTransition will take longer, be bumpy & cost more. Poor nations emission cuts crucial to #NetZero, need trillions to deliver cuts, yet rich nations can't even hit current \$100b/yr target to help poor nations. Demise of #Oil #NatGas #Coal won't be quick #OOTT



Matthew Dalton @DJMatthewDalton · Oct 18

In 2015, rich nations agreed to funnel \$100bn a year to poor nations to fight climate change. That's peanuts to what poor nations will seek in Glasgow: more than \$1 trillion a year. My story on the climate debate that rich nations don't want to have: [wsj.com/articles/to-st...](https://www.wsj.com/articles/to-st...)



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Dan Tsubouchi @Energy\_Tidbits · Oct 18

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Hard to see formal #JCPOA talks resume right away. Absent a change in US or Iran positions, this stalemate looks destined to go nowhere. Looks like the US and Iran need to find something different to breakthrough to accomplish what both sides want? #OOTT

[presstv.ir/Detail/2021/10...](https://presstv.ir/Detail/2021/10...)

brussels meeting between the two sides is the continuation of talks held in Tehran last Thursday, which he termed as "good and constructive".

He said the meeting could be an "effective step forward" to resume stalled talks in Vienna between Iran and the remaining signatories to bring back the US to compliance with the Joint Comprehensive Plan of Action (JCPOA), also known as the Iran nuclear deal.

The six rounds of talks in Vienna, which started in April, have failed to produce any breakthrough so far. Khatibzadeh pointed to "challenges" in the talks, in a veiled reference to Washington's refusal to take any meaningful step.

He emphasized that Tehran has set "no pre-conditions" for the resumption of Vienna talks, but stressed that the talks should not be "for the sake of talks" or amounting to "wastage of time".

**Iran's steps in JCPOA talks will correspond to moves by other parties: Amir-Abdollahian**

The Iranian foreign minister says Tehran will soon finalize its internal deliberations on the resumption of the JCPOA-related talks.

Khatibzadeh said Baqeri, who is likely to lead Iran's new negotiating team in Vienna, will publicly discuss issues about the challenges and obstacles in the talks.

The spokesman reiterated that the US must uphold its commitments as stipulated in the nuclear deal signed between Iran and the world powers in 2015, noting that no practical steps have been taken so far by Washington.

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Dan Tsubouchi @Energy\_Tidbits · Oct 17

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US wants #OPEC+ to increase #Oil exports. EU wants RUS to increase #NatGas exports. Now @business Emi Nobuhiro reports • PM Kishida says important to encourage oil producing countries to ramp up output. US EU JP want/need #FossilFuels, how will they spun this at #COP26? #OOTT

(Bloomberg) -- Japanese Prime Minister Fumio Kishida said it's important to encourage oil-producing countries to ramp up output due to the recent increase in prices.

- \* Kishida told reporters in Tokyo on Monday his government is watching price trends in the crude oil market to see how they impact people and domestic industry
- \* Have instructed relevant ministers to take action as needed for affected industries, Kishida says
- \* READ: Oil Extends Gain After Eighth Weekly Advance on Energy Crisis

--With assistance from Takashi Amano.

To contact the reporter on this story:  
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To contact the editors responsible for this story:

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Dan Tsubouchi @Energy\_Tidbits · Oct 17

ICYMI, key China Premier Li pointed out that "energy security is related to development security and national security" and "supply shortage is the biggest energy insecurity." See SAF Energy Tidbits Oct 17 memo [safgroup.ca/news-insights/](https://safgroup.ca/news-insights/). Bullish for #Oil #NatGas for 2020s. #OOTT

SAF - Dan Tsubouchi @Energy\_Tidbits · Oct 12

Must read. Bullish for #Coal #NatGas #Oil. Not just for this winter, China changing 5-yr plan to improve energy security. Increase coal generation, strengthen construction NatGas & Oil storage capacity. Develop new timetable/roadmap to reach carbon peak #OOTT #EnergyTransition [twitter.com/Energy\\_Tidbits...](https://twitter.com/Energy_Tidbits)

Li Keqiang presided over a meeting of the National Energy Commission, emphasizing on ensuring stable energy supply and taking measures to improve green development and Max Zheng attended the meeting

On October 12, Li Keqiang, Premier of the State Council, and Director of the National Energy Commission presided over a meeting of the National Energy Commission to study energy supply and development work and the "14th Five-Year Plan".

Li Keqiang stressed that the National Energy Commission should focus on ensuring stable energy supply and taking measures to improve green development and Max Zheng attended the meeting.



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Dan Tsubouchi @Energy\_Tidbits · Oct 17

Our weekly SAF Oct 17, 2021 Energy Tidbits memo is posted on our SAF Group website. This 44-pg energy research memo expands upon & covers more items than tweeted this week. See news/insights section of SAF website #Oil #OOTT #LNG #NatGas #EnergyTransition [safgroup.ca/news-insights/](https://safgroup.ca/news-insights/)

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

This week's memo highlights:

1. China says "energy security is related to development security and national security" and "supply shortage is the biggest energy insecurity." [\(Click Here\)](#)
2. UK Treasury reportedly warns higher taxes will be needed "throughout" the Energy Transition. [\(Click Here\)](#)
3. BlackRock CEO "We are fooling ourselves if we believe by restricting supply with our traditional hydrocarbon companies, that only raises energy costs, which we're witnessing now". [\(Click Here\)](#)
4. IEA's World Energy Outlook 2021 highlights risk to oil supply from low oil investment. [\(Click Here\)](#)
5. Another Asian LNG buyer moves to lock in long term LNG supply, this time ENN from Cheniere. [\(Click Here\)](#)
6. Please follow us on Twitter at [@LINK](#) for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.

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