Petroleum news

page 3 US crude approaches 11 million bpd in April; $65 Brent 2nd qtr average

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Oil prices hit 8-week high May 12; Q3, Q4 demand acceleration seen

Alaska North Slope crude rose 37 cents to close at $67.85 per barrel May 12, while West Texas International rose 80 cents to close at $66.08 and Brent rose 77 cents to close at $69.32.

It was the highest close for WTI since March 5, and the highest close for Brent since March 11.

In early trading, Brent once again made a run at $70, rising to $69.79 before dropping later in the day as Colonial Pipeline restarted its 5,500-mile fuel line from Texas to the East Coast after a precautionary shutdown spurred by a cyberattack discovered May 7.

U.S. Energy Secretary Jennifer Granholm said in a May 11 briefing that it would "take days" after the restart for the line to be "up and running."

"This pipeline has never been shut down before," she said.

see **OIL PRICES** page 12

Moriarty: Interior scraps Trump's new Arctic safety, enviro updates

KARA MORIARTY

In the current administration's "eagerness" to do away with Trump's policies, politics have dictated what should be a scientific process, Kara Moriarty told Petroleum News regarding the U.S. Interior Department May 7 decision not to pursue the former administration's proposal for changes in Arctic drilling rules offshore Alaska.

A May 7 statement from Interior said existing regulations released by the Obama administration in 2016 remain in effect and "are critical

see **DRILLING RULES** page 9

Company applies to FERC for Angoon tidal power evaluation

Littoral Power Systems Inc. has applied to the Federal Energy Regulatory Commission for a preliminary permit for a tidal power project at Kootznahoo Inlet near Angoon on Admiralty Island in Southeast Alaska.

This is one of two preliminary tidal power permit applications in Alaska that FERC is considering — this small project and a much larger one in Cook Inlet.

A preliminary permit, if issued, grants the permit holder priority to file a license application during the permit term.

Littoral Power Systems, LPS, said the preliminary permit would allow it to "evaluate the potential for generating electricity from tidal energy in Kootznahoo Inlet in Angoon, Alaska."

see **ANGOON TIDAL** page 11

Hummingbird nesting season stops TMX pipeline expansion

Canada's Trans Mountain pipeline expansion has never escaped the battlefront from the time of the project's public launch in 2012.

Building a 710-mile link to triple capacity on the system to 890,000 barrels per day of crude bitumen from the Alberta oil sands, through the Canadian Rockies to a Vancouver area tanker terminal, primarily for export to Asian markets was never going to be easy.

As opposition to what is known as TMX has stretched the completion date for the C$12.6 billion undertaking to late 2022, environmentalists, First Nations and all-purpose protesters have drawn strength from their occasional success in stalling work on the pipeline.

see **PIPELINE EXPANSION** page 10

PIPELINES & DOWNSTREAM

Alyeska cyber-aware

TAPS secure, but operator has close eye on Colonial Pipeline cyber attack

By STEVE SUTHERLIN

Petroleum News

Alyeska Pipeline Service Co. maintains a state of readiness when it comes to cyberthreats.

Just like any other operating risk of running the 800-mile Trans Alaska Pipeline System, cyber risk is on the front burner 24/7 at Alyeska, according to Michelle Egan, Alyeska chief communications officer.

"We have a very comprehensive cybersecurity program here — it involves multiple layers of protection; we have an in-house cybersecurity team; we have a number of third-party experts and vendors that we work with; and we have very regular engagement with law enforcement agencies around this area — so that we're aware of what is happening in the world of cyber security, Egan told Petroleum News in a May 11 interview.

"We learn things and change things because that's part of this world of cybersecurity, it's continually moving … a very dynamic area." —Michelle Egan, Alyeska chief communications officer

The operator of TAPS is watching closely the situation at Colonial Pipeline Co. where a 5,500-mile fuel pipeline was shut down by a cyber-attack discovered May 7, choking off vital fossil fuel supplies to

see **CYBER-AWARE** page 10

EXPLORATION & PRODUCTION

Borealis moves forward

Independent continues permitting 2022 Nanushuk exploratory drilling program

By KAY CASHMAN

Petroleum News

In preparation for exploratory drilling next winter in its Castle North prospect in the northeastern National Petroleum Reserve-Alaska, Borealis Alaska Oil Inc. applied for an Oil Discharge Prevention and Contingency Plan with the Alaska Department of Environmental Conservation. That plan, which is comprehensive and covers the company's exploration drilling operations for all its NPR-A North Slope oil and gas prospects, is out for a 30-day public review that ends June 7 at 11:59 p.m. AKT.

In NPR-A, the Borealis leases lie in what the Anchorage-based independent named the Castle prospect trend, a series of six individual Brookian prospects in the lower Nanushuk formation. Southwest of Willow, the prospects are directly analogous to the geologic setting for major oil discoveries at Pikka, under development by Oil Search (Alaska), and by ConocoPhillips at Willow, Richard "Dick" Garrard, Borealis chief technical officer, told Petroleum News in mid-2020.

RICHARD "DICK" GARRARD

Borealis' Castle East prospect lies in the same sand body as the Harpoon prospect, where ConocoPhillips drilled an exploration well in the winter of 2019-20.

Borealis is looking for a joint venture partner for

see **BOREALIS PERMITTING** page 8

NATURAL GAS

BP underpins Woodfibre

Doubles take from planned LNG project; First Nations splinter group gets BC cash

By GARY PARK

Petroleum News

Canada's often-overlooked Woodfibre LNG project has received a large helping hand from BP which has now signed a second deal to take output from the proposed export plant near Vancouver.

Woodfibre said it will sell 750,000 metric tons a year to BP Gas Marketing over 15 years, doubling BP's total off-take to 1.5 million mt from the planned initial plant capacity of 2.1 million mt.

The deal is seen as an important advance for the C$1.8 billion project as sets a final investment decision in the third quarter by its owner, Pacific Oil & Gas.

On the positive side, global LNG demand has increased every year since 2012, propelled by fast-rising demand in Asia.

A Woodfibre spokeswoman said the company is now seeking contracts for the remaining 29% of annual capacity but will not make those deals a mandatory element of its decision to proceed with construction.

She said Woodfibre is engaged in final engineering work while attempting to revise its environmental permit to allow floating accommodation for up to 600 workers during construction.

see **WOODFIBRE LNG** page 11

EXPLORATION & PRODUCTION

Division approves Prudhoe ops amendments

By KRISTEN NELSON

Petroleum News

The Alaska Division of Oil and Gas has approved requests from Hilcorp North Slope for three projects as amendments to the Prudhoe Bay unit operations plan.

The most recent, dated May 10, is for authorization to construct a temporary polymer injection facility at W Pad at Prudhoe. The purpose is to inject polymer in W Pad wells to increase production. W Pad is some 17 miles northwest of Deadhorse.

The division said the temporary facility will consist of several modules to be placed centrally on the pad. The temporary facility is estimated to be in place for about one year, with the project planned to start in June and conclude by December.

Included in the plan are:

•Leveling the existing pad to prepare for module installation;

•Place rig mats and insulation to support skids;

•Installing a water let down module, 20 feet by 8 feet;

•Installing a polymer hydration module 40 feet by 8 feet;

•Installing a polymer injection pump module 40 feet by 8 feet;

•Installing a polymer loading and storage module 40 feet by 8 feet:

•Installing some 2,500 feet of 2-inch polymer injection piping on existing pipe racks; and

•Tying modules to existing aboveground facilities including power and water.

Pigging shelter

Also at W Pad at Prudhoe, the division on May 6 approved a request to install a pig shelter, a 32- by 20-foot shelter on a steel frame over existing pipelines on the western side of the pad.

The division said the purpose is to provide a shelter for pig-launching operations on W Pad, with the project expected to begin June 1 and to be completed by December.

Plan activities include:

•Installing steel foundation bracing and VersaTube framing;

•Constructing the 32- by 20-foot pigging shelter;

•Installing associating piping and values; and

•Installing a safety guardrail.

In the first quarter of the year, W Pad accounted for some 4% of Prudhoe crude oil production, up from 3.2% in the first quarter of 2018.

Main Construction Camp

On May 6 the division approved a Hilcorp request to

see PRUDHOE OPS page 3

contents

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ON THE COVER

EXPLORERS 2021 PREVIEW

EXPLORATION & PRODUCTION

FINANCE & ECONOMY

● FINANCE & ECONOMY

US crude almost 11 million bpd in April

EIA expects Brent to average $65 per barrel in 2nd quarter, $61 in 2nd half of year and in 2022, with WTI above $55 through 2022

By KRISTEN NELSON
Petroleum News

In its May Short-Term Energy Outlook, issued May 11, the U.S. Energy Information Administration said U.S. crude oil production continues to rise.

While the most recent data, for February, shows a drop, to 9.9 million barrels per day, down 1.2 million bpd from January, EIA said it believes that is an anomaly.

The agency is estimating that U.S. crude production rose to 10.9 million bpd in March and to almost 11 million bpd in April.

The February decline was caused by cold temperatures, EIA said, which caused significant declines in Texas production and smaller declines in other states, with production outages estimated to be largely limited to February.

The agency expects the West Texas Intermediate price will stay in a range to encourage drilling.

"We estimate that U.S. benchmark West Texas Intermediate crude oil prices will remain above $55 per barrel through 2022," EIA Acting Administrator Steve Nalley said in a statement. "This benchmark price will likely encourage producers to drill and complete wells and to offset production declines at existing wells, and that activity along with our forecast for rising production from multiple new projects in the Federal Offshore Gulf of Mexico, leads us to believe U.S. crude oil production will average 11.3 million barrels per day in the fourth quarter of 2021 and 11.8 million barrels per day in 2022."

EIA said the spread between Brent and WTI has been increasing since November, with weather events in the U.S. appearing to play a role along with rising U.S. crude oil production. From a narrow average spread of $1.68 per barrel in October, the lowest point since the pandemic began, the spread has widened each month, averaging $3.38 per barrel in March and $3.63 per barrel in April.

Brent steady

Brent prices averaged $65 per barrel in April, EIA said, unchanged from the March average.

STEVE NALLEY

"Brent crude oil prices remained at $65 per barrel in April as COVID-19 continued to affect demand in major economies," Nalley said. "U.S. oil demand is increasing along with COVID-19 vaccination rates and overall economic activity, but India's oil demand is declining due to rising COVID-19 cases," he said.

The agency is forecasting that Brent will average $65 per barrel in the second quarter, $61 per barrel in the second half of the year and $61 per barrel in 2022.

World consumption

EIA said it estimates that worldwide 96.2 million bpd of petroleum and liquid fuels were consumed in April, up 15.8 million bpd from April 2020 but down 4 million bpd from 2019 levels.

Nalley said EIA has lowered its estimates for global consumption based on "lower economic growth estimates and decreased demand for transportation fuels in India." Global consumption for 2021 is now estimated to average 97.7 million bpd, he said, "an increase of 5.4 million barrels per day over 2020."

EIA said the estimate for global petroleum and liquid fuels consumption is an average of 101.4 million bpd in 2022, an increase of 3.7 million bpd.

Natural gas

The Henry Hub spot price for natural gas averaged $2.66 per million British thermal units in April, up slightly from a March average of $2.62 per million Btu, EIA said. The price is expected to average $2.78 per million Btu in the second quarter, and $3.05 for the year, up from the 2020 average of $2.03 per million Btu.

Two factors are expected to drive the rise in natural gas prices, the agency said — growth in liquefied natural gas exports and rising domestic consumption in the residential, commercial and industrial sectors.

The Henry Hub spot price is expected to fall to an average of $3.02 per million Btu in 2022, with LNG exports expected to slow and production expected to rise.

"U.S. liquefied natural gas exports set an all-time record in March 2021," Nalley said, "averaging 10.5 billion cubic feet per day, followed by an April average of 9.2 billion cubic feet per day, the most liquefied natural gas exported from the United States during April since the United States began exporting liquefied natural gas."

EIA said that in 2020 and January 2021, "more than half of U.S. LNG exports went to Asia. However, in February and March 2021, more than half of U.S. LNG exports went to Europe as a result of spot natural gas prices in Europe reaching levels similar to spot natural gas prices in Asia."

The agency said it expects LNG exports to decline in May to 8.6 bcf per day before rising above 9 bcf per day in the summer months to meet peak demand, with exports expected to average 9.2 bcf per day in both 2021 and 2022, up from 6.5 bcf in 2020, with flat exports in 2022 reflecting the agency's expectation "that limited new expert capacity will come online during the forecast period."

U.S. consumption of natural gas is expected to average 82.6 bcf per day this year, down 0.7% from 2020, declining in the forecast to 82.5 bcf per day in 2021, with the decline attributed, in part, to electric power generators switching to coal as a result of rising natural gas prices.

Outside the power sector, consumption is expected to rise due to expanding economic activity and colder temperatures in 2021 compared to 2020.

More electricity from renewables

"Our forecast increase in electricity generation from renewable sources is especially pronounced in Texas, where we expect renewables to generate about 30% more electricity this summer than last summer," Nalley said.

EIA said planned additions to U.S.

see **EIA OUTLOOK** *page 7*

continued from page 2

PRUDHOE OPS

install a new aboveground water tank at the Main Construction Camp at Prudhoe. The division said the existing water tank subsided over time and is no longer suitable as the main tank for the MCC fire suppression system.

The new site will be excavated and a foundation constructed to hold the tank, which will be tied in to the existing tank. The existing tank will remain in place and minimal changes will be required in the piping layout. Work is expected to start in June and be complete by the end of the year, the division said.

Plan activities include:

•Constructing the foundation for the new tank; and

•Installing the new 370,000-gallon water tank. ●

Contact Kristen Nelson at knelson@petroleumnews.com

● EXPLORERS MAGAZINE PREVIEW

ConocoPhillips: 'hitting reset' in 2021

Alaska's most consistent explorer resumes activities at several projects; 700 people on GMT-2 project's third winter of construction

By ERIC LIDJI
For Petroleum News

ConocoPhillips Alaska Inc. is the most prolific North Slope explorer of the 21st century.

As many of its large multinational contemporaries were retreating from exploration to focus on development, ConocoPhillips continued to pursue opportunities beyond its existing North Slope units. And although many smaller independents occasionally outdid ConocoPhillips in any given exploration season, they have all lacked ConocoPhillips' longevity, either leaving after a few seasons or selling prospects after de-risking them.

In the 19 years since the 2002 merger that created ConocoPhillips, the Alaska unit of the Houston-based multinational exploration and production company has diligently pushed westward beyond the Kuparuk River unit. Its exploration activity has now expanded the reach of North Slope oil development beyond the Colville River and into federal lands.

Coming

May 2021

But for a company defined by its constancy and consistency, the past few years have been unpredictable. Some seasons were among ConocoPhillips' most active ever. Others saw no exploration at all. Others started out strong but then were unexpectedly cut short.

ConocoPhillips conducted no exploration activities this year, following two robust winters. In the winter season of 2018-19, the company completed nine wells listed as "exploratory" by the Alaska Oil and Gas Conservation Commission. The list included one well in the Kuparuk River unit and two wells within the Colville River unit, in addition to six traditional exploration wells in the National Petroleum Reserve-Alaska.

The company planned a seven-well exploration program for 2020 but only completed three before reducing its activities in response to the emerging coronavirus pandemic.

This year, the company delayed its decision to restart drilling activity pending the results of the Nov. 3 ballot initiative to increase oil production taxes in the state. Following the defeat of the ballot measure, and then the stabilization of oil prices around $40 per barrel, ConocoPhillips announced plans to resume drilling before the end of 2020.

The announcement covered a range of development and maintenance projects at the Kuparuk River unit, the Colville River unit and the Greater Mooses Tooth unit. But it did not include any exploration drilling for the 2020-21 season, making this year one of only a handful of exploration seasons over the past 20 years without ConocoPhillips.

The starts and stops of the past few years can make it easy to overlook the larger trend: ConocoPhillips has been undertaking a notable expansion of its exploration activities. In addition to its long-standing movement to the west, it has also been pursing emerging opportunities closer to its existing units at the western edge of the central North Slope.

In a presentation at Meet Alaska in late March 2021, ConocoPhillips Alaska President Erec Isaacson described 2021 as "hitting reset." The company would focus on lowering costs and engaging stakeholders and would also resume regular development drilling, as well as progress on $1.1 billion in projects across the North Slope: Greater Mooses Tooth No. 2 construction, Alpine expansion, Willow permitting, Nuna development and ongoing work at the Eastern NEWS (North East West Sak) at the Kuparuk River unit.

Heading west

ConocoPhillips is best known for its gradual westward expansion on the North Slope.

Through its predecessor companies, ConocoPhillips helped discover or develop the Kuparuk River unit, as well as the Alpine field and its satellites at the Colville River unit.

After the National Petroleum Reserve-Alaska was reopened for exploration in 1999, ConocoPhillips' predecessor Phillips Petroleum Co. was one of the first companies to explore the region. In May 2001, Phillips announced three major NPR-A discoveries.

"These discoveries mark an important milestone in the Alaska oil industry," then-president of Phillips Alaska Kevin Meyers said at the time. "Though the results are preliminary, we're confident the discoveries will prove to be of commercial quantities."

Anyone who follows the announcements of oil and gas companies knows to be mindful of hyperbole, but ConocoPhillips has long since justified those comments. The company has spent the last 20 years pursuing the NPR-A discoveries announced by its predecessor in May 2001, and it is only recently seeing oil production from the first of those properties.

The current push dates to 2008. That year, ConocoPhillips formed the Greater Mooses Tooth unit around the cluster of NPR-A wells and discoveries west of Nuiqsut. The move helped protect soon-to-be-expiring leases dating back to the original 1999 lease sale.

ConocoPhillips also relinquished 19 federal tracts around Intrepid 2 well south of Barrow, a sign that it was losing interest in wildcat exploration on the North Slope.

Between 2008 and 2016, ConocoPhillips gradually backed away from Alaska offshore exploration, too. The company dropped most of its Beaufort Sea leases in 2009 and spent several years pursuing Chukchi Sea opportunities before dropping those leases in 2016.

At the same time, ConocoPhillips was increasingly focusing its energies on exploration opportunities within close reach of its existing onshore infrastructure. Toward the end of 2015, ConocoPhillips CEO Ryan Lance announced, "Over the past couple of years, we've been able to change the profile of our Alaska business. We've transformed the declining production base into one that can deliver stable production for a decade."

The U.S. Bureau of Land Management approved the formation of the Greater Mooses Tooth unit in 2008. ConocoPhillips expanded on its May 2001 discoveries in the unit area with a series of related exploration wells, including the Pioneer No. 1 and Grandview No. 1 wells in early 2009 and the Rendezvous No. 3 and Flat Top No. 1 wells in early 2014.

Through subsequent exploration, appraisal and development work, ConocoPhillips unofficially divided Greater Mooses Tooth into three regions: east, central and west.

ConocoPhillips began producing the eastern leases in October 2018, when it brought the GMT-1 pad online. The company is currently in the final stages of development work on the GMT-2 pad, which will develop the leases in the southcentral portion of the unit.

The company employed as many as 700 people on the GMT-2 project this winter, which was the third and final year of construction on the $1.4 billion project. Development drilling on the first of

see EXPLORERS PREVIEW page 5

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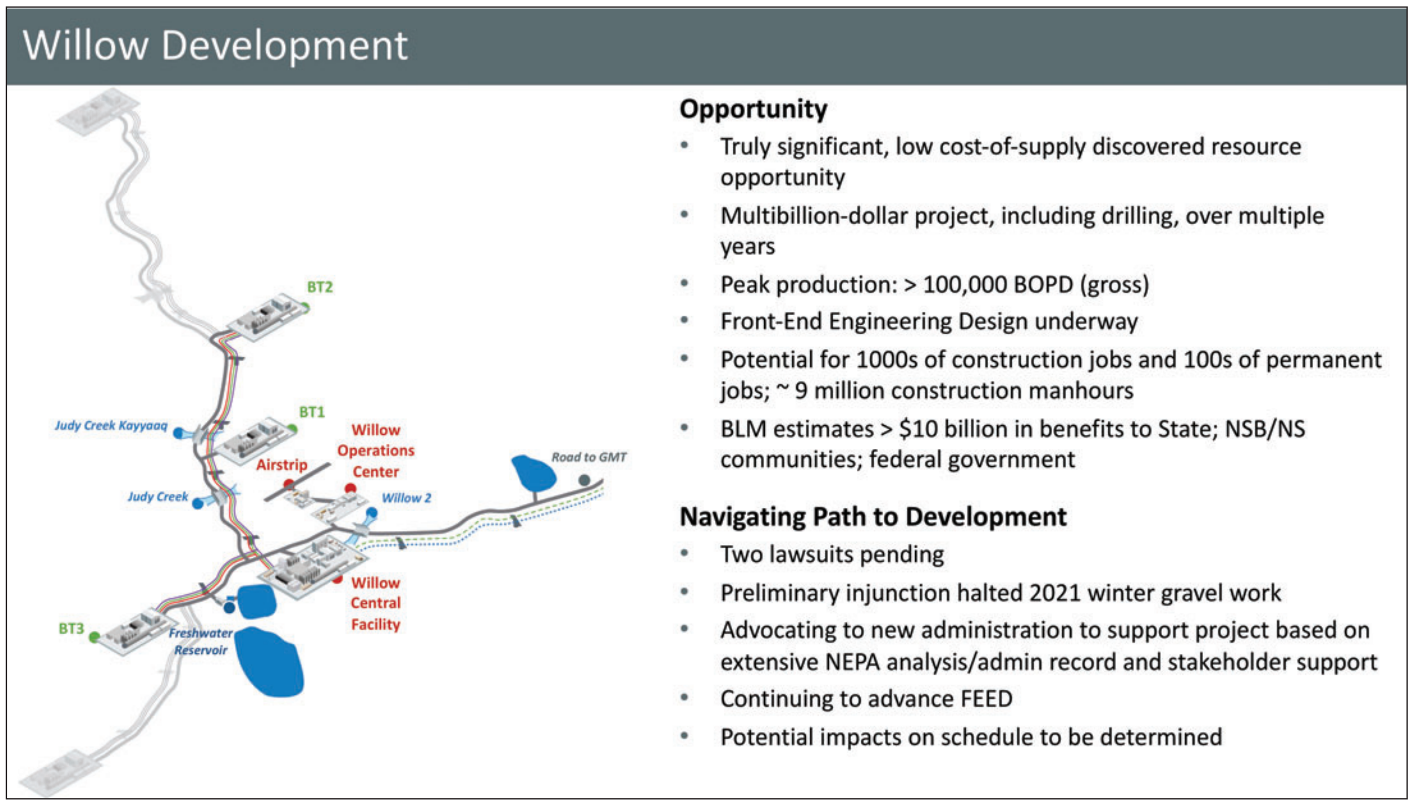
continued from page 4

EXPLORERS PREVIEW



CONOCOPHILLIPS ALASKA INC.

36 wells was scheduled to begin in the second quarter with first oil by the end of the year. GMT-2 should produce 35,000 to 40,000 barrels per day at its peak.

Willow

Exploration activity in recent years has focused on the western leases. Those leases are now associated with the Bear Tooth unit, which is adjacent to Greater Mooses Tooth.

ConocoPhillips began staking its first Tinmiaq wells in late 2015 and completed a two-well drilling program in the area in early 2016. The work was notable for pushing beyond previous drilling activity in the region. Way back in May 2001, when Phillips Alaska Inc. announced its initial oil discoveries in the area, the exploration activity was clustered in what would later become the center of the Greater Mooses Tooth unit. Subsequent exploration activity pushed to the south and the east — but not into the western leases.

The initial Tinmiaq exploration program came as ConocoPhillips was sanctioning its initial $900 million GMT-1 development at the eastern end of Greater Mooses Tooth and permitting its GMT-2 development on leases in the south-central section of the unit.

In early 2017, ConocoPhillips announced that the first Tinmiaq wells — Tinmiaq No. 2 and Tinmiaq No. 6 — had made a major discovery in the Nanushuk formation. The Willow prospect was estimated to contain as much as 300 million barrels of recoverable oil and could potentially produce as much as 100,000 barrels per day at its peak.

"This discovery is tremendously exciting not only for ConocoPhillips, but also for the state of Alaska," then-ConocoPhillips Alaska President Joe Marushack said. "Willow's proximity to existing infrastructure improves the economic viability of the discovery. Development of Willow, a potential multi-billion-dollar investment, could provide thousands of jobs during construction and could generate substantial revenue for the federal government, state, North Slope Borough, and communities in the NPR-A."

In addition to being encouraged by resource estimates, ConocoPhillips was intrigued by Willow's geology. Willow was one of three major North Slope oil discoveries made within a year in the Nanushuk formation or in the closely associated Torok formation — following Armstrong Energy's Pikka and Caelus Energy's Tulimaniq discoveries.

In late 2016, after drilling the two Tinmiaq wells but before announcing the discovery, ConocoPhillips acquired 65 tracts covering 594,972 acres in a federal lease sale and 74 tracts covering 142,280 acres in a nearby state lease sale. And in 2017, after announcing the discovery, ConocoPhillips commissioned a 3D seismic survey over the region.

That may seem like a rush of activity, but subsequent permitting documents suggested that ConocoPhillips had discovered the Willow prospect in 2002 with its Hunter A well.

ConocoPhillips returned with a four-well program in 2018 (Tinmiaq No. 7, No. 8 and No. 9 and West Willow No. 1) and a five-well program in 2019 (Tinmiaq No. 10, No. 11, No. 13, No. 15 and No. 16, along with re-entry projects on Tinmiaq No. 2 and Tinmiaq No. 9). The company planned a six-well program in 2020 but was only able to complete two wells (Tinmiaq No. 18 and No. 20) before coronavirus restrictions interceded.

The company planned a seven-well exploration program for 2020 but only completed three before reducing its activities in response to the emerging coronavirus pandemic.

One of the big questions hanging over the Willow prospect from the beginning was whether ConocoPhillips would develop it independently or as an Alpine satellite. The decision would impact the cost and design of the project, as well as its production rate.

A satellite would produce about 40% to 50% of the peak production of a standalone field, and it would be timed to accommodate the existing Alpine facilities. Production would be drawn out across a longer timeline. But a satellite would be the cheaper option.

In a proposed development plan filed with the U.S. Bureau of Land Management in early 2018, ConocoPhillips endorsed a standalone facility. "The existing processing facility at Alpine is not feasible for a tie-in of the Willow development due to geographic and technical constraints," the company wrote. "The Willow master development plan would require construction of a new processing facility, the Willow Central Facility."

The proposal did, however, envision using existing pipeline systems to bring seawater and diesel fuel to the proposed field and to deliver sales-quality crude from the field.

The Willow project was delayed earlier this year when the U.S. Court of Appeals for the 9th Circuit extended an injunction, banning ConocoPhillips from conducting fieldwork for its Willow oilfield development. The injunction emerged from a lawsuit by Sovereign Inupiat for a Living Arctic and several environmental organizations against the Bureau of Land Management. The case was still pending as The Explorers was going to print.

Harpoon

As work advanced on the Willow prospect, ConocoPhillips again stepped westward.

The company's initial plans for the 2019-20 winter exploration season included exploration drilling at the Harpoon prospect, southwest of Willow. Before the program began, Executive Vice President of Exploration and Production Matt Fox said that seismic work had identified an anomaly worth investigating. It "looks like there could be … quite substantial resources," he said. "Now it could be gas and it could be water. It's almost certainly a reservoir, because we're pretty sure that's what the seismic signature's telling us … but it doesn't have to be huge for it to be a tieback to the Willow hub."

The season was supposed to be among the largest ever for ConocoPhillips. In addition to the six Tinmiaq wells, the company planned four "rank exploration" wells at Harpoon.

ConocoPhillips hadn't intended to complete all 10 wells, only to provide options for a seven-well program. But global circumstances made even that smaller goal impossible.

Just as the exploration season was gathering momentum, the coronavirus pandemic was suspending operations around the world, including the distant and isolated North Slope.

By the time ConocoPhillips demobilized its fleet in early April in response to the pandemic, the company had only completed one of the Harpoon wells — Harpoon No. 2.

A further disappointment came earlier this year. In its annual U.S. Security and Exchange Commission filings, ConocoPhillips announced that Harpoon No. 2 had been a dry hole. According to the company, "evaluations confirmed the well intersected sub-commercial volumes of hydrocarbons in the upper Harpoon interval which will not be developed."

In an earnings call in early 2020, Fox said Harpoon 2 appeared to have "clipped the edge of the topset based on its log response," adding that the company wouldn't know for sure until it drilled a second well. Asked by analysts whether the well had encountered hydrocarbons, Fox acknowledged that it had. "It looks from a lithological perspective similar to other lithological signatures we're seeing

see **EXPLORERS PREVIEW** *page 6*

continued from page 5

EXPLORERS PREVIEW

on the edge of these topsets," he said.

Even so, the company said it still believed in the potential of the "Harpoon Complex," described as Harpoon, Lower Harpoon and West Harpoon, and intended to return to it.

Narwhal

The 2018 exploration program to appraise the Willow discovery also included a pair of exploration wells just south of the Colville River unit, near the village of Nuiqsut.

The play has a long and circular history with many names.

ConocoPhillips first asked the state to expand the Colville River unit to include acreage to the south in 2002, around the time of its merger. The prospect was known at the time as Titania. The state agreed to the Titania expansion but eventually contracted the acreage out of the unit in 2004 after ConocoPhillips had failed to meet its drilling commitments.

A joint venture operated by Brooks Range Petroleum Corp. subsequently acquired the acreage through a lease sale and began referring to the leases as the Tofkat prospect. The small independent encountered hydrocarbons on the leases in early 2008 with the Tofkat No. 1 well and two related sidetracks and later formed the Tofkat unit in October 2011.

The state terminated the unit in late March 2016, after the company missed work commitments. The termination proceedings came as ConocoPhillips was acquiring the acreage. ConocoPhillips asked the state to incorporate it into the Colville River unit.

The state was hesitant to approve the expansion, because of the atypical status of the leases and because of ConocoPhillips' previous failure to explore the acreage. But state officials ultimately agreed to the request, pursuant to bonds, guarantees and conditions.

Under this newest effort, ConocoPhillips began referring to the project as Putu. To meet the initial set of conditions required by the state, ConocoPhillips drilled the Putu No. 2 and Putu No. 2A wells and made a $3 million bonus bid replacement. The company also drilled four appraisal wells — CD4-595PH1, CD4-595, CD4-594PH1 and CD4-594 — beyond its work commitments "to better understand the reservoir and to test the technical feasibility of extended reach drilling at shallow depth," according to the company.

The next round of commitments required ConocoPhillips to pay $4 million to the state and submit a plan detailing efforts to bring the leases into sustained production.

Based on preliminary testing of its initial Putu exploration wells, the company announced the Narwhal discovery, estimated to contain between 100 million and 350 million barrels of oil equivalent. Like Willow, Narwhal was also in the Nanushuk formation. Willow and Narwhal are different sediments deposits within the formation, with Willow being older.

ConocoPhillips drilled a follow-up well at Narwhal in the 2019 exploration season. That summer, the company said that the results were "encouraging" enough to justify "an additional unbudgeted horizontal well from an existing Alpine drill site into the Narwhal trend" later in the year. That relatively spontaneous decision, at least by North Slope standards, reflects one of the big strategic opportunities of the prospect. It is close enough to the Colville River unit to utilize existing well pads, bringing down costs and reducing some of the most common logistical complications of off-road winter exploration.

Asked about the additional well, Fox said it would be a "long-term test" to better "understand the long-term deliverability." He added, "We also can drill an offset injection well to this producer from the same drill site. So, we're going to take the opportunity to do that as well. And that will give us further information on the Narwhal trend. But it's really driven by encouragement and what we saw in the initial well in the Narwhal, the Putu appraisal well we call that. We're feeling good about that."

A long-term flow test conducted on the Narwhal exploration well also "exceeded expectations," according to ConocoPhillips. The well produced at a peak rate of 4,500 barrels of oil per day, leading the company to increase its estimated ultimate recovery figure for the prospect by 150 million to 400 million barrels of oil equivalent.

The company initially envisioned a two-pronged strategy at the Narwhal prospect. It would drill about half the wells horizontally from the existing CD-4 pad at the Colville River unit and the remaining wells from a new CD-8 pad in the southern end of the unit.

Under that proposal, the company initially expected production as early as 2022 from the wells at the CD-4 pad and production from the planned CD-8 pad as early as 2025.

But by late 2020, the company was rethinking its approach. The CD4-594 and CD4-595 appraisal wells had "stretched the limits" of serviceable extended reach drilling at shallow depths, according to ConocoPhillips. And so the company shifted the project toward CD-8, which would support between 20 and 40 wells, depending on modeling.

Stony Hill

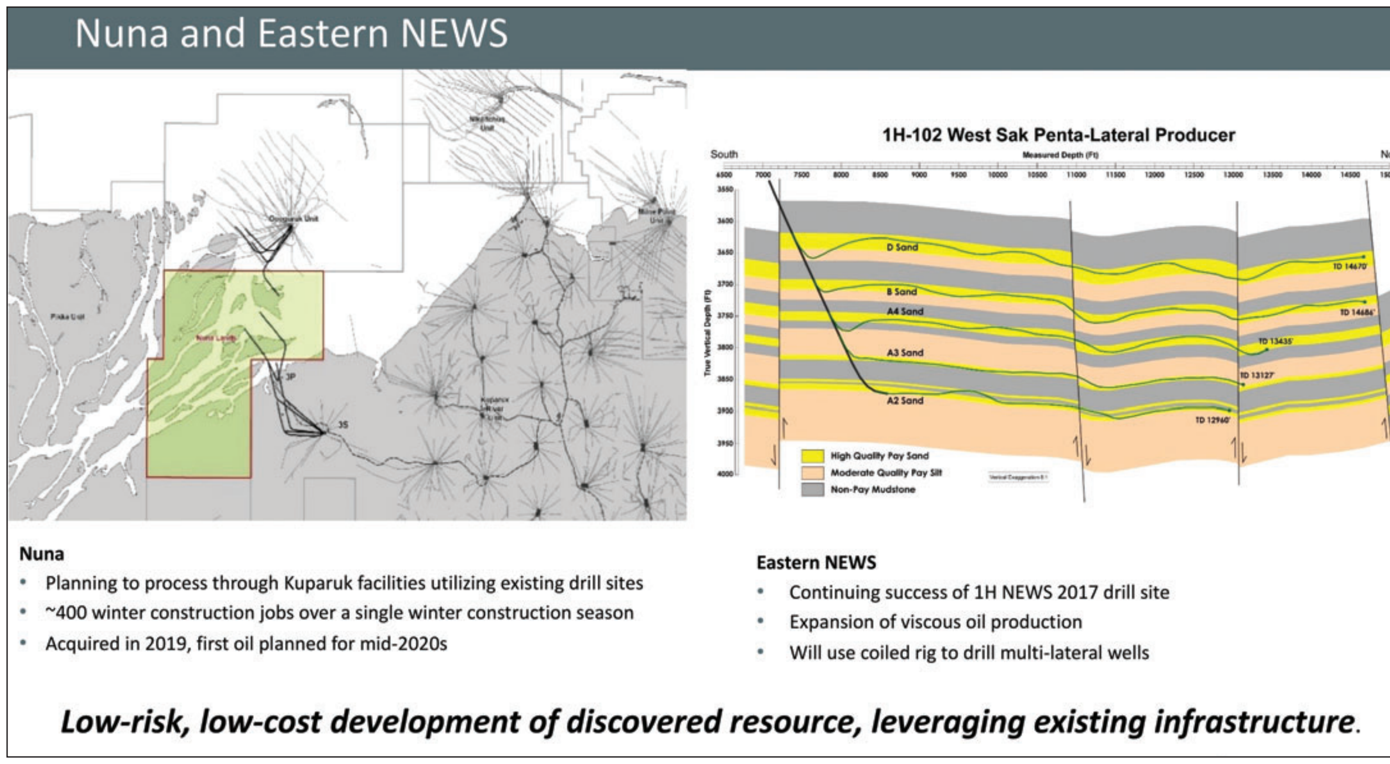
As part of the 2018 program to appraisal Putu, ConocoPhillips also explored the Stony Hill prospect, located in the NPR-A about six miles south of the village of Nuiqsut. The well and sidetrack were west of the Armstrong Energy Inc. wildcat Horseshoe No. 1 well.

ConocoPhillips described Stony Hill as a prospect similar to Willow and estimated that it contained at least 300 million barrels of recoverable oil in the Nanushuk formation. In November 2017, ConocoPhillips executive Matt Fox said the company had identified "a lot" of Willow lookalikes in the Nanushuk and "every one of them we've drilled so far has had oil in it, so we're hopeful that several of these Willow lookalikes will deliver."

The Stony Hill wells encountered oil but required additional appraisal drilling and analysis — as did the Putu wells, which are closer to Colville River unit infrastructure.

All the ConocoPhillips projects at the Colville River unit and in the NPR-A place additional responsibilities on the Alpine infrastructure. In his Meet Alaska presentation, Isaacson described three projects

see **EXPLORERS PREVIEW** *page 7*



CONOCOPHILLIPS ALASKA INC.

continued from page 6

EXPLORERS PREVIEW

underway this year to expand the gas-handling capacity and power generation and to add a slug catcher at the Alpine processing facility. The $190 million projects would allow Alpine to handle additional production coming online.

Nuna

Just as the Narwhal project has been extending the reach of the Colville River unit to the south, the Nuna project is extending the reach of the Kuparuk River unit to the north.

For years, the Nuna prospect was seen as crucial to the future of the Oooguruk unit, located in the waters of Harrison Bay northwest of the Kuparuk River unit. Companies in the region had known about the prospect for years. The Nuna field is located in the shallow Torak formation, and all drilling into deeper reservoirs had passed through it.

> *The company employed as many as 700 people on the GMT-2 project this winter, which was the third and final year of construction on the $1.4 billion project.*

Pioneer Natural Resources Alaska Inc. officially discovered the prospect during the 2013 winter exploration season with its Nuna No. 2 well. With the results that well, the independent increased both the aerial extent and the estimated ultimate recovery of the field — claiming it could contain between 75 million and 100 million barrels of recoverable oil, resulting in some 25,000 barrels of oil per day over 25 to 30 years.

The next operator of Oooguruk, Caelus Natural Resources Alaska Inc., sanctioned a $1.4 billion Nuna development — with $550 million for construction and the remainder for drilling — in 2015 and even received a major royalty modification from the state to make the project work. It paused work a few years over concerns about the economic climate.

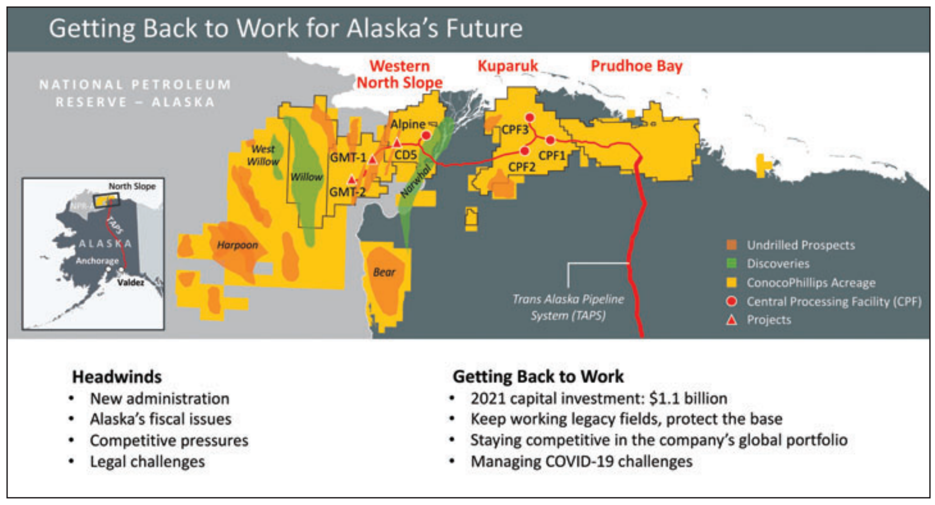
Caelus ultimately left Alaska in early 2019, selling off its properties. While the company sold the Oooguruk development to its minority partner Eni, and later announced that it had sold 100% ownership in the Nuna leases to its neighbor ConocoPhillips.

The sale made sense considering that the company had intended to access the offshore Nuna leases using an onshore development at Oliktok Point, in the Kuparuk River unit.

ConocoPhillips had already been testing wells in the Torok since at least 2013. Speaking about the project during an earnings call in July 2019, ConocoPhillips executive Michael Hatfield said that the Nuna prospect could be developed mostly from existing pads and roads and that the remaining facilities could be built in a single ice road season. He estimated that the field could be developed with oil prices in the low $30 per barrel range and that the field would produce about 100 million barrels on $100 million investment.

At that time — nine months before the pandemic — ConocoPhillips was planning a few years of appraisal as part of it Kuparuk River program, leading to first oil in 2022. In his Meet Alaska presentation, Isaacson put the timeline for first oil at the "mid-2020s."

Nuna production would be processed through Kuparuk River unit facilities, as would additional production from the NEWS project. Although not traditional exploration, the expansion of viscous oil



CONOCOPHILLIPS ALASKA INC.

production from the 1H NEWS drill site is a source of new oil.

Legacy

ConocoPhillips' work west of Prudhoe Bay has influenced regional exploration.

Incremental advancement is a defining feature of the North Slope. The basin contains many known oil fields that would instantly be standalone commercial properties if they existed in a less remote corner of the world. The challenge on the North Slope over the past 60 years has been building up regional infrastructure to create economies of scale.

By developing the Kuparuk River unit and then the Colville River unit, ConocoPhillips changed the characteristics of the swath of land between those two oil fields. The so-called "billion-dollar fairway" has perpetually interested smaller exploration companies.

There are currently three units in the region: the Oil Search-operated Pikka unit, the Arctic Slope Regional Corp.-operated Placer unit and the Mustang Holding LLC-operated Southern Miluveach unit, which was the first to move into development.

Pikka, Placer and Southern Miluveach all, in some fashion, rely upon the infrastructure of the Conoco-Phillips' operated units, usually in the form of various pipeline capacity.

These partnerships are not perfect. In some cases, smaller players have chosen to pursue standalone production facilities, rather than attempt to find space with ConocoPhillips facilities.

Building standalone facilities greatly alters the economics of a project. A company would only assume the expense voluntarily if self-sufficiency provided an equivalent benefit.

But, by comparison, the lands east of Prudhoe Bay are much less crowded.

Geology is partially responsible for that imbalance. The Point Thompson unit and the neighboring Badami unit have both proven to be exceptionally challenging puzzles.

But history matters, too.

Point Thompson came online much later than the Kuparuk River unit. And whereas the Kuparuk River unit sits immediately adjacent to Prudhoe Bay, Point Thompson is some 30 miles away, creating a much larger area to traverse through that incremental advancement. The reopening of the NPR-A in 1999 created incentives to the west, while the political complications at the Arctic National Wildlife Refuge over the same time created disincentives to the east.

One can imagine an alternate history: if ANWR had been open for development, if Point Thompson had been closer to Prudhoe Bay, if geology had been more accommodating, perhaps there would also be a billion-dollar fairway to the east instead of the west. ●

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continued from page 3

EIA OUTLOOK

wind and solar generating capacity in 2021 and 2022 will contribute to rising electricity generation from those sources and estimates the U.S. electric power sector added 14.8 gigawatts of new wind capacity in 2020, with an additional 15.9 GW expected to come online in 2021 and an additional 5.2 GW in 2022.

EIA said utility-scale solar will rise an estimated 10.5 GW in 2020 and is forecast to grow by 15.7 GW in 2021 and by 15.9 GW in 2022, with about 5 GW of small-scale solar, systems less than 1 megawatt, expected to come online in 2021 and again in 2022. ●

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● EXPLORATION & PRODUCTION

Weekly US rotary rig count up by 8 to 448

By KRISTEN NELSON

Petroleum News

The Baker Hughes U.S. rotary drilling rig count, 448 on May 7, was up by eight from 440 the previous week and up by 74 from a count of 374 a year ago.

When the count bottomed out at 244 in mid-August last year, it was not just the low for 2020, but the lowest the count has been since the Houston based oilfield services company began issuing weekly U.S. numbers in 1944.

Prior to 2020, the low was 404 rigs in May 2016. The count peaked at 4,530 in 1981.

The count was in the low 790s at the beginning of 2020, where it remained through mid-March, when it began to fall, dropping below what had been the historic low in early May with a count of 374 and continuing to drop through the third week of August when it gained back 10 rigs.

The May 7 count includes 344 rigs targeting oil, up by two from the previous week and up by 52 from 292 a year ago, 103 rigs targeting gas, up by seven from the previous week and up by 23 from 80 a year ago, and one miscellaneous rig, down by one from the previous week and down by one from a year ago.

Twenty-three of the holes reported May 7 were directional, 408 were horizontal and 17 were vertical.

Alaska unchanged from previous week

Texas (217) was up by five rigs from the previous week.

Louisiana (52) was up by three.

Pennsylvania (19) and Utah (9) were each up by one rig.

California (6) was down by a single rig.

Counts in all other states were unchanged from the previous week: Alaska (3), Colorado (10), New Mexico (70), North Dakota (15), Ohio (10), Oklahoma (21), West Virginia (11) and Wyoming (4).

Baker Hughes shows Alaska with three rigs active May 7, unchanged from the previous week and unchanged from a year ago, when the state's count also stood at three.

The rig count in the Permian, the most active basin in the country, was up by five from the previous week at 229 and up by 31 from a count of 198 a year ago.

International count down

Baker Hughes' April international rig count of 695, released May 7, was down 20 rigs from March, with land rigs down 16 to 530 and offshore rigs down four to 165.

The company said the international count is down 220 from last year's count of 915, with land rigs down 157 and offshore rigs down 63.

The U.S. rig count for April averaged 436, up 28 from a March average of 408 and down 130 year-over-year.

In Canada the average count for April was 58, down 51 from a March count of 108 and up 25 year-over-year.

The worldwide count, international plus U.S. and Canada, was 1,189 in April, down 43 from a March count of 1,231 and down 325 from 1,514 in April 2020.

The Houston based oilfield services company began issuing weekly U.S. numbers in 1944 and began issuing the monthly international rig count in 1975. ●

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continued from page 1

BOREALIS PERMITTING

its two Castle North leases; the first NPR-A acreage it plans to drill.

Borealis' first taker for a JV partner was Armstrong Oil & Gas for a 72% interest in the Castle West prospect.

The reason the company decided to drill Castle North first was because of its proximity to the U.S. Bureau of Land Management's Inigok Operations Center and its infrastructure, which will reduce the costs of the exploration program.

The Castle North winter exploration project is on the Arctic coastal plain approximately 35 miles west of the Colville River and 15 miles west of Judy Creek. Teshekpuk Lake is about 30 miles to the north and the closest coastline is some 40 miles from the project area.

The coastal area is broad and flat with numerous lakes and waterbodies.

Inigok history

The U.S. Geological Survey and Husky Oil drilled the Inigok No. 1 well in what is today called the Castle North prospect in 1978 and 1979. The well was subsequently plugged and abandoned but the infrastructure for the project remains useable and includes a large gravel pad and a year-round, 6,500-foot gravel airstrip.

Borealis currently holds two NPR-A leases that define the Castle North prospect (see map in the pdf and print versions of this issue of PN).

Drilling plans

Drilling operations will involve two wells, Castle North 1 and Castle North 2, although the company has identified four potential Castle North drilling sites.

Activities include mobilization, snow trail/ice road and ice pad construction, possible well testing and demobilization. They will initially follow the existing exploratory road from Deadhorse to ConocoPhillips Kuparuk 2-P pad. Beyond this point, access will require an approximate 80-mile-long packed snow trail.

Project ice roads will be constructed from the Inigok Operations Center to transport a drill rig and equipment to the drill sites. The airstrip at Inigok may be used for additional access via aircraft, Borealis said.

Drilling operations will occur on a 250,000 square foot ice pad with a surface working area of 400 feet by 400 feet, or 160,000 square feet. The pad will support the land-based drill rig and a small Command Center camp.

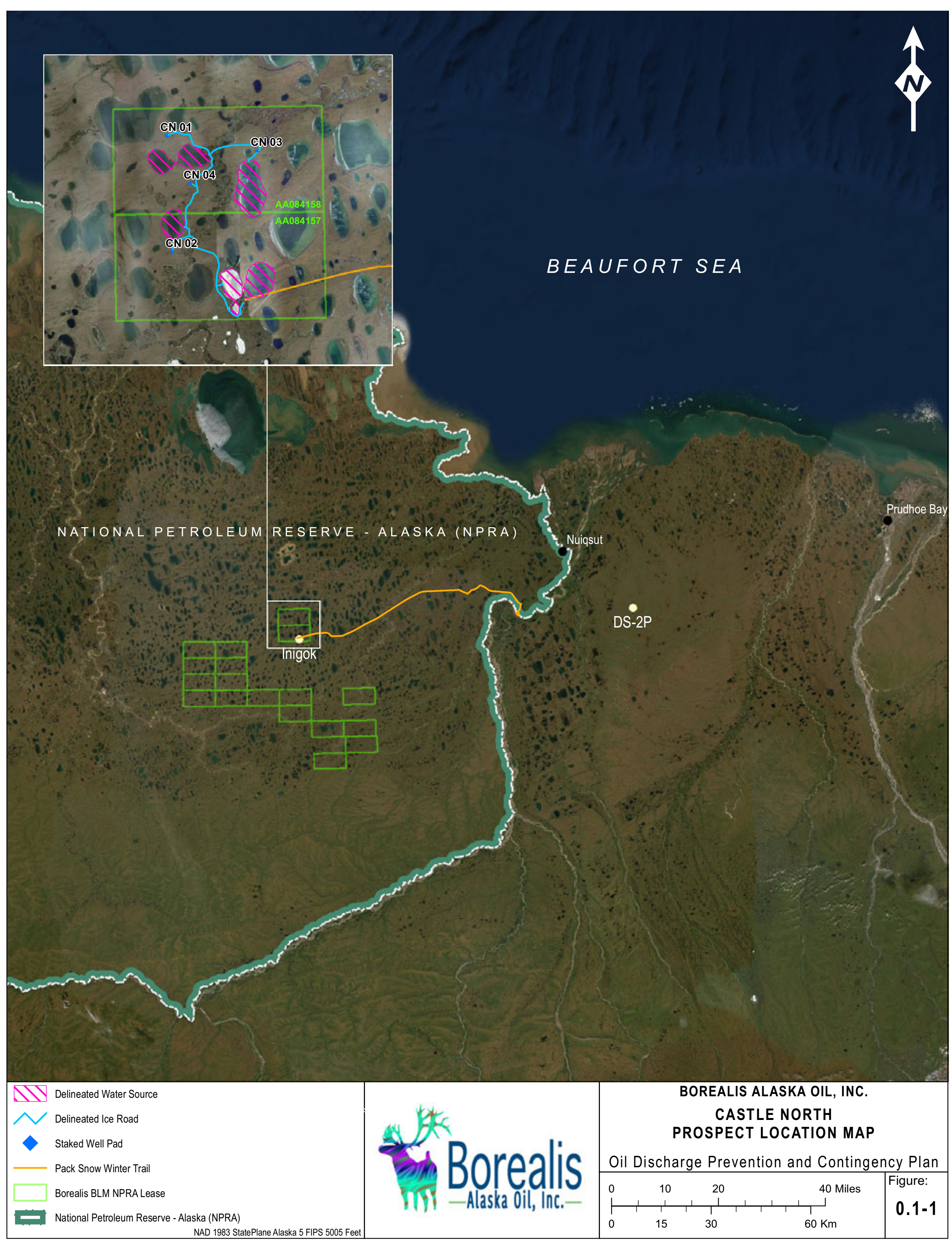
Borealis said in its application that the Doyon Arctic Fox drill rig (or one similar) will be used.

The proposed CN 1 well site is approximately 40 miles west of the Colville River, 50 miles southwest of Nuiqsut.

Access to the site will be via a 7.4-mile-long ice road from the Inigok Operations Center, with rig mobilization expected to occur in January.

Drilling, coring, setting casing, and testing are expected to take up to 30 days. Once completed, the rig will be demobilized and transported to the next drill site, CN 2, between late-February and mid-March.

Access to the site will be via a 4.14-mile-long ice road from the Inigok Operations Center. The rig will be demobilized between mid- and late-April.



Site cleanup, closure inspections and remediation (as needed) will take place in late-April with final post snow stick picking and site closure by June, the company said in its C-plan app.

Ahead of Willow

According to Garrard, Nordaq (later rebranded Borealis) recognized the potential of the Castle trend and obtained leases in the area three years before ConocoPhillips announced its big Willow oil discovery.

Borealis said it will use Alaska Chadux as the primary response action contractor and the IC contractor Witt-O'Brien's will provide the primary support for staffing the incident command team.

Contractors in Deadhorse or Prudhoe Bay may be used for logistics or other support. ●

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continued from page 1

DRILLING RULES

to ensuring adequate safety and environmental protections for this sensitive ecosystem and Alaska Native subsistence activities."

Moriarty, president and CEO of the Alaska Oil and Gas Association, disagreed.

"The 2016 Arctic drilling rule was revised because much has been learned about operating safely in the Arctic over the last five years. The 2020 proposed revisions made substantial improvements over the original rule, including revisions to incorporate new technologies and modern drilling practices," she explained.

"The 2020 rulemaking process also included additional input from tribal leaders, Alaska Native corporations, and other stakeholders."

Interior's decision "means those enhanced safety and environmental updates go away, and terms of the 2016 rule remain in place. Ironically, this decision does not benefit the environment as much as the 2020 rule. It is unfortunate that politics have taken over what should have been a purely scientific exercise," Moriarty said.

Leah Donahey, Alaska Wilderness League legislative director, said the 2016 rules incorporated lessons learned from the 2010 Deepwater Horizon oil spill in the Gulf of Mexico.

She also said there has not been a public push by companies showing interest in the offshore.

Conservation group Oceana said 37 exploratory wells have been drilled in the Beaufort and Chukchi seas since the 1970s; many on leases that have since expired.

> *"The 2020 rulemaking process also included additional input from tribal leaders, Alaska Native corporations, and other stakeholders."*
> *—Kara Moriarty*

Weighed in Russian interest

The changes proposed by the Trump administration were not finalized before Joe Biden was inaugurated. In November 2020 Interior said the purpose of the proposed revisions was "to remove unnecessary, burdensome provisions while ensuring that energy exploration on the Arctic Outer Continental Shelf remains safe and environmentally responsible."

"As countries like Russia increase their presence in the Arctic — including the use of U.S. technologies to develop their seabed resources, it is increasingly important to ensure that the United States has a strong presence in the Arctic OCS," said then-Deputy Secretary of the Interior Kate MacGregor. "The Beaufort and Chukchi Seas have a long legacy of oil and gas development — we believe these proposed revisions will better harness new technological innovation and best science to allow for responsible domestic energy development off the coast of Alaska."

Executive Order 13795, issued by Donald Trump in 2017, directed Interior to review the 2016 Arctic Exploratory and Drilling Rule and report recommendations. Interior said the revision team included career subject matter experts and regulatory specialists who looked to additional research in the review, including a Bureau of Safety and Environmental Enforcement-commissioned technology assessment program study, National Petroleum Council reports and consultations with "leaders of more than 23 Alaska Native tribes, Alaska Native Claims Settlement Act corporations and municipalities throughout Alaska."

The Federal Register notice issued for the 2020 revisions said the 2016 rule was a response to BSEE- and Bureau of Ocean Energy Management-initiated environmental and safety reviews based on experience in the Arctic OCS "gained from Shell's 2012 and 2015 Arctic operations."

The notice also said the 2016 rule was "narrowly focused, applying solely to exploratory drilling operations conducted during the Arctic OCS open-water drilling season by drilling vessels and 'jack-up rigs' in the Beaufort Sea and Chukchi Sea Planning Areas."

The BSEE and BOEM review of the 2016 rule takes into account a congressional declaration in the Outer Continental Shelf Lands Act that policies and procedures for managing oil and gas development in the OCS be "intended to result in expedited exploration and development of the Outer Continental Shelf in order to achieve national economic and energy policy goals, assure national security, reduce dependence on foreign sources, and maintain a favorable balance of payments in world trade."

The bureaus also reviewed new information on technological developments in an ice environment.

—KAY CASHMAN

(the Associated Press contributed to this story)

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Petroleum news

Oil Patch Bits

Lynden cats make tracks on the Slope


COURTESY LYNDEN

As reported by Lynden News May 5, Lynden Oilfield Services' fleet of three PistenBully snowcats have been hard at work in Prudhoe Bay this past winter. In an average week, the cats delivered essential supplies to a remote drilling site 145 miles southwest of Deadhorse and hauled a propane truck to refill two remote tanks used to power a weather station. Operators Tony Warner, Joel Martens, James McSharry and Hunter Keogh operate the machines in severe conditions to serve Lynden customers. They received instruction in freight operations and survival as part of their preparation to operate the machines in extreme weather. The PistenBullys give Lynden customers over-snow options to move their cargo including heavy equipment, containers and camps.

Companies involved in Alaska's oil and gas industry

All of the companies listed above advertise on a regular basis with Petroleum News

continued from page 1

PIPELINE EXPANSION

Despite a growing string of rebuffs from British Columbia and federal courts, the threats to TMX have ranged from COVID-19, rail blockades and legal challenges to … hummingbirds!

The 3-inch-long birds, whose annual migratory flights cover round trips of almost 4,000 miles, did what few others outside of high court rulings have managed to do — stopped construction of the pipeline through a forest in the Greater Vancouver region until Aug. 20.

Environment and Climate Change Canada, a federal department, issued an order in in April covering a strip of 1,100 yards until the end of the bird nesting season.

"Given that it is nesting season, migratory birds are particularly vulnerable at this time," the department said, after two on-site inspections.

"Cutting vegetation and trees or carrying out other disruptive activities such as bulldozing or using chainsaws in the vicinity of active nests will likely result in disturbance or destruction of those nests."

Trans Mountain, owned by the Canadian government, confirmed the order without comment.

Insurer issue

On a much larger scale, Trans Mountain has been caught up in a bid by environmentalists to disclose its insurers, hoping that would provide fresh targets for activists.

That strategy has been spurred by a decision in April by Zurich, the giant Swiss-based company, not to renew its coverage of what opponents call a "climate wrecking" pipeline from the oil sands.

A spokesman for Zurich said the insurer will not comment on its customer dealings.

Trans Mountain said it has the insurance it needs for its existing operations and the "expansion project" covering claims up to C$508 million.

Zurich was the sole insurer for the first C$8 million of potential payouts, along with C$300 million of cover with other partners.

Lloyd's of London syndicates are Trans Mountain's biggest insurer, with packages that involve 11 companies, of whom Germany's Talanx/Hannover indicated last year it planned to drop its participation in the pipeline, while the Munich group said it would review its contract given its new underwriting guideline for the oil sands.

Confidentiality issue

As that pressure builds, Trans Mountain gained the

see **PIPELINE EXPANSION** *page 11*

continued from page 1

CYBER-AWARE

the U.S. East Coast.

Colonial is the largest pipeline system for refined oil products in the United States, capable of moving 3 million barrels of fuel per day between Texas and New York — 45% of the fuel consumed on the Eastern Seaboard between the Gulf Coast and the New York metro area.

The snafu, induced by Russia-based hackers, engendered lines of cars as panicked East Coast motorists binged on whatever fuel supplies could be found at the local gas station.

"As for this Colonial event, we are paying attention through trade associations; through government agencies; through law enforcement; to know what we can learn from this," Egan said, adding, "I mean the continually evolving themes that our team works hard to stay on top of."

Alyeska is poised to learn whatever it can learn from the breach, and any other real-world cybercrime that may plague pipelines and other critical infrastructure, Egan said.

"We learn things and change things because that's part of this world of cybersecurity, it's continually moving … a very dynamic area," she said. "I can guarantee that we will be making changes, but our system is very comprehensive, and it has served us well."

Asked about system redundancy, Egan said Alyeska has multiple layers of protection against cyber threats.

Waivers

The Biden Administration began what it called an "all of government" effort to address the pipeline interruption. It initiated a survey of Jones Act-qualified vessels to begin the process of evaluating what assets are available in the Jones Act fleet to carry petroleum products within the Gulf, and from the Gulf up the Eastern Seaboard, it said in a May 11 White House fact sheet.

The U.S. Maritime Administration was asked to determine if there is sufficient capacity on Jones Act-qualified vessels to carry needed fuel and to determine if a waiver is warranted, the White House said, adding, "Authority to receive requests for and to approve waivers to the Jones Act belongs to the Department of Homeland Security."

The administration also issued a "targeted, one-week waiver" allowing multiple states to temporarily use non-compliant fuel to boost available supply. EPA Administrator Michael Reagan temporarily waived the federal Reid vapor pressure requirements for fuel sold in reformulated gasoline areas of District of Columbia, Maryland, Pennsylvania and Virginia. The waiver was later extended to a total of 12 affected states, and it was extended to May 31.

"The EPA stands ready to issue waivers for other affected states expeditiously whenever those requests are received," the White House said.

The Department of Transportation issued a separate order allowing trucks to carry overweight loads of gasoline and other fuels on highways to move more supply to Colonial's customers. It also issued a temporary hours of service exemption which applies to truckers transporting gasoline, diesel, jet fuel and other refined petroleum products to the region.

The DOT Federal Motor Carrier Safety Administration will work closely with its state and industry partners to monitor driver work hours and conditions for the duration of the exemption, DOT said.

Colonial said it had, "consistent with our safety policies and regulatory requirements," increased aerial patrols of the pipeline right of way and that it had deployed more than 50 personnel to walk and drive the pipeline each day.

A ransomware group, DarkSide, demanded a cryptocurrency ransom valued at millions of dollars, according to several sources, CNN reported May 12.

But Colonial may not pay up, the report said. Working with U.S. government officials, Colonial has managed to retrieve the most important data that was stolen, according to a source.

"We would like to thank the White House for their leadership and collaboration in resolving this matter as well as the DOE, PHMSA, FERC and other federal agencies for their ongoing support," Colonial said in a May 11 statement.

IBM's new CEO Arvind Krishna suggested a NASA-style government investment is required to be able to tackle cybersecurity.

"When we talk about infrastructure, you talk about the Colonial Pipeline — that's physical infrastructure; if the cyber side gets attacked, the physical is useless," Krishna told First Move. "When we talk about infrastructure, we should make sure the cyber is on equal stage and equal footing with the physical."

Krishna called for spending $100 billion on a public/private partnership to improve cyber resilience.

"Otherwise, we'll be victim to these attacks again and again," he said.

100% reliability in 2020

Egan said Alyeska achieved 100% TAPS reliability in 2020.

"I think it's important for people to know that we — everyone who works here at Alyeska understands how much the state of Alaska relies on us to be operate reliably, she said. "We understand how important that is and that's why we have such a robust system."

The first line of defense is people, Egan said.

"People who work here are very connected to TAPS itself, and take a lot of pride in its operation," she said.

"We do have drills and exercises, much as we do for other risks such as oil spills," she said. "We do test our system and then we also test our response, with drills and exercises."

"We spend a lor of time in our company making sure that all of our employees and contractors are engaged in and educated about cybersecurity threat — the ones that you face at home, the ones that every business faces," Egan said. "We also have a very active program in keeping our employees aware of what they can do to protect themselves, things like phishing and malware, etcetera."

Alyeska said 2020 was the first time it had hit the 100% reliability level since 2003, but that the score is traditionally above 90%.

"The pipeline is operating reliably throughout this event with Colonial, and so is our business side of our house," she said.

"When we end up in the upper 90s, it's usually because of a planned shutdown, and the duration of that shutdown," Egan said. "It's typically not anything concerning, but some downtime that we planned for in order to get work done."

Basically 100% reliability means "every barrel that we receive we deliver," Egan said.

"To get down to the nuts and bolts of that and how we did that last year, we were able to make our maintenance shutdown several short ones, instead of longer ones," she said. "While we might shut down for 12 hours, we use the tanks at Pump Station 1 to take in incoming crude and when that shutdown is over, we start moving oil again, so there's really no impact on the downstream side." ●

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continued from page 1

WOODFIBRE LNG

Pacific Oil & Gas President Ratnesh Bedi said BP is among the companies turning to LNG for "sustainable, stable gas that will supply a clean energy mix" at a time when the outlook for LNG faces uncertainty.

Work pauses as demand grows

In just the last two months, LNG developer Annova stopped work on its export plant in Brownsville, Texas, and Pembina Pipeline paused development of its Jordan Cove project in Oregon.

On the positive side, global LNG demand has increased every year since 2012, propelled by fast-rising demand in Asia.

But global LNG buyers have shown some hesitancy in recent times due to overbuilding of export terminals in 2019 and demand destruction resulting from COVID-19.

BC finances hereditary chiefs

While these fluctuations persist, the British Columbia government has added to the confusion by financing Wet'suwet'en hereditary chiefs in northwestern B.C. who have tried to sink plans for the C$40 billion LNG Canada project.

The government of Premier John Horgan has granted C$7.2 million to the chiefs to promote "unity" in the fractured First Nation divided between elected and hereditary leaders, with the bulk of the elected communities counting on benefits agreements they have signed with the Shell-operated project.

"British Columbia's funding announcement to 'unify' the Wet'suwet'en nation is the latest in a year-long series of insults and betrayals of the elected representatives of the Wet'suwet'en people," declared one of the elected chiefs from five clans Maureen Luggi and two councilors.

"For nearly a year the (Canadian and B.C. governments) and the recipients of this funding have been negotiating in absolute secrecy about communal aboriginal rights and title of the Wet'suwet'en people," they said.

"We are being removed from any meaningful participation in the future of our territory. Despite every appeal to right and reason, the province has handed C$7.2 million to an unelected, unrepresentative, unmandated, unaccountable society to continue their secret negotiations."

Some of the new funding will be used to convert (recently acquired school property) into a Wet'suwet'en governance center, which is expected to be a focal point in what the B.C. government says will allow the divided First Nation to "resolve their own matters that is central to self-determination."

This latest twist in a bitter dispute further complicates the outlook for TC Energy's Coastal GasLink pipeline to deliver natural gas feedstock to the LNG Canada liquefaction plant and tanker terminal.

That construction was brought to a halt 16 months ago by supporters of the hereditary chiefs, when they blockaded one of Canada's two main rail lines to the Pacific Coast, costing governments and companies hundreds of millions of dollars in lost business. ●

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continued from page 1

ANGOON TIDAL

The company told FERC that tidal currents at Turn Point are known to be powerful and cited an Alaska Power Authority report from 1981 titled "Angoon Tidal Power and Comparative Analysis," which looked at power generation options which would allow the City of Angoon to replace on-site diesel generators. Generating electricity from tidal power in Kootznahoo Inlet was one of the options considered, but, due to the location's remoteness, LPS said, "more accurate assessments of the tidal power resource are not available."

"The project concept would be to generate electric power from a marine hydrokinetic device and store power in an energy storage system to be used by the City of Angoon as a supplement to other energy sources," LPS said.

The company said a turbine or combination of turbines generating 300 kilowatts would be appropriate based on existing power demand in Angoon and allowing for some growth. Such a turbine would produce some 600-megawatt hours of electricity in a year.

There would be distribution cables fastened to the seabed between the turbine generator and the landfall location and an energy storage system which would likely include state-of-the art battery storage technology such as lithium-ion systems currently used for grid electricity storage.

LPS said it expects that two cables would be installed, one for primary use and the other for redundancy.

Preliminary studies for the project are estimated at $50,000.

LPS said lands on Admiralty Island which adjoin the project area are part of the Kootznoowoo Wilderness. The company said the project would have no impact on the wilderness area.

Proposed project

In its notice of preliminary permit application FERC said the proposed project would include:

•A partially buoyant submersed tidal current energy converter with a 3-foot-diameter rotor tethered to an anchor post driven into the seabed in Kootznahoo Inlet;

•A dual electric cable, each with a capacity of 13.2 kilowatts, connecting to on-land storage; and

•On-land storage in the City of Angoon consisting of individual lithium-ion battery cells.

The application was prepared for LPS by Barrett Energy Resources Group, which said in a technical memorandum to FERC that the location of the partially buoyant submerged tidal current energy converter, CEC, would be marked by a U.S. Coast Guard-approved floating buoy. The tether would allow the CEC to move with tidal currents to capture both ebb and flow conditions.

FERC said the project would not connect directly to the Angoon electric system. The on-land storage system would have a capacity of 250 kilowatts, FERC said, with annual average generation not yet determined.

FERC is accepting comments on the permit application for 60 days from the March 17 application acceptance.

Turnagain Arm project

FERC has also accepted a preliminary permit application for another, and much larger, Alaska project, the Turnagain Arm Tidal Electric Generation Project (see story in March 21 issue of Petroleum News). That application was accepted on April 28, with a 60-day comment period.

FERC said the proposed project would consist of:

•Six 0.5-mile-long, 300-foot-wide tidal power stations, five stations containing 40 10-megawatt tidal-to-electrical energy generating units and one station containing 42 10-MW tidal-to-electrical energy units; total installed capacity of 2,420 MW;

•A transmission network of 29.81 miles of undersea transmission lines connecting the six power stations and coming onshore at Point Campbell in Anchorage and near Possession Point on Kenai Peninsula Borough land;

•A 7.5-mile-long aboveground transmission line from Point Campbell to a control building and step-up facility in South Anchorage;

•A 2.91-mile-long, 130-kilovolt aboveground transmission line from the Anchorage control building to a 40,000-square-foot industrial battery array with a storage capacity of 300 MW and then to the Chugach Electric Association substation in Anchorage;

•A 0.2-mile-long, 230 kV aboveground transmission line from the control building to a 200,000-square-foot hydrogen electrolysis plant and storage yard in South Anchorage with a processing capacity of up to 1.2-gigawatts;

•A 34.8-mile aboveground transmission line from Point Possession to a control building and step-up facility in Nikiski;

•A 2.75-mile-long, 230 kV aboveground transmission line from the Nikiski control building to the Homer Electric Association substation; and

•Appurtenant facilities.

The proposed project would have an estimated average annual general of 10,599,500 megawatt hours.

—KRISTEN NELSON

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continued from page 10

PIPELINE EXPANSION

support of the Canada Energy Regulator to keep its insurers' names confidential.

The federal agency said Trans Mountain had "satisfied the requirements for confidentiality. The names of Trans Mountain's insurers could reasonably be expected to prejudice its competitive position in its dealing with potential insurers."

Charlene Aleeks, a spokesperson for the Tsleil-Waututh Nation Sacred Trust Initiative, one of the Indigenous opponents of the pipeline, said the CER is "expanding Trans Mountain's culture of secrecy when it should be doing the opposite, especially for a government-owned company during a climate crisis. This is a dangerous precedent."

Grand Chief Stewart Phillip, president of the Union of British Columbia Indian Chiefs, said any company insuring Trans Mountain is "complicit in violations of Indigenous rights, because the proposed pipeline expansion does not have the consent of all impacted First Nations along the route."

Elana Sulakshana, energy finance campaigner for Rainforest Action Network, said Zurich's action "demonstrates that it is waking up to the risks of this toxic project in Indigenous land rights, local ecosystems and the planet."

She said some of Zurich's peers in the global insurance industry "are also taking note, as eight (of the 11 companies) now have policies that limit or end insurance coverage (for the oil sands)."

The opponents of the pipeline are now calling on the insurers to turn down invitations to renew their coverage; rule out insurance for all oil sands extraction and transportation; and adopt policies to ensure that projects and companies they insure have obtained the full, informed consent of impacted communities.

Financial impact

Further stoking the fires of opposition, Simon Fraser University in the Greater Vancouver region issued a new benefit-cost analysis study estimating Canada stands to lose between C$3.2 billion and C$18.45 billion from the pipeline expansion.

University researchers examined close to 20 business scenarios involving sales of TMX crude and concluded than none will generate a net benefit for Canada, pointing to the prospects of increased construction costs, the effects of weaker oil prices, Canada's new climate plan and the cancellation of Keystone XL permits by President Joe Biden.

Lead author and an SFU professor, Thomas Gunton, said climate policies have affected the landscape significantly since the Canadian government bought Trans Mountain off Kinder Morgan for C$4.5 billion in 2018.

The study said the crux of the problems facing Trans Mountain is oil demand, which it claimed will decline over coming years because of global policy shifts toward net-zero greenhouse gas emission goals, contrary to many predictions that consumption of fossil fuels will remain strong until at least 2050.

—GARY PARK

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continued from page 1

OIL PRICES

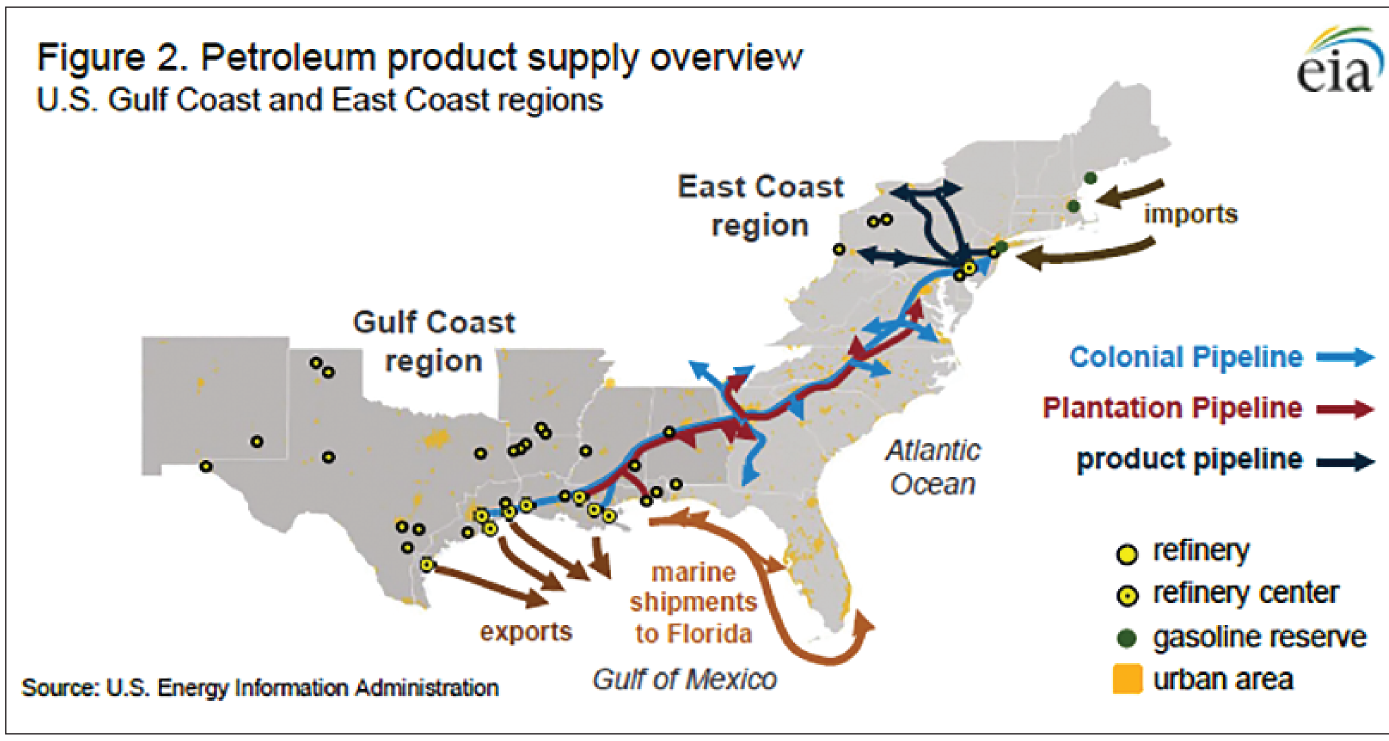
In preparation for the system restart, Colonial Pipeline has taken delivery of an additional 2 million barrels of fuel from refineries for deployment upon restart, the company said in a May 11 situation update.

ANS fell behind Brent May 10 in the race to $70, plunging $1.41 to $67 after closing 12 cents above Brent on May 7. Brent edged up May 10 by 4 cents to $68.32, while WTI rose 2 cents to $64.92.

All three of the indexes moved modestly higher on May 11.

U.S. crude exports fell for the week ending May 7 to 1.8 million barrels per day, the lowest level since October 2018, while crude inventories were 0.4 million barrels lower, according to the U.S. Energy Information Administration.

The combination of lower exports and a crude draw is considered by analysts to be bullish for prices.



Demand to outstrip supply

Demand levels that outstrip supply in the second half of 2021 may pull oil prices higher.

Under the current Organization of the Oil Exporting Countries production scenario, supplies won't rise fast enough to keep pace with expected demand recovery, the International Energy Agency said in its May Oil Market Report.

As vaccination rates rise and mobility restrictions ease, global oil demand is set to soar from 93.1 million bpd in first quarter 2021 to 99.6 million bpd by year-end, the IEA said.

Weaker-than-expected first quarter oil use in the United States and Europe and a reduced outlook for India due to its COVID-19 surge led the agency cut its outlook for 2021 demand growth to 5.4 million bpd, 270,000 bpd lower than in its previous report.

The forecast for the second half is largely unchanged on the assumption that the situation in India and elsewhere improves, the IEA said.

World oil supply rose 330,000 bpd to 93.4 million bpd in April and will increase further in May as OPEC+ continues to ease output cuts, the agency said. Based on the current OPEC+ agreement, global oil production is set to grow by 3.8 million bpd from April to December.

For 2021, world oil production is set to rise by 1.4 million bpd year-on-year versus a collapse of 6.6 million bpd in 2020, the IEA said.

Canada leads non-OPEC+ producers with growth of 340,000 bpd while the US is set to contract by an additional 160,000 bpd, it said.

The IEA revised its estimates of 2021 global refinery throughput on demand downgrades, newly announced temporary and permanent shutdowns, and in anticipation of a strong hurricane season in the United States.

"As downward revisions mostly affected 2Q21, we maintain our forecast of a strong ramp-up in refining activity in the next four months, with refinery runs expected to peak in August," the IEA said, adding that after a 7.4 million bpd decline in 2020, refinery intake is expected to increase by 4 million bpd in 2021.

OPEC cautiously optimistic for 2nd half

The global economic recovery seems to be gaining momentum at a diverging pace OPEC said in its Monthly Oil Market Report for May.

"Those economies that are able to gradually contain the pandemic, thanks to vaccination campaigns and other successful containment strategies, and that also have the financial capabilities to provide economic stimulus measures are rebounding quickly," the cartel said.

OPEC expects most of the global recovery to materialize later in the year, but it cautioned that there are still some significant uncertainties.

"The path of the COVID-19 pandemic will be the overarching factor impacting the near-term pace of the recovery, with the potential emergence of further harmful COVID-19 variants posing a particular risk," OPEC said. "Moreover, sovereign debt in most economies has risen to levels at which a lift in interest rates could cause severe fiscal strain."

A further rise in inflation, especially in the United States and the Euro-zone, may cause some tightening of monetary policies, which will need to be watched in the short term, OPEC said, adding that trade-related disputes, especially between the U.S. and China, may continue.

For 2021, OPEC expects world oil demand is to increase by 6.0 million bpd, unchanged from last month's estimate, to average 96.5 million bpd.

—STEVE SUTHERLIN

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