Alaska North Slope a ‘Super Basin’ Ready for Oil Resurgence as Oil Production Expected to Grow 40 Percent in Eight Years, IHS Markit Says

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In a state of arrested development, late-emerging-phase Alaska North Slope Basin holds an estimated 38 billion barrels of oil equivalent in remaining recoverable resources

HOUSTON--(BUSINESS WIRE)--The Alaska North Slope (ANS) Basin -- a prolific source of U.S. oil production previously limited by a number of barriers to entry including cost and access -- is poised to re-emerge as a major source of U.S. energy production, with crude oil output potentially increasing as much as 40 percent during the next eight years, according to new energy research from IHS Markit, a world leader in critical information, analytics and solutions.

Based on recent discoveries, the IHS Markit Plays and Basins: Alaska North Slope (ANS) Basin; Resurgence in an Arrested, Late-emerging Super Basin analysis estimates that the ANS Basin offers 38 billion barrels of oil equivalent (BOE) in remaining recoverable resources (50 trillion cubic feet (TCF) of gas, and 28 billion barrels of oil). IHS Markit said the estimated ultimate recovery (EUR) for the ANS Basin is 54.8 billion BOE, which includes the 38 billion BOE in remaining resources combined with the 16.8 billion barrels of oil produced to date in the ANS.

IHS Markit classifies the ANS Basin as an arrested, late-emerging-phase ‘super basin,’ rather than a mature basin, according to its research criteria.

“Previously thought of as a mature basin, recent large discoveries made in the shallow Nanushuk and Torok formations indicate this basin has a lot of room left to grow beyond the Endicott and Ivishak formations, which are the reservoirs from which the giant Prudhoe Bay and Endicott fields produce,” said Kareemah Mohamed, associate director, plays and basins research at IHS Markit, and lead author of the IHS Markit analysis. “This is why we refer to this basin as being in the late-emerging-phase, because it still has such significant resources to offer.”

IHS Markit said the basin has previously produced 16.8 billion barrels of oil to date, but in 2017, recoverable reserves increased six-fold in previously ignored shallow Cretaceous formations—Nanushuk and Torok—which total an estimated 5 billion barrels.

“According to the IHS Markit analysis, despite the geologic potential of the ANS, potential investment risks include needed service-sector expansion to support expected production growth, uncertainty over whether the state of Alaska will maintain its tax-incentive program, infrastructure access for new entrants, and the potential application of unconventional technology in a complex operating environment,” Mohamed said.

Further, IHS Markit said there is an estimated 9.5 billion BOE of yet-to-find volumes in the National Petroleum Reserve in Alaska (NPR-A), Area 1002 of the Alaska National Wildlife Refuge (ANWR) and central Slope combined.

Aside from the new discoveries, the basin warrants attention from prospective operators because the Alaska North Slope now has fewer barriers to entry for operators, making it more competitive, Mohamed said. Advances in new drilling technologies that help reduce operating costs*, efficiencies from economies of scale, state-level incentive programs for accelerated permitting, and infrastructure investment make this largely onshore conventional basin worth considering anew.

“Cost efficiencies from advances in drilling and operational practices will require the right kind of operator expertise,” Mohamed said. “For example, ConocoPhillips has employed learnings from its Lower-48 unconventional assets to lateral drilling in their Alaska North Slope CD-5 development located in the NPR-A.”

In late 2017, the U.S. administration opened all areas of the NPR-A and Area 1002 of the Alaskan coastal plain (which is part of the ANWR) to possible E&P investment. The prospectivity of the Nanushuk and Torok formations adds more stratigraphic opportunities for operators, while the opening of the ANWR and all areas of the NPR-A, adds to the lateral extent potential as well, Mohamed said.

*ConocoPhillips has used new technologies such as extended-reach laterals to cut costs by 25 percent in the basin, the IHS Markit report noted. "We expect development in the basin to continue to be driven by commercial masters ConocoPhillips
and ExxonMobil, but also by challengers Oil Search and Hilcorp,” Mohamed said. “We anticipate increased bidding activity and farm-ins as established operators expand their presence, and new entrants seek to gain early mover advantage by leveraging low acreage prices to enter newly opened areas.”

New production in the short-term will largely come from ConocoPhillips, ExxonMobil and Oil Search, the IHS Markit report said. Also operators such as Eni are chasing onshore reservoir trends into the shelf area, which is three miles off the Alaskan coast in the Beaufort Sea. This activity is a leading indicator of an approaching wave of near-field exploration on the ANS, Mohamed said.

“For onshore light-oil opportunities in a stable country with a positive investment outlook, the ANS provides a viable alternative to the competitive Lower-48 unconventional basins, where acreage prices are an order of magnitude greater, and have transportation and raw material constraints, even if they are temporary,” Mohamed said.

IHS Markit defines ‘super basins’ as basins that have multiple reservoirs and source rocks, diverse play types across numerous geologic horizons, infrastructure with access to markets, and established service sector and supply chains. Additionally, to achieve ‘super basin’ status, identified basins must hold at least 5 billion BOE in conventional remaining reserves and have already produced at least 5 billion BOE.

To speak with Kareemah Mohamed, please contact Melissa Manning at melissa.manning@ihsmarkit.com. For more information on the IHS Markit Plays and Basins: Alaska North Slope (ANS) Basin: Resurgence in an Arrested, Late-emerging Super Basin analysis, contact clare.fletcher@ihsmarkit.com.

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