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## Prospects for ANS Renaissance

Increased drilling and production could boost export volumes.

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### Morningstar Commodities Research

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### Data Sources for This Publication

Alaska Department of Revenue  
EIA  
California Energy Commission  
To discover more about the data sources used, [click here](#).

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### Rail Competition Restricted

Alaskan crude production declined from a peak of over 2 million barrels/day in the late 1980s to an average 0.5 mmb/d in 2018, according to the Alaska Department of Revenue. Higher prices for this medium sour crude now offer producers an incentive to expand output and exploit export potential to Asia. Refineries in Washington State and California consume most Alaska North Slope crude. Recent limits placed on Bakken crude sent by rail to Washington State restrict any growth in refinery use of competitive shale grades — potentially widening the domestic market for ANS. This note looks at Alaskan crude production and market prospects.

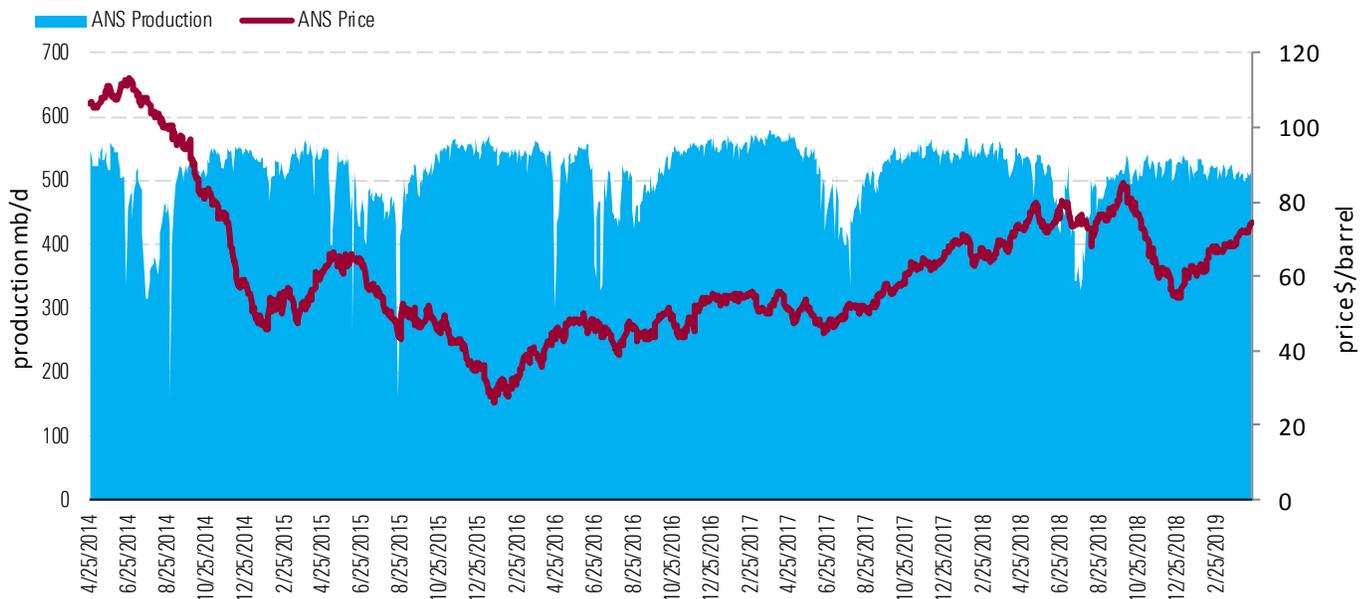
When most U.S. crude exports were banned in the 1970s to preserve dwindling national supplies, Alaskan crude was exempted from that rule during the 1980s. A further requirement that the state's most prolific ANS grade be shipped to market using expensive U.S. flag Jones Act tankers priced Alaskan crude out of world markets. When the export ban was lifted at the end of December 2015 (including the Jones Act restriction), ANS (a medium sour crude with an API gravity of 31.5 and 0.96 % sulfur) became an obvious candidate for overseas sales. That's because of its remote production location far away from U.S. refining markets and its relative proximity to Asian refineries. Many refineries in China, Japan, and South Korea typically process medium sour grades from Russia and the Middle East that are similar to ANS, which can be delivered to Asia from Alaska in half the four-week journey time from the Arab Gulf. Since then, as we described in an October 2017 note, (see "[West Coast Export Boom – Prospects for ANS and Bakken](#)") lower Alaskan production has restricted supplies to feeding regional refineries in Alaska, California, Washington State, and Hawaii. Unlike the U.S. Gulf Coast where surplus shale crude depressed domestic prices to attract overseas buyers, the lack of new ANS production has kept prices higher and closed the export arbitrage window.

### Reversal

Today, there are better prospects for reversing an ongoing decline in Alaskan production that peaked at 2 million barrels/day during 1988 and has ebbed since to an annual average 510,000 barrels/day in 2018. Exhibit 1 shows daily Alaskan output (shaded area left axis) and prices (red line, right axis) over the past six years. Recent new discoveries and application of more efficient technologies in the Prudhoe Bay, Alaska, region where ANS is produced led IHS Markit to forecast in August 2018 that output could grow by 40% in the next eight years to 2026. Increased investment by legacy producers Conoco Phillips, BP, and ExxonMobil, as well as newer discoveries operated by Repsol, ENI, Hilcorp, and Australian company Oil Search, have all shown promise for future output. Note that these expansions underway do not involve the Alaska National Wildlife Reserve or the offshore Artic Ocean that were opened when the

Trump administration overruled Obama-era restrictions in 2017. Last week, the administration appeared to roll back that ruling until after the 2020 election in response to public opposition to expanded drilling. Since the new discoveries and drilling described above are happening outside of these environmentally disputed areas, they will not be impacted.

**Exhibit 1** Alaskan Crude Production and Prices



Source: Alaska Department of Revenue, Morningstar.

Since the shale era, any plans to expand ANS output have been overshadowed by rapid growth in Texas and North Dakota production that require lower investment and are closer to U.S. refineries. However, the attraction of ANS-quality crude to both West Coast and Asian refiners helps justify new investment today at a time when the world is arguably over-supplied with light shale crude. And although Alaskan drilling costs are high, producers can leverage existing infrastructure, such as the 2.1 mmb/d Trans Alaska Pipeline that carries crude 800 miles south from Prudhoe Bay to the ice-free deep-water Valdez oil terminal from where it can be shipped to U.S. or overseas destinations. Similar cost savings achieved by linking to existing infrastructure have increased investment in offshore Gulf of Mexico drilling recently where typical crude quality is also medium sour (see our January 2018 note: [“Is Offshore Crude A Better Deal for U.S. Producers and Refiners”](#)).

**TAPS Room**

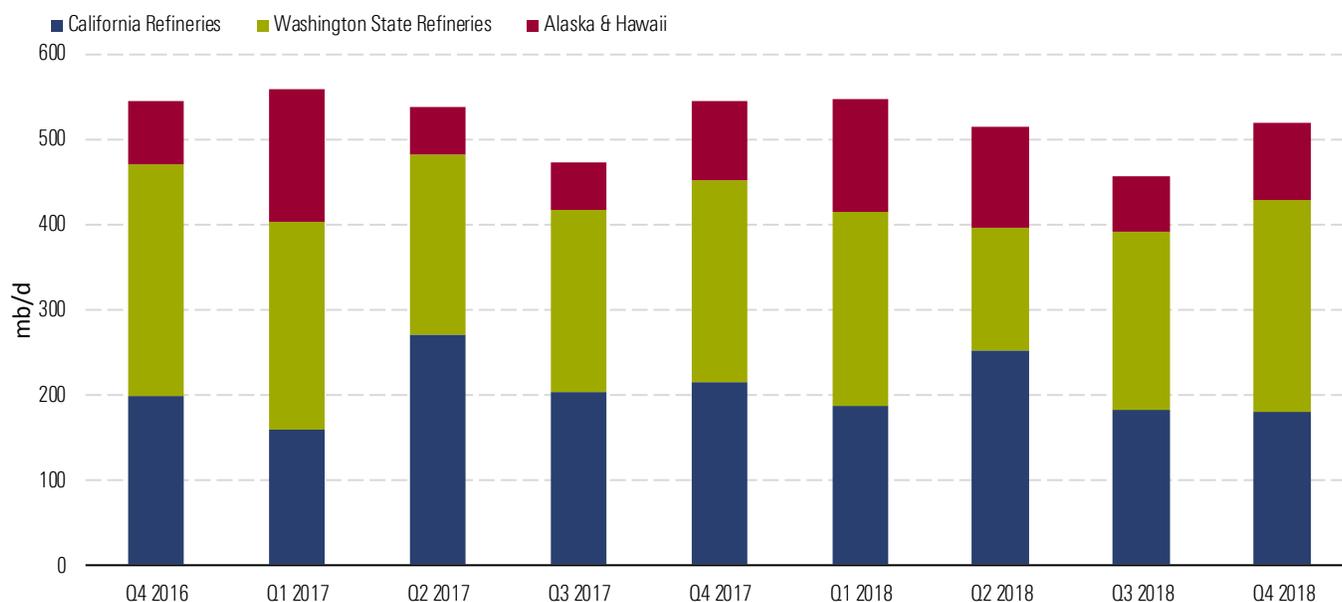
With current Alaskan output not much over 500 mb/d there’s plenty of room on the TAPS pipeline for a 40% increase to around 700 mb/d. At that level, ANS production would begin to exceed regional domestic demand and encourage export flows.

Now, however, lower output and a lack of ready alternatives for regional refiners has raised ANS prices relative to both domestic and international grades. ANS prices between January and April this year averaged a premium over \$9/barrel above domestic benchmark West Texas Intermediate at Cushing, Oklahoma, nearly \$0.50/barrel above international benchmark Brent and \$0.65/barrel above Mid-East equivalent OMAN crude. ANS prices need to retreat below OMAN to compete in Asian export markets.

### Current Demand

Current ANS production is either consumed by Alaskan refineries or shipped from Valdez on Jones Act tankers to Washington State and California, with a smaller volume going to Hawaii and exports confined to occasional spot cargoes (two in 2018 for example). Exhibit 2 shows our estimate of where ANS was consumed between the final quarter of 2016 and the fourth quarter of 2018. Volumes shipped to California (blue bars) are from California Energy Commission reports. Volumes into Washington State (green bars) are calculated from that State's Department of Ecology crude movement reports. The balance (red bars) is quarterly production minus California and Washington that we assume is mostly consumed in Alaska. During 2018 the averages worked out at 200 mb/d to California, 208 mb/d to Washington State, and 108 mb/d to Alaska.

**Exhibit 2** ANS Refinery Demand



Source: Washington State, California Energy Commission, Alaska Department of Revenue, Morningstar.

### Changing Supply

With current supply and demand for ANS tight, prospects for exports depend on increased production exceeding regional refinery requirements. Important variables in that equation include the impact of competing crude supplies from Canada and North Dakota delivered to Washington State refineries. On average during 2018, North Dakota Bakken represented 17% and Canadian crude delivered by pipeline

20% respectively of Washington feedstock, with most of the rest being ANS. Two potential changes to Washington State refinery supply could affect ANS demand. The first is completion from the Trans Mountain Express pipeline expansion between Edmonton, Alberta, and Vancouver, British Columbia, that would increase Canadian crude supply to the West Coast by 600 mb/d. This much-delayed project, now owned by the Canadian government, may not be complete until after 2021 but would allow Washington refiners to increase Canadian crude runs at the expense of ANS. Increased Canadian supplies at Vancouver could also be shipped down the West Coast to California with the same impact—freeing up more ANS for potential export.

The second change impacts the volume of Bakken crude railed from North Dakota to Washington State refineries. These shipments that averaged 148 mb/d during 2018 could be curtailed or limited by a recent Washington State regulation concerning the quality of crude permitted to move by rail. That regulation, recently sent to the governor for signature, seeks to restrict crude flammability by imposing a 9.0-pounds/square inch limit on crude Reid vapor pressure. Such a limit would reduce crude volatility in case of a rail accident but is regarded as prohibitively expensive by Bakken producers since it requires pre-processing crude to remove light components. The implication is that a ban on crude over 9.0 RVP would preclude shipments to Washington refineries, rendering them increasingly reliant on ANS supplies. The latest iteration of the legislation would, however, only apply to incremental crude barrels representing 10% more than previously shipped by rail. That would reduce the impact on current ANS demand.

### **Time Is Right**

Whatever happens with Bakken crude-by-rail or Canadian crude supplies, potential for increased ANS exports relies firmly on production shifting to a higher gear in the next several years. Right now, the relative shortage of sour crude in world markets caused by OPEC production cuts and sanctions on Venezuela and Iran easily justify increased output of medium sour grades like ANS, which is pricing higher than Brent. Producers are making that bet by investing and drilling to increase output—hoping to leverage existing infrastructure to keep costs down. If the forecast increase in production happens there should be a market for more ANS—either at West Coast refineries or in Asian markets. ■■

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