
U.S. Condensate to Replace Sanctioned Iranian Barrels?

Opportunity in tight Asian market.

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Data Sources for This Publication

U.S. Energy Information Administration

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Ultra-Light Crude

An opportunity exists today for U.S. producers of ultra-light condensate crude to export higher volumes to Asian markets. This opportunity is afforded by a tightening Asian market for condensate that is prompting prices averaging \$3/barrel over the U.S. Gulf Coast. The market is expected to tighten further as Iranian supplies are reduced by the new imposition of U.S. sanctions in November. Iran is also building out domestic condensate production capacity that reduces export capability. U.S. shale crude is typically light in quality, and some basins such as the Eagle Ford in South Texas and the Delaware Basin in New Mexico have produced an abundance of ultra-light condensate during the shale era since 2011. Condensate has multiple uses, including as a feedstock for petrochemicals, as a diluent to reduce the viscosity of heavy crudes, and as a feed for simple refineries known as condensate splitters. With proven potential to increase output, particularly in Texas, and a growing market in Asia, this note describes why U.S. producers should be pushing exports.

Condensate

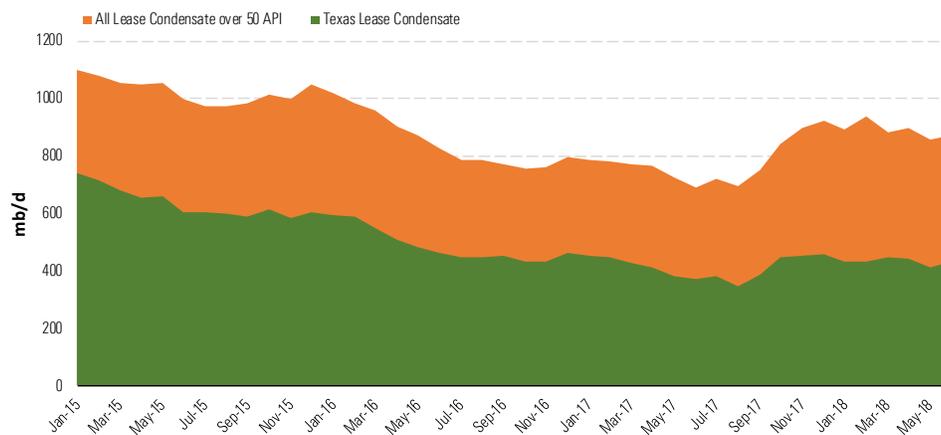
Condensate has many definitions and is produced using two distinct methods. The basic quality definition for all condensate is that of a very light hydrocarbon with an API gravity over 50 degrees. Lease condensate is produced at the wellhead when liquids suspended in natural gas condense at surface temperatures and pressures. Lease condensate can be a byproduct of drilling for natural gas, as well as for crude oil. Plant condensate is produced when natural gas is processed at the surface to remove liquids and when those liquids are subsequently separated to produce purity natural gas liquids. Condensate-like materials such as naphtha are also produced during petroleum refining. Lease condensate is typically sold as a light crude and is often blended with heavier crudes to meet refinery requirements. Plant condensate is typically sold separately into the gas liquids market.

Production

Production of lease condensate crude is lower today than at its peak over 1 million barrels/day in 2015 according to the Energy Information Administration. Condensate output averaged 890 thousand barrels/day in the first six months of 2018, or just under 9% of total U.S. crude output over the same period. An average of 49% of condensate was produced in Texas during 2018, down from 62% during 2015 (Exhibit 1). Condensate production in Texas fell, along with output from the Eagle Ford Basin in South Texas after the 2015 price crash, when producers abandoned drilling more rapidly than in the West Texas Permian due to lower returns. In the past two years, shale output has increased rapidly again, primarily in the Permian, where a lot more condensate has been produced lately, as well as latterly in the Eagle Ford, where output is up 13% since January. With the Permian currently constrained

by limited pipeline takeaway capacity, more producers have turned to the Eagle Ford. As a result, condensate production is expected to increase this year and next.

Exhibit 1 Production of U.S. Condensate Above API 50 Degrees



Source: EIA, Morningstar

During the first shale boom between 2011 and 2015, condensate was heavily discounted by refiners because it was considered too light for typical refinery configurations. Eagle Ford condensate was shipped by barge along the Gulf Coast from Corpus Christi, Texas, to refineries in Houston and Port Arthur, Texas, as well as Louisiana, where it was blended with heavier imported grades to meet feedstock requirements. With production increasing, several midstream companies built condensate splitters—a kind of simple refinery—to refine the light crude into gasoline and diesel components.

During 2014, about 18 months before federal crude export regulations were lifted in December 2015, the U.S. relaxed regulations defining condensate as crude oil so that it could be exported as partially processed product if it first went through a stabilizer to remove light ends. The result was a mini-boom in condensate exports. However, the lifting of the export ban, as well as the pullback in production following the crude price crash in 2015, seemed to end interest in condensate production and exports. Lower production came at the same time as condensate splitters came on line, meaning that demand pushed up prices to the same level as regular crude grades such as West Texas Intermediate.

Export Market

The export market for U.S. condensate can be divided into two main demand centers. The first is the diluent market, driven by Canada, that requires significant volumes of light crude to blend with its heavier grades to allow them to flow in pipelines as dilbit crude. In 2018, the Canadian market has been oversupplied with light crude, so that prices for diluent have been discounted by an average of around \$5/barrel in Edmonton, Alberta, versus Eagle Ford Condensate at the Gulf Coast according to Platts. Therefore, although some volumes of lease condensate are shipped from the U.S. to Canada, more of the diluent reaching Western Canada is likely plant condensate.

The second demand center for condensate exports is as a feedstock for Asian petrochemical plants. Depending on their configuration, these plants either consume condensate as a raw feedstock or they pre-process it in condensate splitters that produce naphtha for use as a blendstock for refining and for petrochemicals. The petchem plants produce products such as ethylene, propylene, and butadiene used in downstream plants to produce various plastics. The type of paraffinic naphtha produced by Eagle Ford condensate is particularly suited to these petrochemical plants. The major markets for this kind of condensate are Japan, South Korea, and China.

As stated earlier, Asian condensate markets are currently tight because of a disparity between growing demand as new plants come on line and lower supply. On the supply side, changes in condensate exports from Iran have played a significant role in tightening the market. The impending re-imposition of sanctions on Iran by the U.S. is likely to further constrain Iranian supplies. In 2017, Iran produced an annual average 650 mb/d of condensate, primarily from the giant 3,700-square-mile South Pars field that is shared with Qatar (each owns 50%; Qatar calls its half the North Dome), which is the world's largest natural gas field according to EIA). And prior to 2017, most of Iran's condensate was exported to Asia, with South Korea and Japan being major customers. However, in May 2017, Iran brought on line the first phase of the 360 mb/d Persian Gulfstar condensate refinery that uses 120 mb/d of Iranian condensate as feedstock. Phase 2 of the refinery came on line in June 2018 and will also consume 120 mb/d of condensate. As Iran has consumed more condensate in its domestic refineries, its exports have fallen, tightening the Asian condensate market.

Sanctions

The U.S. imposition of sanctions on Iran from November 2018 onward is primarily targeted at crude oil, and analysts are expecting a reduction of that country's crude exports by 1.5 mmb/d as a result. The U.S. has sent strong diplomatic signals to make sure the Iranian oil embargo sticks, including the use of financial sanctions against transgressors. The resultant aversion to doing business with Iran is almost certain to affect its condensate exports as well, although in the past, the U.S. has not classified condensate as crude. Regardless of how much Iranian condensate remains available for export, the current tight conditions represent an opportunity for U.S. producers to gain valuable market share. To do so would be in the same vein as Saudi Arabia increasing crude output to offset the impact of U.S. sanctions on Iran - gaining market share in the process.

With prices for Qatar's benchmark deodorized field condensate, or DFC, trading at an average \$3/barrel premium to Eagle Ford condensate at the Gulf Coast this year, it makes sense for U.S. producers to be increasing exports. In the circumstances, there would appear to be fewer constraints to increasing output or shipping more condensate overseas than to domestic markets. Production is increasing in the Eagle Ford, close to the Gulf Coast Port of Corpus Christi, and there are none of the pipeline limitations currently experienced in the West Texas Permian Basin. In fact, since the early days, many of the Eagle Ford pipelines have been dedicated to condensate to preserve quality. New pipelines expected on line from the Permian in 2019 and 2020 will also segregate condensate.

Time is of the essence for U.S. producers to grab this opportunity, however, since several competing suppliers are knocking at the same door. Most notable is the northwest Australian Ichthys LNG project that came on line at the end of July 2018. This gas project (62% owned and operated by Japan's Inpex, and 32% by France's Total) will produce at least 85 mb/d of condensate over 40 years once it begins exports this month and will join existing condensate flows from Australia's North West Shelf field. Australian production and light crude volumes from Indonesia, Malaysia, and Vietnam are all geographically closer to Asian buyers than the U.S. Gulf.

U.S. crude exports are maturing since the early days of ad hoc sales whenever price arbitrage opened. Now, producers are looking to develop term contract deals with long-term buyers. In the process, they should pay close attention to opportunities such as that provided by the Asian condensate market. ■■

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