
Is Gulf of Mexico Offshore Crude a Better Deal for Producers?

Heavier quality easier to market as supply tightens.

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Data Sources for This Publication
U.S. Energy Information Administration
CME Group
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Shortage of Medium and Heavy Crude

Domestic U.S. crude production reached a weekly record 11.9 million barrels/day during the week ending Jan. 11, 2019, according to the Energy Information Administration. While most of the doubling in U.S. crude output over the past seven years has come from shale basins, there has been a steady increase in conventional production from the U.S. federal Gulf of Mexico, which is up 31% on an annual basis between 2011 and 2018, according to the EIA, and forecast to increase by 27% to 2.2 mmb/d in 2020. While lower crude prices since October 2018 threaten all U.S. production economics, the quality of Gulf crude as well as the longer life of offshore wells make it just as attractive as shale to large producers today. On top of that, in a market where OPEC cuts, Iranian sanctions, Venezuela's meltdown, and Canadian production controls has created a shortage of medium and heavy crude, Gulf of Mexico grades are valuable to both domestic and overseas refiners. The average premium of Gulf Coast sweet benchmark Louisiana Light Sweet over medium sour Gulf grade Mars has narrowed 36% in January 2019 to \$2.11/barrel compared with its \$3.31/barrel average during 2018. This note looks at recent resurgence in Gulf crude output and reasons why it's more attractive in today's market.

New Projects

Offshore Gulf crude production peaked at 1.75 mmb/d in September 2009, six months before the April 2010 BP/Macondo blowout. That disaster slowed new production, as did the oil price crash at the end of 2014. However, a combination of cost cutting, new technology, and targeting tie-ins to existing infrastructure allowed offshore production to recover to record levels in 2017 and 2018. Production in the Gulf is divided into shallow-water wells on the continental shelf and deep-water plays farther offshore. Most new crude production today comes from deep-water projects. In the first week of January 2019, BP approved plans for a significant Phase 3 expansion of its Gulf of Mexico Atlantis field to produce an additional 38 mb/d by 2020 after advanced seismic imaging technology revealed 400 million barrels of oil in place. BP also announced new Gulf oil discoveries at the Manuel and Nearly Headless Nick prospects and the company's Thunder Horse Northwest Expansion came on line in October 2018. In November 2018, Chevron announced first oil from its delayed Big Foot project that was discovered in 2006 that will produce up to 75 mb/d over an estimated 35-year life. In May 2018, Shell started production from the Kaikias field discovered in 2014. Smaller independent producers funded by private equity are also drilling legacy fields where new wells are tied to existing takeaway and processing infrastructure.

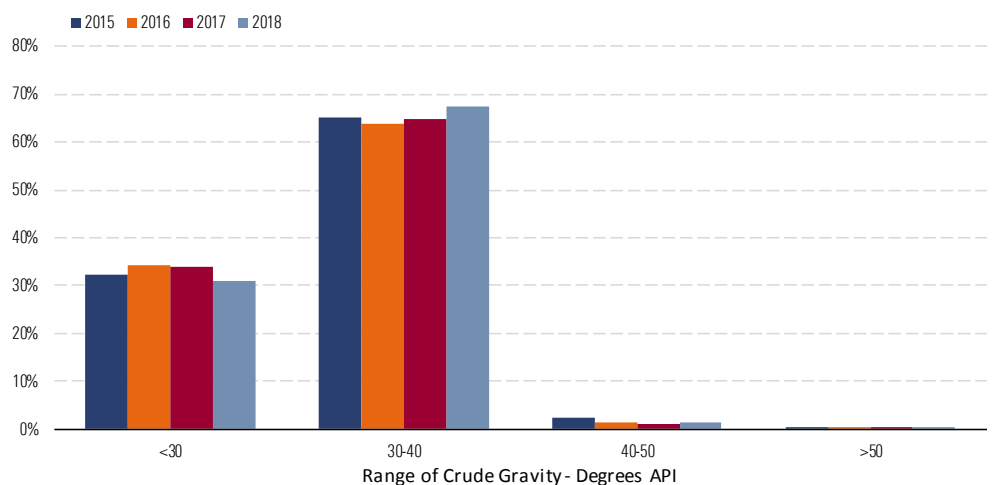
Better Economics

Offshore drilling and production costs are generally higher than for onshore shale basins, but they are coming down. According to a December 2018 Wood Mackenzie report, the cost of developing deep-water barrels has fallen by more than 50% since 2013. The difference between break-even costs for onshore shale plays at around \$40/barrel and deep-water at \$48/barrel has narrowed significantly in recent years. The advantage of offshore drilling is that once up and running, individual wells can produce as much as 30 mb/d compared with less than one tenth of that in even exceptional shale wells. Offshore well decline rates are also far slower than for shale, where output can fall by 70% in the first year. Nevertheless, offshore Gulf drilling is far from risk-free. Producers today are cautious and stick to familiar basins to keep a lid on development costs. While the Trump administration has loosened the regulatory environment to encourage new offshore Gulf drilling with tax breaks and by rolling back drilling restrictions, this hasn't resulted in much investment outside existing development zones.

Medium Heavy

Aside from different investment and drilling environments between offshore Gulf and onshore shale, another significant divergence is crude quality. Whereas shale basins typically produce light sweet crude, offshore Gulf fields mostly produce medium sour and heavy crude. According to EIA data, about 67% of Gulf crude output between January and October 2018 was 30-40 degrees API gravity and 31% was heavier – below 30 degrees API (Exhibit 1). Most shale crude is 40 degrees API gravity or lighter. These medium and heavy grades are more suited to U.S. Gulf Coast refineries built to process heavier sour crudes. The average gravity of crude processed in the region between January and October was 32.6 degrees API. So, while shale crude production is booming, and refineries are increasing the volume of light crude they process, most new shale production needs to find buyers in export markets rather than at home.

Exhibit 1 Gulf of Mexico Crude Gravity Distribution



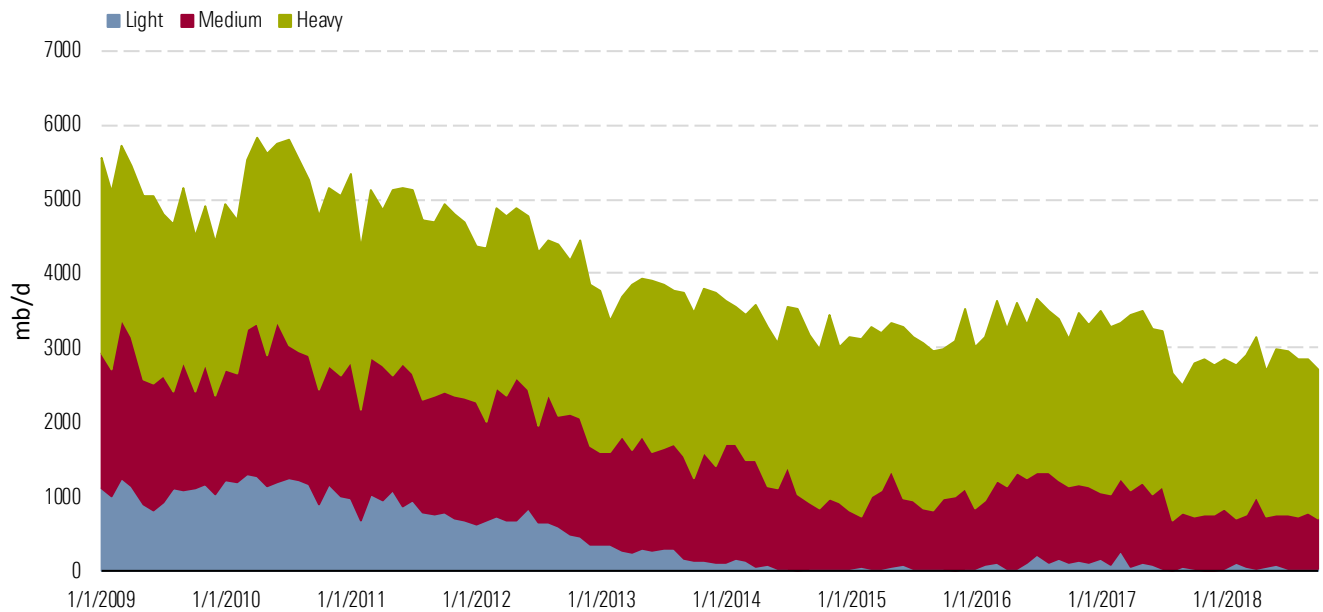
Source: EIA, Morningstar.

That home-field advantage for Gulf crude is also reflected in an opportunity to replace imported feedstock at Gulf Coast refineries. Despite record production, the U.S. remains a net importer of crude oil. Average national refinery demand of about 17 mmb/d requires about 6 mmb/d of imports over and above domestic production of 11 mmb/d even if every U.S. barrel is processed domestically. In fact, imports still averaged around 8 mmb/d in 2018, according to EIA, due to mismatches in crude quality requirements and refinery location. These mismatches left the Gulf Coast exporting an estimated 1.9 mmb/d of domestic crude and the East Coast importing light sweet barrels because refinery needs in that region aren't met by locally available crude.

Import Replacement

Looking specifically at the Gulf Coast, overall crude imports have declined significantly in the face of booming shale output. Exhibit 2 shows crude imports to the Gulf Coast since 2009 by quality. Light crude imports represented 21% of the average 5 mmb/d imports during 2009. By 2017, light crude imports had fallen to just 2% of the 3 mmb/d total. But the Gulf Coast region continues to import medium and heavy crude grades. In 2018, these represented an average 2.1 mmb/d of heavy crude and 0.7 mmb/d of medium crude between January and October. Of these imports, the entire medium and a good deal of the heavy barrels could be replaced by incremental Gulf production. Because of their proximity and ease of access to this market, Gulf producers have a natural advantage selling new output to Gulf Coast refiners. That advantage translates to security of demand when competing against imports. This year, a shortage of heavier crudes has developed at the Gulf Coast as a result of the OPEC and partners December agreement to cut production, meaning there is less medium heavy crude available from Saudi Arabia. Coupled with plunging heavy crude exports from Venezuela's battered economy and Alberta's cap on western Canadian heavy crude output (see our December note: [Alberta Intervenes to Protect Canadian Producers](#)) Gulf medium sour grades like Mars blend are trading at a 36% narrower discount to domestic light sweet crudes like LLS this year so far.

Exhibit 2 Gulf Coast Crude Imports by Gravity



Source: EIA, Morningstar.

Export Demand

In addition to domestic import replacement, Gulf crude is also in demand overseas. As they did in 2017, OPEC cuts this year have created a shortage of medium sour grades that make Gulf of Mexico crudes like Mars attractive to overseas buyers looking to replace Middle East barrels. Lower production of Mideast grades in 2017 pushed up prices in Asia enough to justify freight costs to ship barrels from the U.S. Gulf Coast as we discussed in a November 2017 (see [Can GOM Crude Exports Keep Growing](#)). That arbitrage opportunity has opened again this year. And even though shale production is driving the overall increase in U.S. crude exports, OPEC attempts to control output to keep prices higher put GOM producers in a better position to replace those barrels. This alternative supplier advantage is also true for Iranian crude supplies removed from the market by U.S. sanctions. Although some Iranian crude is very light condensate that can be replaced by shale (see our September note [U.S. Condensate to Replace Sanctioned Iranian Barrels](#)) the majority of their output is medium and heavy crude that Gulf production is a better match for.

Competitive Advantage

The hard fall in crude prices that knocked 40% off West Texas Intermediate values between early October and late December casts doubt on the economics of any new U.S. crude production let alone shale versus offshore. However, given recent crude price recovery as OPEC reins in production early in 2019 and interruptions in supply from Iran, Venezuela, and Canada, we see Gulf production remaining competitive in domestic and export markets. That market advantage for Gulf crude is only one factor today's producers consider. Heavy investment in shale drilling since mid-2016 has produced a flood of new light crude with at least a million barrels/day more expected in 2019 and into 2020. Shale producers are unlikely to abandon ship and head for offshore platforms en masse. But as the U.S. consolidates its

position as one of the world's largest producers and a major exporter, the long-term value and importance of offshore production shouldn't be underestimated. ■■

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