Getting Closer — Four Projects Vie to be Next Deepwater Export Terminal

Proposals Face Challenges With Crude Access, Regulations and Support

- **Deepwater ports face potentially high costs, lengthy reviews**
- **Enterprise's SPOT emerges as clear leader in regulatory race**
- **Texas GulfLink aims to benefit from Houston's pipeline access**
- **Blue Marlin stands out for reliance on existing assets**
- **Bluewater takes unique approach with no offshore terminal in plan**

1. Introduction

To say the U.S. crude oil market has undergone a transformation over the last 15 years would be an understatement. The Shale Revolution has allowed producers to unlock volumes that were unimaginable to many not long ago, especially in the champion of U.S. production areas — the Permian Basin. As U.S. production volumes grew (stacked bars in Figure 1 on following page), refineries started consuming their fill (blue segments of stacked bars). However, even as production kept growing and refineries became satiated, U.S. crude oil exports were largely limited to Canada, causing concern at the time that the Shale Renaissance could hit a wall. Then, in December 2015, Congress lifted the 40-year-old U.S. crude export ban, allowing U.S. oil to be exported without a license for the first time since 1975 (gray segments of stacked bars). Export volumes took off and are expected to continue to grow along with U.S. production throughout the 2020s, propelling market interest for new efficient export terminals along the Gulf Coast.

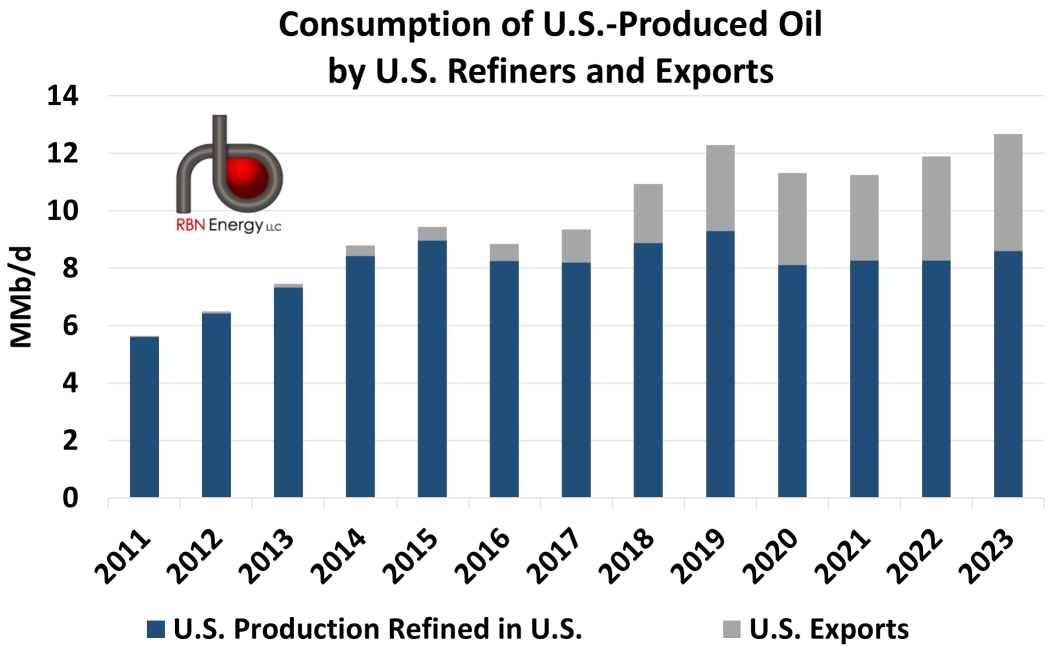

Figure 1. U.S. Crude Oil Production, Volumes Refined, and Volumes Exported. Source: RBN

This Cinderella story has resulted in an unprecedented buildout of crude oil pipelines between production basins and market centers (especially between the Permian and the Gulf Coast) and has fostered the development of several export-focused marine terminals across the coastline of Texas and Louisiana. The most successful terminals have been those able to facilitate the most efficient and cheapest per-barrel exports — specifically the Enbridge Ingleside Energy Center (EIEC) and South Texas Gateway (STG) terminals in Corpus Christi that can accommodate the partial loading of Very Large Crude Carriers (VLCCs). Due to their unique deep-draft facilities, these docks can provide freight savings by avoiding most of the high cost of reverse-lightering. To load a VLCC from other onshore terminals, it would require three Aframaxes or Suezmaxes reverse lightering their cargoes onto the VLCC compared to just one reverse-lightering operation for these two Ingleside facilities.

As production and exports are forecast to grow, and shippers continue to focus on cost, efficiency and reliability, several proposed deepwater export terminals with single-point mooring (SPM) systems for VLCC loading are being marketed. How much of an advantage might these new, SPM-based offshore terminals provide compared to their onshore counterparts, however?

To begin to answer that, we need to describe an SPM project and explain how it differs from an onshore dock. An SPM is a system located in an offshore area with water depth great enough to allow for the full loading of vessels, including VLCCs — typically 65 to 70 feet. As shown in Figure 2 (following page), the SPM's catenary anchor leg mooring (CALM) is connected to pipelines buried under the sea floor. Crude oil is then pumped from the CALM through connected floating hoses to a vessel. The undersea pipelines may also be connected to a manned platform, which can provide operational and emergency response services. The CALM or nearby platform is connected to an onshore facility where the crude oil is received from area pipelines and staged for marine loading. With loading rates as high as 85 Mb/hour, large-diameter pipelines are required each step of the way. We should also note that building an SPM facility is no easy feat, with numerous stumbling blocks related to the federal regulatory process and permitting, the subject of **Section 2** of this report.

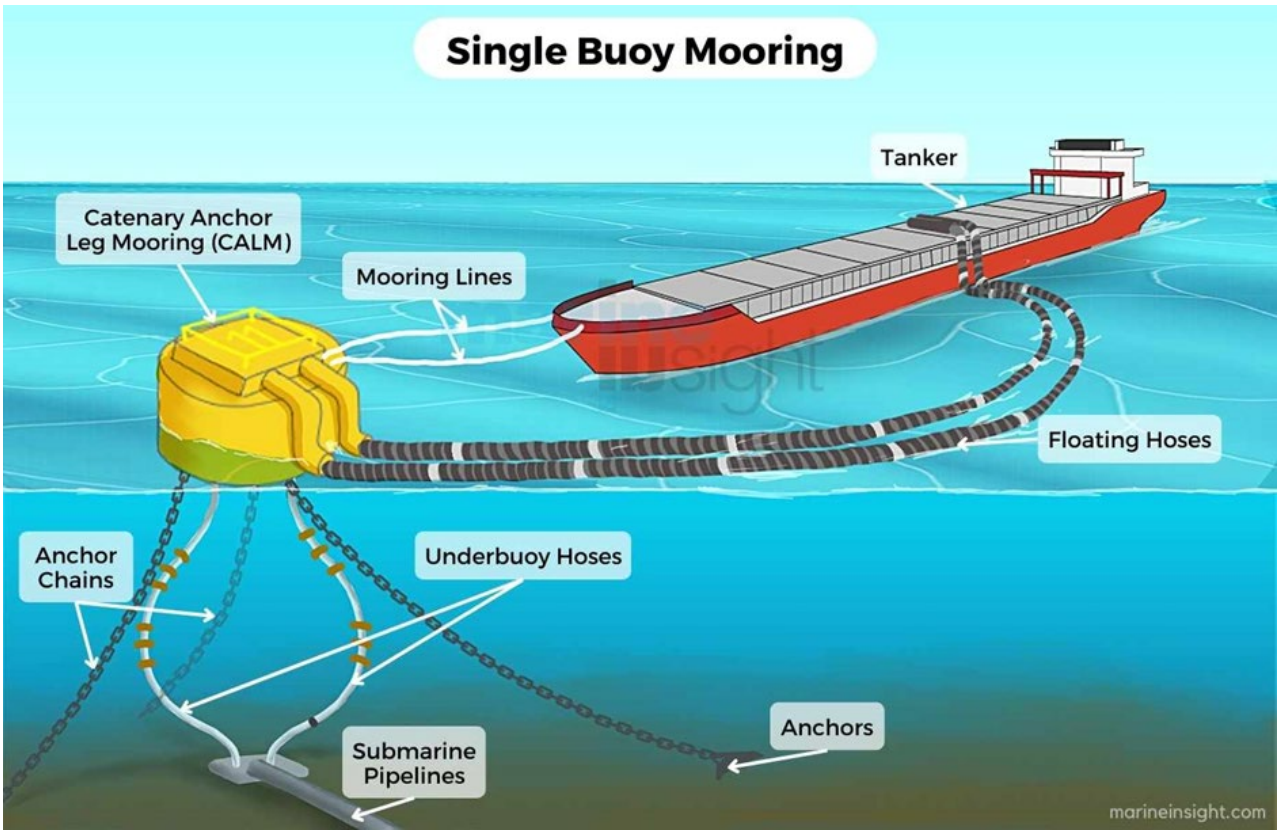

Figure 2. Schematic for Single-Point Mooring System. Source: Marine Insight

Currently, there is only one operational deepwater crude oil terminal with SPMs in the U.S.: the Louisiana Offshore Oil Port, or LOOP, which has three SPMs. LOOP, located 17 miles off Port Fourchon, LA, was completed more than 40 years ago to import crude oil. As a response to the removal of the export ban on crude oil, LOOP began export operations starting in February 2018, when the first VLCC was loaded at the terminal. As LOOP receives crude oil from its onshore storage terminal at Clovelly, LA, most of the volumes exported from LOOP are medium, sour crude oil sourced from the Gulf of Mexico.

In contrast, the offshore terminals now under development would be mainly focused on exporting West Texas Intermediate (WTI) and West Texas Light (WTL), with most of the exported volumes delivered straight from the Permian Basin. There are four projects in the running, each detailed in this report:

- **Section 3**: Enterprise Products Partners' Sea Port Oil Terminal (SPOT).
- **Section 4**: Energy Transfer's Blue Marlin project.
- **Section 5**: Sentinel Midstream's Texas GulfLink project.
- **Section 6**: Phillips 66 and Trafigura's Bluewater Texas project.

The consensus is that not all of these terminals will get built because the market just doesn't need that much additional new crude export capacity in the near future. In fact, the Gulf Coast has prodigious existing crude export capacity of 7.1 MMb/d. That's not to say that 7.1 MMb/d is a sustainable rate of export for the current terminals — there are a lot of externalities besides a terminal's export capacity that can impact the overall export rate like pipeline capacity, tankage and vessel traffic. Nevertheless, that's still way more potential capacity than 2024 average exports of nearly 4 MMb/d and still significantly more than the maximum U.S. weekly export mark of 5.6 MMb/d in February 2023.

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