The Developing Gulf Coast Crude Export Market

Sandy Fielden
Director of Research, Commodities and Energy

Sandy.fielden@Morningstar.com

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Agenda

- Crude Production
- Incremental Barrels Head to Gulf Coast
- The Export Market
- Terminal Buildout
- Transshipment
- Offshore Terminals
- Export Outlook
U.S. Crude Production Revitalized by Shale

Source: EIA
Output Recovers From 2015 Crash – Levels Off in 2019

U.S. Monthly Crude Production Since January 2015

Source: EIA, Morningstar
Productivity Improvements Continue

Top Four Shale Basins – Productivity 2011 – 2019

Source: EIA DRI Sep 2019, Morningstar
Crude Quality vs Refinery Configuration (Jun 2019)

Source: EIA
Gulf Coast Crude Destination

- 56 Refineries
  - 9.9 mmb/d capacity (1.3 added since 2010)
- Crude Storage
  - 365 mmBbl tank capacity Mar 2019
  - 124 mmBbl added since 2010
- 23 Marine terminals in use to export crude
- 30 Long distance transmission pipelines
  - ~ 8.0 mmb/d capacity
- Another ~3 mmb/d coming in next 2 years
Changing Gulf Coast Crude Balance 2010 - 2019

- 2010 - 8.8 mmb/d, supply mostly imports, demand all domestic
- 2018 - 11.9 mmb/d, supply mostly domestic, 1.8 mmb/d exports balance demand
- 2019 (Jul) 12.3 mmb/d supply – exports increase to 2.6 mmb/d
Markets for U.S. Crude

- Export ban lifted December 2015
- Market opened up by OPEC and NOPEC production cuts in November 2016 and November 2018
- U.S. Sanctions on Iran and Venezuela reduce supply again in 2019
- Saudi attacks – heavier supply needs blending with lighter barrels
- IMO 2020 increases demand for light crude
- Growing domestic production encourages discounts that make U.S. crude competitive
World Crude Supply/Demand (Oct 2019 STEO)

- Implied stock change and balance
- World production
- World consumption

Forecast

Source: EIA, Morningstar
Asian Differentials Widen

Dubai & WTI Crude Prices

Source: CME Group, Morningstar
Brent Differential Wider

Brent & WTI Crude Prices

Source: CME Group, Morningstar
Exports Follow Brent Premium to WTI Cushing

Source: CME Group, EIA, Morningstar
Export Markets

Gulf Coast Exports by Destination Region

Source: U.S. Census
Export Infrastructure Requirements

- Crude supply (pipeline)
- Storage (segregation)
- Dock and pumping capacity
- Deep water
Gulf Coast Crude Export Capacity

Crude Oil – Estimated Export Capacity

Total Gulf Coast 5.1 MMb/d

Available Capacity

1,060 Mbd

2,000 Mbd

1,300 Mbd

675 Mbd

Source: RBN Energy
## Crude Export Terminals

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<th>Terminal</th>
<th>2019 Volume (mb/d)</th>
<th>2019 Volume to Aug (mb/d)</th>
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Source: Reuters

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VLCC Tanker Advantage to Asia

- VLCC carries twice the load of Suezmax
- VLCC rates to Asia from USG = lower – assuming availability
- Ship to ship is costly and time consuming
- Term buyers prefer VLCC
- Lately tanker rates up above $5/bbl – making Suezmax preferable

Source: Port of Corpus Christi
Transshipment At Gulf Coast

Source: RBN Energy
VLCC Developments

- LOOP is only Gulf Coast Deep Water Port
- Plans to add 2 docks in Corpus Christi
- Offshore Buoys at Freeport (2), Texas City, Corpus Christi (2), Louisiana, Brownsville (5 permits applied for)
- Will accommodate VLCCs after 2022

Proposed Trafigura Single Point Mooring Buoy System

Source: Trafigura USCG Permit Application
Crude Exports Outlook – Growth Prospects Driven by Demand after 2020

- Exports driven by production growth
- Production has levelled off but will increase at the end of this year into 2020
- Infrastructure will build out to meet term needs but not until after 2022
- Exports continue to grow if demand and prices are supportive
- Exports decline if prices and production fall
- World market balance uncertain – geopolitical factors critical to outlook
- IMO 2020 could surprise to upside
Fuel Oil Sulfur Spreads Set to Widen Through 2020
Regulations upend bunker fuel market.

Slam-Dunk Trade?
Changes mandated by the International Maritime Organization require all oceangoing vessels to burn fuels (known as bunker) with a sulfur content of less than 0.5%, starting in January 2020. The regulation leaves shippers facing higher fuel costs as installing expensive scrubber technology. U.S. refineries are expected to benefit from the changes, as are shale producers. Brent crude of heavy fuel oil prices after 2020 are already reflected in today’s forward curves. This note looks at the impact on U.S. refining and discusses what could go wrong as forward curves suggest a slam-dunk trade.

Sample Note Topics:
- U.S. Crude to Venezuela
- Shale Production Recovery
- Refinery Margins
- Caribbean Storage
- Gulf Coast Lights
- Kinder Morgan Splitter
- Bunkers
- Mexico Refined Products
- Trump Policy Contradictions
- Shale Invasion - LNG to Europe
- OPEC Cuts and Crude Exports
- Shale v. OPEC in Houston
- Louisiana Crude Market Part 3 - The Future of LLS
- Marathon’s Refining Empire
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