Short term crude market outlook: global curtailments and pipe dreams

John Coleman, Senior Analyst, North American Crude Market

December 2018
Stronger global supply outlook: US and Iran upgraded, Canadian outlook cuts in 2019

Pace of global oil demand growth is maintained through 2020

Global liquids supply

Global oil demand

Source: Wood Mackenzie
Iran: US sanctions waivers push up exports until May 2019

Production revised up during six month waiver period; exports assumed to drop if no renewal of waivers next year

Iran liquids production

Iran crude and condensate exports

Source: Wood Mackenzie
Alberta government announces production curtailment of 325 kb/d beginning in 2019
Curtailment serves as effective cap on West Canada production through 2019

Alberta Heavy crude curtailment impact (kb/d)

Note: Capacity utilization shown at 95% supply volumes shown after dilution and local refining consumption

Saudi Arabia and Russia have added substantial volumes to the market

Helping to offset anticipated losses from Iran and continued declines in Venezuela

OPEC + Russia crude supply, excluding Iran

Source: Wood Mackenzie

OPEC and Russia crude production change, April to October 2018

Together, Saudi Arabia and Russia have added ~1 million b/d since production restraint was eased in June

Source: Wood Mackenzie
US L48 Crude Outlook: Persistent market access woes
US Lower 48 Crude and Condensate outlook: year-on-year growth forecast at 1.5 million b/d in 2018 and 1.1 million b/d in 2019

Strong Q3 performance leading to upward adjustments to the base

US L48 onshore crude/condensate outlook

Source: Wood Mackenzie
Robust production growth comes at a price: market access concerns loom into 2019 and 2020 beyond the Permian.
Permian basin and looming coastal concerns
Permian basin crude takeaway outlook: NGL pipes to the rescue

Permian Supply vs. Takeaway capacity

- Plains/XOM JV
- Gray Oak Pipeline
- EPIC Pipeline
- Sunrise Expansion
- Midland-to-sealy Expansion
- Cactus Pipeline expansion
- Existing pipeline capacity
- Permian Gulf Coast
- Cactus II
- Enterprise NGL Conversion Line
- Permian Express Phase 3
- Midland-to-Sealy (Mid-Ho)
- Permian Express 2 expansion
- Local refinery consumption

Source: Wood Mackenzie North America Crude Market Service
2020 Permian pipe utilization forecast: over-pipe scenario broadly lowers most pipe utilization rates

Corpus Christi bound lines see strong utilization

Major Permian long haul pipeline utilization forecast 2020

Note: Pipeline route are for illustrative purposes and not fully inclusive of all Permian long-haul pipelines
Permian volume surge into Corpus Christi forecast to create coastal export bottleneck

Corpus Christi export terminal volume forecast (kb/d)

- South Texas Gateway
- Magellan
- Flint Hills Ingleside
- Moda Ingleside
- Buckeye Partners Texas Hub
- Nustar North Beach
- Corpus Christi Export Capacity (kb/d)
Cushing Constraints
Growing Bakken & Rockies production cascades into the next potential bottleneck and pipeline battleground: Cushing

Midstream companies race to provide solutions for increased demand for transport from Cushing to USGC market

Cushing inflows by supply source (kbd)

Demand for transport from Cushing to USGC market vs. USGC bound capacity (kb/d)

Growing Canadian Heavy and Bakken/Rockies production largely offsets Permian inflow reduction in 2020
Brent-WTI spread to remain elevated until increased pipeline capacity offers relief for Cushing barrels into USGC market

Currently five projects proposed to alleviate existing and future Cushing bottlenecks – one FID will be needed to relieve forecast Cushing stock builds

Brent-WTI spread ($/bbl)

Cushing stocks (millions bbls)

Permian to USGC pipeline in-service modestly reduces Cushing supply inflows

Forecast
Midstream companies rapidly progressing Cushing outflow projects in light of increased demand for USGC transport

Projects on the table to debottleneck Cushing:

- **Seahorse** (Tallgrass Energy, 800 kb/d)
- **Voyager** (Magellan, Navigator, 250 kb/d)
- **Red Oak** (Phillips 66, 400 kb/d)
- **Gladiator** (SemGroup, capacity not announced)
- **Diamond Expansion** (Plains, 200 kb/d)
Disclaimer

Strictly Private & Confidential

- These materials, including any updates to them, are published by and remain subject to the copyright of the Wood Mackenzie group ("Wood Mackenzie"), and are made available to clients of Wood Mackenzie under terms agreed between Wood Mackenzie and those clients. The use of these materials is governed by the terms and conditions of the agreement under which they were provided. The content and conclusions contained are confidential and may not be disclosed to any other person without Wood Mackenzie's prior written permission. Wood Mackenzie makes no warranty or representation about the accuracy or completeness of the information and data contained in these materials, which are provided 'as is'. The opinions expressed in these materials are those of Wood Mackenzie, and nothing contained in them constitutes an offer to buy or to sell securities, or investment advice. Wood Mackenzie's products do not provide a comprehensive analysis of the financial position or prospects of any company or entity and nothing in any such product should be taken as comment regarding the value of the securities of any entity. If, notwithstanding the foregoing, you or any other person relies upon these materials in any way, Wood Mackenzie does not accept, and hereby disclaims to the extent permitted by law, all liability for any loss and damage suffered arising in connection with such reliance.

Copyright © 2018, Wood Mackenzie Limited. All rights reserved. Wood Mackenzie is a Verisk business.