Energy Intelligence

OIL DAILY®

REPRINT
VOL. 71, NO. 108
JUNE 4, 2021
WWW.ENERGYINTEL.COM

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Climate Concerns to Play Greater Role in Crude Pricing

An accelerating energy transition will disrupt traditional quality- and logistics-based crude differentials, according to speakers at the Crude Oil Quality Association's (COQA) virtual summer summit this week.

The transition to lower-carbon energy sources "really has a lot of implications for what needs to be refined, where, and for what crude oils need to be routed where" to account for changes in refiner preferences, according to Dan House of Max Midstream.

That means concerns such as carbon intensity, regional regulations, corporate climate goals and even boardroom pressures will join traditional quality and shipping-cost variables in the complex equation governing crude flows. And that has implications stretching all the way back to the wellhead.

Refinery of the Future

One clear impact of the energy transition is already well under way — a massive rationalization of refining capacity in North America.

Demand was already set to decline regionally prior to the Covid-19 pandemic, and downstream players in North America are closing or converting facilities to produce renewable diesel at a swift pace (OD Oct.23'20).

In the Asia-Pacific region, the situation is different, according to refinery consultancy Turner, Mason & Co. That region is set to add roughly 3.2 million barrels per day of throughput capacity in order to meet expectations of incremental petroleum demand.

However, the configuration of new plants will likely reflect changes in demand patterns, with an emphasis on petrochemical yields rather than transportation fuels.

"You have refinery projects abroad designed to produce 50% petrochemical feedstocks in their yield," said Martin Tallet of Solomon Associates. "That means you have major implications for processing configurations you need and what constitutes desirable crudes and crude qualities … The refinery of the future is going to be very different."

Speakers at the summit said it is too early to tell how this shift might affect crude differentials. While light, sweet crudes may be richer in petrochemical components, complex newbuild refineries are able to extract those products from heavier oil.

Intense Carbon Focus

Meanwhile, increased focus on carbon emissions — from wellhead to tailpipe — is likely to roil crude spreads regardless of whether the end-market is plastics or transportation fuel.

"In the last year, a new kind of shift has happened in what buyers are concerned about, and that is heavily around carbon neutrality, carbon intensity of crudes," House said.

This is an opportunity for organizations such as COQA since they can help determine metrics and best practices to quantify such concerns, House added.

At the moment, sources tell Energy Intelligence, there are no clear standards for assessing any crude's value in energy transition terms.

"The metrics being used are vastly different depending on industry, company and region," Tallet said, noting that some players measure carbon intensity on a per-barrel bases, others on a per-joule basis, and so on.

Burgeoning climate concerns also mean foreign buyers of US crude are becoming increasingly stringent on crude quality, preferring to source "neat" barrels directly from oil fields rather than blended stock from hubs such as Cushing, Oklahoma. Blending can lead to poor performance in refineries and affect emissions profiles.

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An emphasis on emissions is especially acute in European countries, where climate regulations tend to be stricter and more aggressive. Europe accounts for roughly 27% of US crude exports, according to data from the Energy Information Administration.

Ultimately, the market will need to include carbon intensity when determining crude grades, experts say. Several firms, including Energy Intelligence, are working on methodologies to evaluate crude that include carbon intensity and other "green" metrics.

Frans Koster, New York

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