Argus US Gulf coast crude markers for Asia-Pacific

Simple, liquid pricing for North America's exports

Unprecedented flows of North American crude to Asia-Pacific are giving Asian refiners the opportunity to further diversify their feedstocks, buying from the US Gulf coast (USGC), the world's most transparent and liquid crude pricing region. Virtually every physical crude stream traded around the USGC dwarfs the entire North Sea Brent and Mideast Gulf Dubai markets in terms of total spot volumes, number of participants and frequency of deals, leaving no gaps in the daily process of price formation.

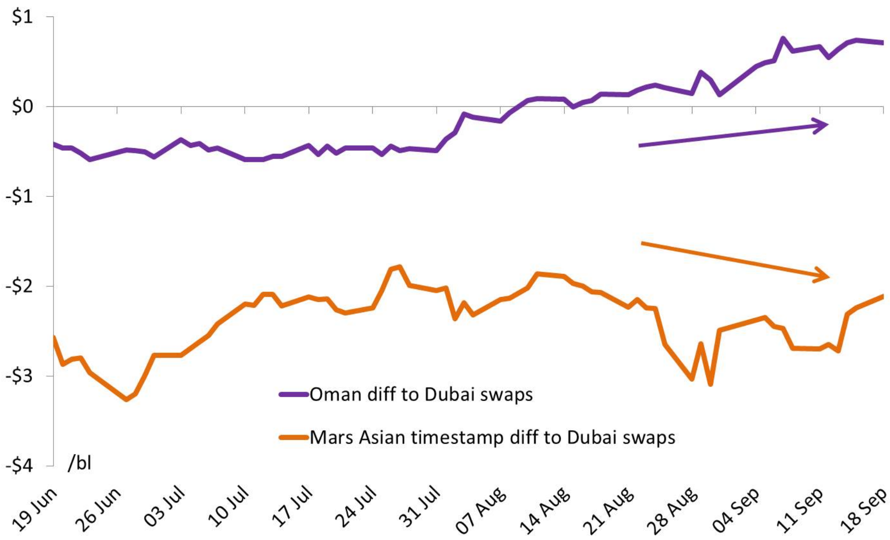
Argus Media calculates daily volume-weighted average prices for all liquid US and Canadian crude streams, based on transactions routinely reported by most participants to produce a widely representative and accurate end of day price. This simple and comprehensive methodology has gained Argus the trust of the North American oil industry for the pricing of most of their spot and term contract volumes for more than a decade.

The majority of USGC spot trade for individual grades is done at a differential to the Argus WTI formula basis price, which mirrors the respective CME Nymex WTI futures contract. Because futures and physical contracts in the US have different expiry dates each month, on the three days immediately after the front-month WTI futures contract expires and before physical contracts roll, Argus derives the front-month WTI formula basis price from the so-called cash spreads traded between the front and the second month WTI physical market. This ensures Argus prices are always tied to trade of physical crude, anchored on the vast hedging liquidity of Nymex WTI futures.

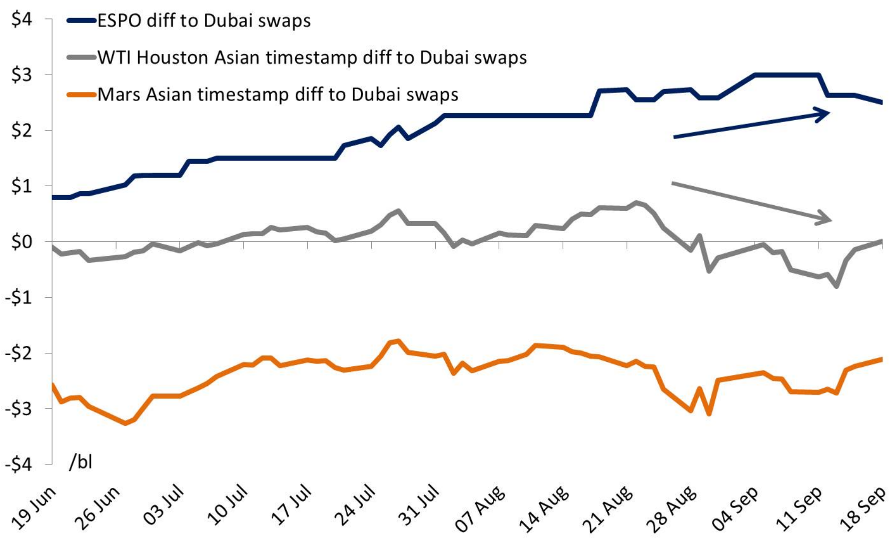
The outright prices (volume-weighted averages) for individual grades, such as WTI Midland, WTI Houston, Light Louisiana Sweet (LLS) and Mars are also markers themselves, as frequently other smaller crude streams trade at differentials to these more liquid grades. This happens with Poseidon and Southern Green Canyon, two crude streams that, aside from trading at a differential to the Argus WTI formula basis price, often trade at a differential to Mars. These three medium sour crudes produced on the USGC are the component grades of the Argus Sour Crude Index (ASCI), the benchmark for US imports from Saudi Arabia, Kuwait and Iraq since 2010.

As US oil production and exports continue to grow, Argus aims to make the transparency and liquidity of these North American benchmarks available to other regions, with the USGC seemingly on track to become a global crude pricing hub. Participants using

Mars-Oman pricing relationship key for arbitrage of medium sour grades to Asia



US crude competing with grades from every other region in Asia-Pacific



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alternate crude benchmarks for their purchasing and refinery modelling in Asia must have a comparable US price to gauge the viability of arbitrage flows from North America at any given point in time. The Argus US Gulf coast markers for Asia-Pacific align the timestamp of the main USGC physical crude markers with the 4:30pm Singapore Nymex WTI timestamp, when Mideast Gulf sour crude benchmarks Oman and Dubai are priced.

The Argus US Gulf coast markers for Asia-Pacific are fully hedgeable, using the underlying Nymex WTI futures and the exchange-listed and highly liquid swaps for the individual Argus prices. Open interest in Argus WTI Midland, for example, topped 250mn bl in late June 2017, surpassing similar measurements for Dubai open interest. Similarly liquid hedging instruments are listed for WTI Houston, LLS and Mars, completing the suite of four grades for which Argus publishes prices with an Asian timestamp.

Argus publishes the differential for each of these four USGC crude markers for Asia-Pacific to Dubai swaps in the Asia-Pacific section of the Argus Crude market service, establishing a direct relationship between the value of North American crude and that of other staple grades from the Mideast Gulf and Russia. For comparison against lighter grades from west Africa and the North Sea, the Argus US Gulf coast markers for Asia-Pacific also match the 4:30pm Singapore marker for Ice Brent. By using these differentials, producers, trading firms and refiners can determine how competitive US and Canadian crude is relative to grades from every other region, as they aim to reach a much higher degree of diversification.

US Gulf coast markers for Asia-Pacific, 4:30pm Singapore	$/bl
WTI Houston, Asian timestamp	
Aug	47.74
Sep	47.77
WTI Midland, Asian timestamp	
Aug	44.61
Sep	44.64
LLS, Asian timestamp	
Aug	48.29
Sep	48.12
Mars, Asian timestamp	
Aug	45.19
Sep	45.34

Differential to Dubai swaps	Basis	$/bl
WTI Houston, Asian timestamp (Sep)	Sep	+0.21
WTI Midland, Asian timestamp (Sep)	Sep	-2.92
LLS, Asian timestamp (Sep)	Sep	+0.56
Mars, Asian timestamp (Sep)	Sep	-2.22

To find out more about Argus Crude and the full methodology of the new prices, visit our website: **http://www.argusmedia.com/crude-oil/argus-crude/**

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Argus Crude

Daily analysis and pricing for more than 80 different internationally-traded crude streams.

Source of key prices:

- **Argus Sour Crude Index**
- **Argus Condensate Index**
- **USGC crude markers for Asia-Pacific**
- **WTI & WCS Houston delivered to China**

Argus China Petroleum

provides analysis of crude and oil products market trends in China, using government statistics and insights from specialists on the ground, it includes commentary on both political and industry developments.

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