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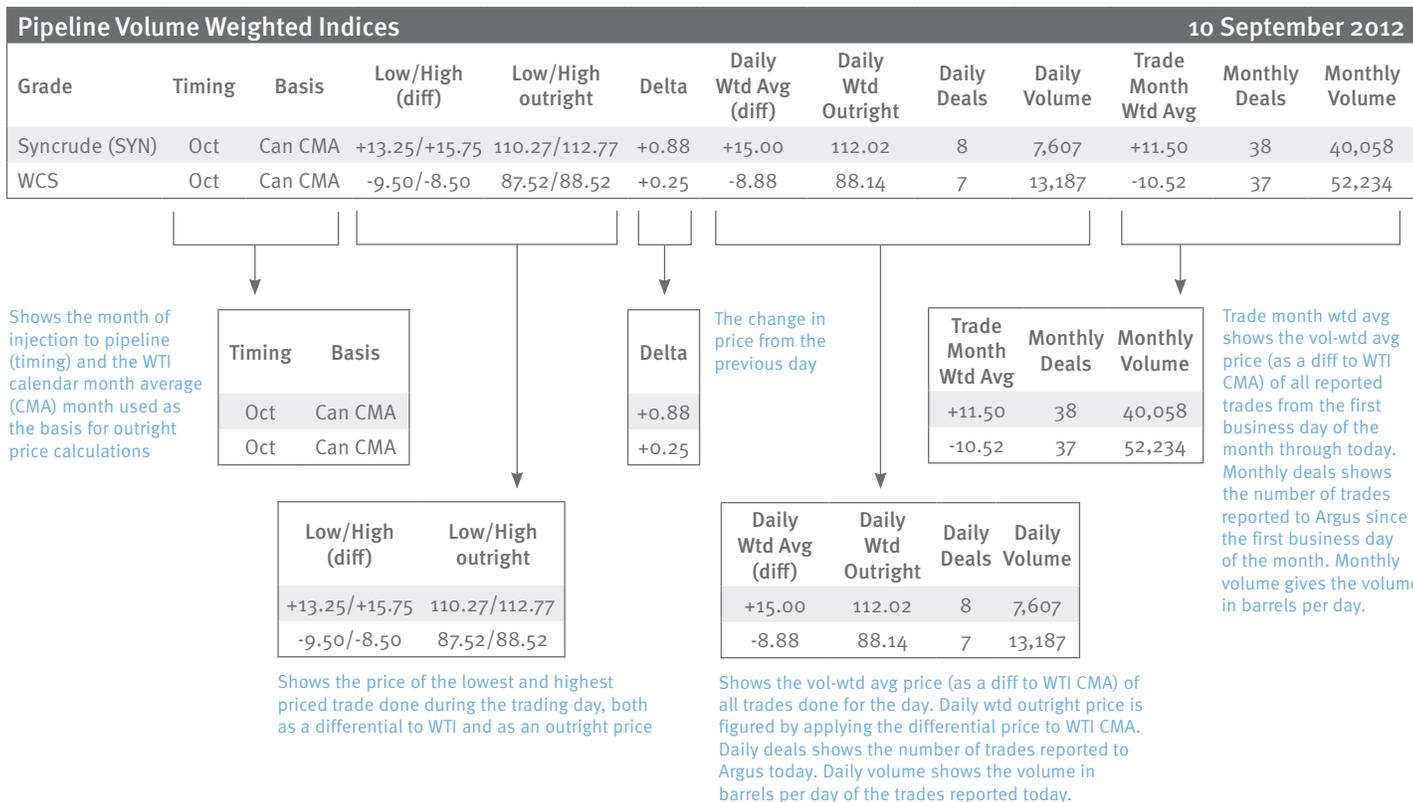
Argus White Paper: The Argus Canadian Crude Indices

Canada is the largest supplier of crude oil to the world's largest buyer — the United States — but most Canadian crude is still priced on an index comprised of a narrow subset of spot market transactions done through two brokers. This system is exposed to inherent conflicts of interest. Argus provides an alternative that represents the total market. Argus price indices for Syncrude at Edmonton and WCS at Hardisty reflect trade done via brokers as well as trade executed directly between counterparties. This method is designed to capture a more complete picture of the broader market.

The Argus system is based on the voluntary reporting of transactions direct from companies into Argus. This is the same system used in oil markets in the North Sea, US Gulf and Asia Pacific. In other North American crude, product, NGL and gas markets, producers and consumers submit

transaction lists detailing price, volume, grade and counterparties each afternoon from their risk control desks. Argus keeps this data confidential and will sign agreements protecting confidentiality, so preexisting trade agreements requiring confidentiality are satisfied. In addition, Argus reporters actively seek to find and verify deals done, thereby creating the most comprehensive snapshot possible of the day's trading activity. The system works, and Argus believes that over 95% of all spot market trade that occurs in the US crude markets is reported to Argus.

This voluntary system is reinforced by Argus' strict methodology and compliance regimen. Argus has publicly available detailed [methodology](#) documents describing specifications and how the prices are calculated. Argus has a strict [compliance program](#) that includes extensive staff training, rules against conflicts of interest, safeguards



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against manipulation and regular audits of staff by its Chief Compliance Officer. Argus staff are not allowed to trade in energy, or even buy or sell stock in energy companies, making them completely independent of the market.

The existing Canadian pricing system is a blend of transactions done in two broker shops. Linking contracts to a two-broker index marginalizes the significant part of the market that trades off-screen or through other brokerages. The system gives certain participants an inordinate influence over the pricing mechanism. It also encourages companies to select the deals they do on broker screens for inclusion in the index, while doing less favorable business off-screen, where those trades can be excluded from the index. The brokers can do nothing to police their indices, since they can only be as comprehensive as the clients allow.

The constantly shifting market share among brokers is also problematic. Should one individual broker leave a firm, volume is drained from that broker's index. And there is no independent compliance framework that governs the "blended" broker index.

The broker index system is even further fragmented when it applies to financial derivative contracts. The leading WCS derivative contract is settled on the WCS price index of a single broker, whose trade volume is regularly less than either the Argus index or the other major broker index. Should the WCS derivative settlement differ materially from the rest of the spot market, companies using that derivative as a hedge are, in fact, not hedged to the physical market in which they must buy and sell. This is not a theoretical risk. Setting aside price divergence from the non-brokered markets, the two broker indices for WCS have diverged from each other by as much as \$1.33/bl in recent months. Boards of Canadian energy producers should carefully consider the precarious nature of the current system.

Important facts about the Argus approach to Canadian markets

Argus on the other hand is a broad market index backed by a rigorous methodology and the accepted best practices for market reporting. In recent months, an average of 55% of the transactions flowing into the Argus Canadian indices came from contributors' back offices. And that number is growing as more companies see the benefit and logic of the voluntary reporting system.

- **Argus track record:** Argus has reported energy prices for over 40 years. All Saudi, Kuwaiti and Iraqi crude sold to the US prices on the Argus Sour Crude Index (ASCI). The CME LLS swap — now the most actively traded crude oil swap in history — settles on the Argus LLS price index. Argus prices are used around the world in term contracts, taxation formulas, royalties, mark-to-market accounting, internal transfer pricing and the settlement of exchange-listed swaps. And all these Argus prices are supported by the voluntary reporting system described above, capturing broad cross-sections of the market activity.
- **Confidentiality maintained:** Argus commits not to publish trade data in any disaggregated form in the Canadian crude markets. The sole use of the data is to create price indices and assessments. Argus regularly enters into confidentiality agreements with companies that report trades.
- **Positive incentives:** Since companies report brokered and non-brokered trades to Argus, the potential conflict of interest that could be created by shifting trade away from or between brokerages is eliminated. The inherent risks in the current system are avoided. Corporate compliance officers are keenly aware of the moral hazards presented by the current system and are looking for ways to immunize against them.
- **No bias:** There is no inherent bias toward buyers or sellers in the Argus WCS or Syncrude indices. In the first two years of the Argus WCS index, the price was lower than the "blended broker" index in 14 months and higher in 10 months. For the Argus Syncrude index, the price was lower than the blended brokers in 13 months, higher in 10 months and exactly the same one month. The difference is attributable to Argus reflecting non-brokered trade.
- **Swaps and forwards markets:** In Canada, one broker shop used in the blended index is owned by the same parent company as an exchange. So the WCS swap listed by CME must settle on a small subset of the spot market represented by the other broker in the blended index. As a result, the swap and the physical market could fail to see price convergence. Companies seeking to hedge risk may find themselves exposed to wholly unpredictable risks. The current sharp growth in Canadian crude derivative contracts may suffer as a result. To grow hedging tools in Canada, the swap should settle on an independent index price based on a broad market index.

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- **Inclusiveness:** Argus is more inclusive than broker indices in two important ways. First, Argus includes both brokered and non-brokered trades in its indices. Second, Argus provides a daily price index every business day of the month in addition to its trade month index. Our trade month index mirrors the brokers' practice of reflecting trade from the first of the month through Enbridge NOS, but our daily indices allow Argus to reflect the growing trade being done in the days between NOS and the start of the next calendar month. Unlike the brokers, trades done a few minutes after the official trading day may be included in the Argus trade month index, even if reported too late to be reflected in that day's daily price index.
- **Independent and unbiased:** Argus is an independent third-party price reporting agency, which has no stake in the price on any given day other than to reflect it accurately. Argus is owned by the family of its founder and by its employees and directors. There is no outside ownership. Argus is governed by a board, which includes several non-executive directors.



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