

## Argus White Paper: The Argus AGS Marker and the AGS index



***US Gulf coast crude market participants have urged Argus to provide a new, outright marker price for Midland-quality WTI at the US Gulf coast that reflects its own, unique fundamentals.***

The *Argus* AGS (American GulfCoast Select) Marker and the *Argus* AGS index were launched on 26 June 2020 and were subsequently expanded in response to a clear market demand. In this white paper, we discuss the potential for this marker to rise as a global benchmark, combining the liquidity of pipeline and cargo trades for Midland-quality WTI in the prolific US Gulf coast. This paper was recently updated to address subsequent expansions to the AGS methodology that captures the liquidity at several new locations.

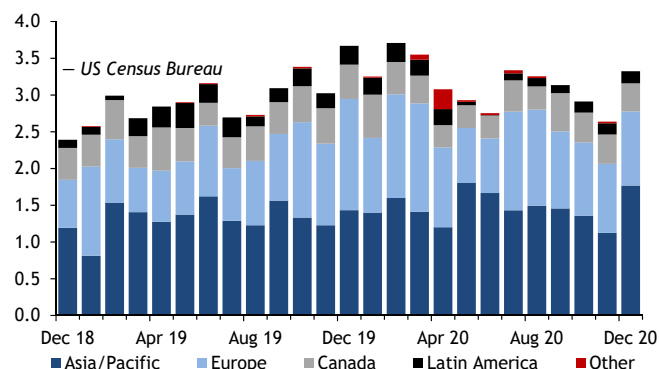
### Why are the Argus AGS Marker and AGS index needed?

Three primary drivers led to the creation of the *Argus* AGS Marker:

- Increased volumes of Midland-quality WTI arriving at multiple trade centers on the US Gulf coast,
- The growth and tenacity of US exports, directly linking US pipeline markets to global waterborne trade, and
- A desire by many market participants for an outright marker that represents the price of Midland-quality WTI at the US Gulf coast.

### US crude exports by region

mn b/d



The Gulf coast market has evolved rapidly as US shale production, particularly from the Permian Basin, has soared in recent years. WTI crude blended at Midland and other terminals in West Texas can increasingly access the Gulf coast refining and export markets directly, without passing through the Cushing, Oklahoma, storage hub. This direct access means that buyers are able to receive field grade barrels of a certain provenance.

Infrastructure expansions have eliminated bottlenecks from the Permian to the coast, and created multiple coastal trading locations for Midland-quality WTI, both onshore and at docks across the Gulf coast.

In the Houston area alone, there is nearly 2mn b/d of pipeline capacity from the Permian, and more than 4mn b/d of refining demand in close proximity to well over 1mn b/d of crude export dock capacity. While the Magellan East Houston (MEH) terminal was the first and dominant location for Midland-quality WTI trade at Houston for several years, new trading locations have emerged (*see table below and map of Houston infrastructure on page 4*).

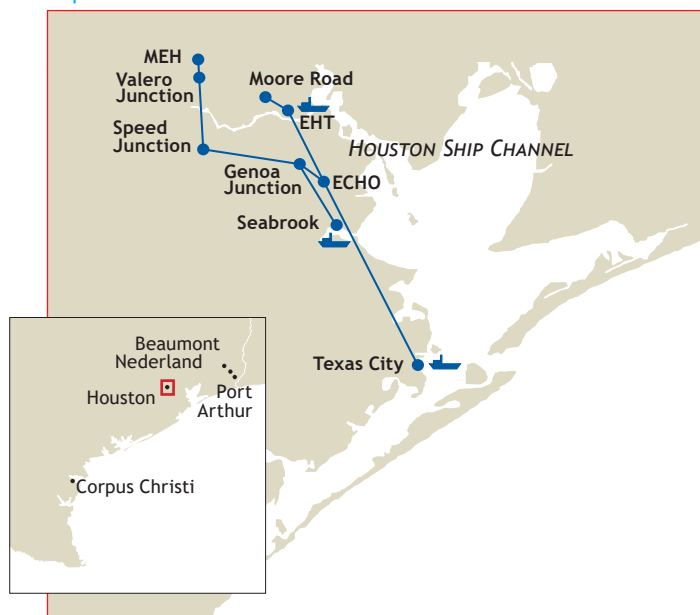
Corpus Christi, south of Houston, is also directly tied to Permian basin supply by three new pipelines with a capacity of more than 2.5mn b/d. Thanks to this connection and multiple new docks, Corpus Christi in late 2019 became the

Midland-quality WTI at Houston, year-end 2021		'000 b/d
<b>MEH</b>		
Longhorn		275
Bridgetex		440
<b>ECHO</b>		
M2E 1&2		820
M2E 3		450
<b>Webster</b>		
Wink-to-Webster		1,500+
<b>Total</b>		<b>3,485+</b>

leading Gulf coast crude export region, typically exceeding 1mn b/d of exports (*for an in-depth view of the Corpus Christi-area terminals, see page 5*).

At the Nederland/Beaumont area, near the Texas/Louisiana border, there is more than 600,000 b/d of pipeline capacity to bring crude direct from the Permian, and multiple refiners and docks to provide demand. Pipeline connections exist to deliver segregated Midland-quality WTI to points in Louisiana as well, including Clovelly (home of the Louisiana Offshore Oil Port and St James).

### Pipeline and waterbourne locations normalized to ECHO



### What is the Argus AGS Marker?

The *Argus* AGS Marker is a daily outright price index created by volume-weighting deals done for Midland-quality WTI within three major hubs along the US Gulf coast. This includes six Houston-area pipeline terminals: MEH, Enterprise's ECHO, Magellan's Genoa and Speed junctions, Valero Junction and Moore Road, three Houston-area waterborne locations: Enterprise's Hydrocarbon Terminal (EHT) on the Houston Ship Channel, Magellan's Seabrook and Enterprise's Texas City dock complex, and additional waterborne trades in Corpus Christi and Beaumont/Nederland.

By capturing deals at all of these locations, price volatility at a single point is muted by the inclusion of transactions elsewhere. Transactions in these areas are reported to *Argus* daily by buyers, sellers and brokers. *Argus* verifies the trade data and, if the trades are not already reported as a fixed-price deal, converts all trades to an outright price. *Argus* then normalizes these trades to an ECHO basis using observed locational spreads, which will be explained further in this white paper.

The resulting AGS Marker is published every trading day as an outright price in the *Argus Crude* and *Argus Americas Crude* reports.

### What is the AGS index?

*Argus* also publishes the AGS index, based on the same Midland-quality WTI trades done at the same areas as the AGS Marker, but calculated and published as a differential to the Nymex light sweet contract at Cushing. In that way, the AGS index is structured similarly to the other major *Argus* Gulf coast physical crude price indices such as Mars and LLS. This allows companies wanting to use the AGS index the ability to hedge it immediately.

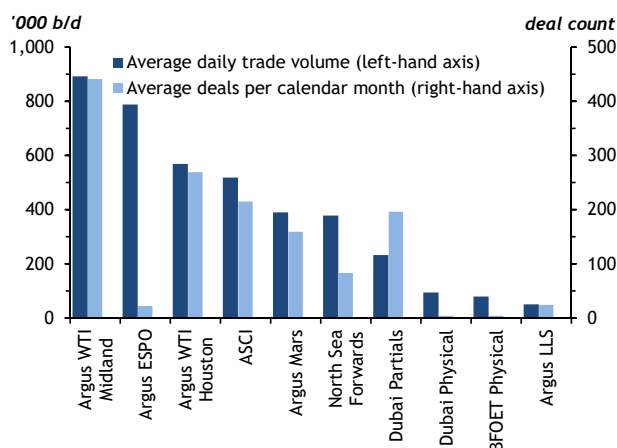
	Timing	Basis
Argus AGS Marker	Aug	
Argus AGS	Aug	Aug WTI
WTI Houston	Aug	Aug WTI
WTI Houston	Sep	Sep WTI
WTI Midland	Aug	Aug WTI
WTI Midland	Sep	Sep WTI
WTI Midland Enterprise	Aug	Aug WTI
WTI diff to CMA Nymex	Aug	CMA
WTI postings-plus	Aug	Postings

### What makes the Argus AGS Marker and AGS index unique?

The *Argus* AGS Marker and AGS index are the only Gulf coast crude price indices that reflect both pipeline and waterborne trades for Midland-quality WTI. This approach enables the *Argus* AGS Marker and AGS index to capture the broadest and most representative set of liquidity. In fact, from the very first day of publication, the *Argus* AGS Marker and AGS index represent far more actual physical trade than for all five BFOET grades that are used to set the daily price for Brent in the North Sea. Trade at MEH alone eclipses all trade in the Brent grades (see charts below), and the inclusion of additional delivery points strengthens this advantage.

Declining to include pipeline activity in the assessment process ignores the vast majority of baseload daily spot trade for Midland-quality WTI at the Gulf coast, a substantial volume of trade that is highly relevant to price formation in the region. The inclusion of pipeline trade supports the diversity of participation in the index formation, another strength of the AGS Marker, which sets it apart from the increasingly concentrated North Sea market. Simply put, waterborne-only assessments do not reflect the exceptionally liquid volume of actual, relevant market trade for Midland-quality WTI crude at the Gulf coast.

### US Gulf coast indexes set a high bar for benchmarks



## How does Argus calculate the AGS Marker?

In order to compare Midland-quality WTI trades at various locations in the US Gulf coast, *Argus* looks at typical price spreads observed between the key trading locations to ultimately normalize them to Enterprise's ECHO terminal.

*Argus* reviews and updates these locational adjustment factors every month based on the previous three months of market activity. If changes in infrastructure or other factors make it clear that the normalization factors are no longer representative, *Argus* reserves the option to adjust at any time upon prior notification of the market. To ensure the most representative assessments, locational adjustment factors will represent market spreads between the locations instead of simple tariff rate-based adjustments.

The normalization factors observed in the market and used by *Argus* as of this white paper publication date are shown below.

Location	Location Differential	PA Code
ECHO	0	-
MEH	+ 6 cents/bl	PA0030304
Genoa Junction	+ 0 cents/bl	PA0030305
Speed Junction	+ 5 cents/bl	PA0030306
Moore Road	+ 4 cents/bl	PA0032333
Valero Junction	+ 0 cents/bl	PA0032332
FOB EHT	+ 1 cents/bl	PA0030307
FOB Texas City	+ 1 cents/bl	PA0030308
FOB Seabrook	+ 1 cents/bl	PA0030309
FOB Corpus Christi	-1 cents/bl	PA0030677
FOB Beaumont/Nederland	+ 5 cents/bl	PA0030678

## Transaction-based: transparent and auditable

*Argus* publishes all trades used in the index in *Argus Americas Crude*, as shown below from the 07 July 2020 report.

Argus AGS deals done							
Grade Location		Trade month	Basis month	Diff basis	Diff	Price \$/bl	Volume
						b/d	bl
WTI	ECHO Houston	Aug				41.86	23,000
WTI	ECHO Houston	Aug				41.84	2,000
WTI	ECHO Houston	Aug				41.79	1,000
WTI	ECHO Houston	Aug				41.44	1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.40		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35		2,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.40		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.40		2,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.40		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.40		2,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.40		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.40		2,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35		2,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35		2,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35		5,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35	42.00	2,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.40		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.40		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35		2,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.35		1,000
WTI	Magellan East Houston	Aug	Aug	WTI	+1.40		3,000

## Converting and normalizing pipeline and waterborne trades: sample calculation

*Disclaimer: Data for illustration of conversion and normalization purposes only*

Let's say that on 07 July, both a waterborne (cargo) trade for August loading and pipeline trades were reported.

**Cargo:** A 600,000 cargo was reported to trade for August loading at an outright price of \$41.75/bl at EHT.

Step 1: To normalize this trade to ECHO, apply the EHT-to-ECHO conversion factor of \$0.08/bl:

$$\$41.75/\text{bl} - \$0.08/\text{bl} = \$41.67/\text{bl}$$

Step 2: Calculate the total trade value by applying the total cargo volume with the converted price:

$$\$41.67/\text{bl} \times 600,000 \text{ bl} = \$25,002,000$$

**Pipeline:** Ten pipeline trades at MEH were reported for August delivery, equating to a total volume of 20,000 b/d, at a volume-weighted average outright price of \$41.60/bl.

Step 1: To determine the total number of barrels, apply the total number of days in the delivery month:

$$20,000 \text{ b/d} \times 31 \text{ days} = 620,000 \text{ bl}$$

Step 2: To normalize this trade to ECHO, apply the MEH-to-ECHO conversion factor of \$0.09/bl:

$$\$41.60/\text{bl} - \$0.09/\text{bl} = \$41.51/\text{bl}$$

Step 3: Calculate the total trade value by applying the total pipeline volume with the converted price:

$$\$41.51/\text{bl} \times 620,000 \text{ bl} = \$25,736,200$$

To properly measure both the cargo and pipeline trades, use a basic volume-weighted average calculation:  
 $(\$25,002,000 + \$25,736,200) \div (600,000 \text{ bl} + 620,000 \text{ bl}) = \$41.59/\text{bl}$

## Converting differential trades to outright prices: sample calculation

*Disclaimer: Data for illustration of conversion and normalization purposes only*

**Example 1:** A trade is reported as a +\$2.50/bl differential to Nymex Cushing with a 12:30pm timestamp. Nymex was \$40/bl at the same time.

To calculate the outright price, apply the Nymex Cushing price of \$40/bl at 12:30pm:

$$\$40/\text{bl} + \$2.50/\text{bl} = \$42.50/\text{bl}$$

**Example 2:** A trade is reported as a -\$1.75/bl differential to ICE Brent with an 8am local timestamp.

To calculate the outright price, apply the ICE Brent price of \$44.75/bl at 8am local time:

$$\$44.75/\text{bl} - \$1.75/\text{bl} = \$43.00/\text{bl}$$

## Representative and relevant: reflecting how the US Gulf coast waterborne and pipeline markets trade

The *Argus* AGS Marker and the *Argus* AGS index follows the standard pipeline trade month dates used for US Gulf coast domestic crude grades. This means that – roughly – trade will begin around the 26th of the second month before the delivery month and end around the 25th of the month before delivery. For more on the US physical trade month, [visit this webpage](#).

Cargoes included in the *Argus* AGS Marker and *Argus* AGS index will load during the month of pipeline delivery for trade done on the day of publication. For example, the *Argus* AGS Marker published on 26 June 2020 reflected trades for cargoes scheduled to load in August 2020, since that day was part of the August pipeline trade month. The *Argus* AGS Marker published on 24 July 2020 also reflected cargoes traded for August loading, since that day was also part of the August pipeline trade month. The *Argus* AGS Marker published on 27 July 2020 reflected trades done for cargoes loading in September, since that day was part of the September pipeline trade month.

June 2020							July 2020						
Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
1	2	3	4	5	6	7			1	2	3	4	5
8	9	10	11	12	13	14	6	7	8	9	10	11	12
15	16	17	18	19	20	21	13	14	15	16	17	18	19
22	23	24	25	26	27	28	20	21	22	23	24	25	26
29	30						27	28	29	30	31		

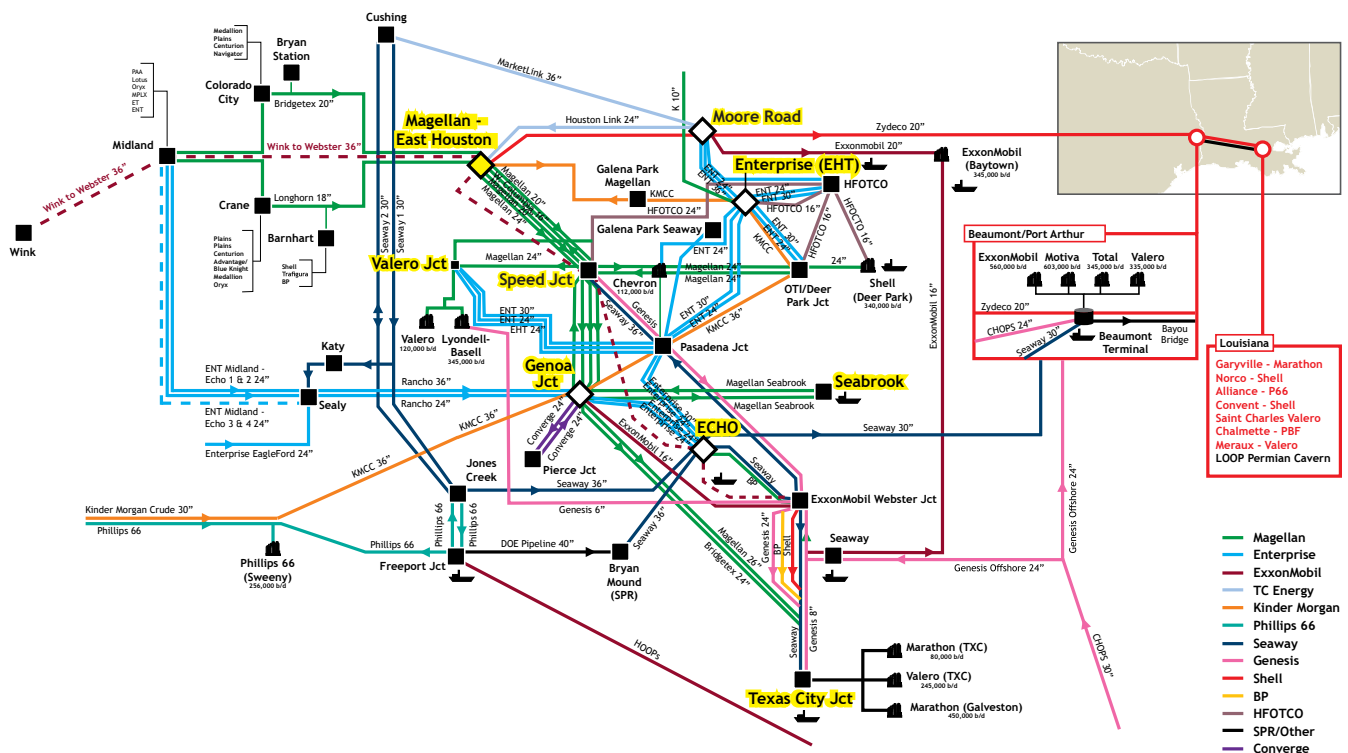
## Where are the Argus AGS Marker and AGS index published?

The AGS Marker and AGS index are published on Page 2 of the daily *Argus* Americas Crude report and – usually – on Page 17 of the *Argus* Crude report (the Americas section). In *Argus* data, the PA code for the *Argus* AGS Marker is PA 0030327 and the PA code for the *Argus* AGS index (differential to Nymex Cushing) is PA 0030325.

## How is the quality defined?

For Midland-quality WTI at the US Gulf coast – as for other Gulf coast grades such as LLS and Mars – *Argus* includes trades that the market reports as “stream quality.” *Argus* cannot

## Houston-area infrastructure schematic



enforce quality, but the market consensus on what constitutes “standard Midland-quality WTI” at the US Gulf coast has become clear. In fact, many contracts carry the provision that the crude being exchanged or loaded is “standard Midland-quality WTI.” The *Argus* AGS Marker and AGS index reflect the trade of this standard Midland-quality WTI.

These references are helpful in bracketing what the market assumes to be standard Midland-quality WTI:

- Magellan publishes the monthly average of the quality of Midland WTI moving through its terminal at [www.theice.com/crude-oil/futures/perman-wti](http://www.theice.com/crude-oil/futures/perman-wti)
- Enterprise publishes similar quality averages for its ECHO terminal at [www.enterpriseproducts.com/customers/wti-crude-quality-echo](http://www.enterpriseproducts.com/customers/wti-crude-quality-echo)
- And CME has adopted a detailed quality specification for the Midland WTI that is deliverable into its HCL futures contract

at ECHO: [www.cmegroup.com/content/dam/cmegroup/rulebook/NYMEX/2/201.pdf](http://www.cmegroup.com/content/dam/cmegroup/rulebook/NYMEX/2/201.pdf)

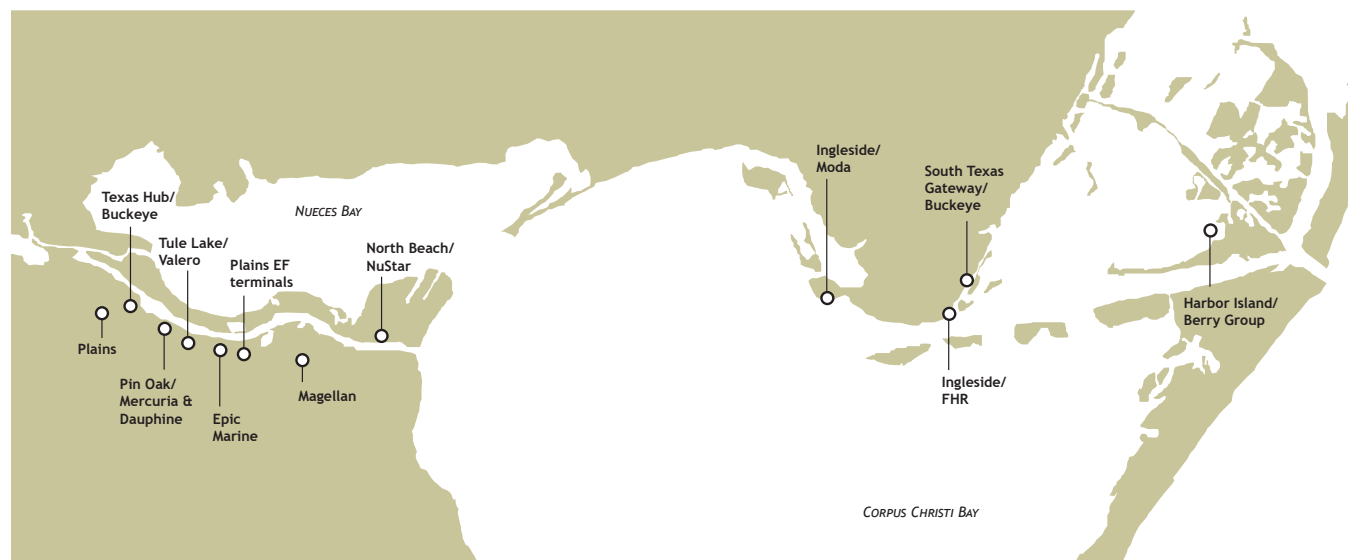
### Summary

The *Argus* AGS Marker is the first outright price index for Midland-quality WTI in the US Gulf coast market. It is a pricing tool whose time has come, given increasing global importance of US Gulf coast markets, driven by the dramatic rise of US production and exports, as well as the build-out of pipeline and dock infrastructure at the Gulf coast.

It is also a globally prominent price marker from the day of its launch, given the large physical trade volumes and diversity of participation backing the index.

*Argus’* parallel AGS index is also based on the same large pool of Midland-quality WTI trades at the US Gulf coast, but stated as a differential to the Nymex Cushing price, allowing companies wanting to use the AGS price the ability to hedge it immediately.

### Corpus Christi-area terminals



#### For more information:

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