

An aerial photograph of an industrial site, likely a gas processing or storage facility, set against a dramatic sunrise sky. The scene is dominated by a thick layer of white mist or fog that fills the valleys between rolling hills. In the foreground, a large, circular storage tank is visible, surrounded by a paved area. To the right, a tall, yellow drilling rig stands prominently, illuminated by its own lights. The ground is cluttered with various pieces of industrial equipment, including smaller tanks, pipes, and vehicles. The overall atmosphere is serene yet industrially active, with the warm colors of the rising sun contrasting with the cool tones of the mist.

# Weekly International LPG Pricing Update

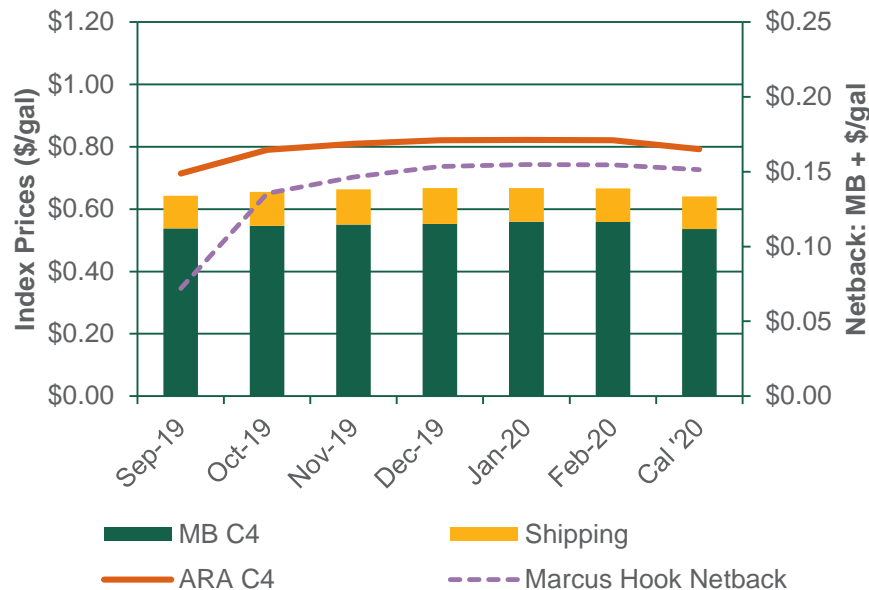
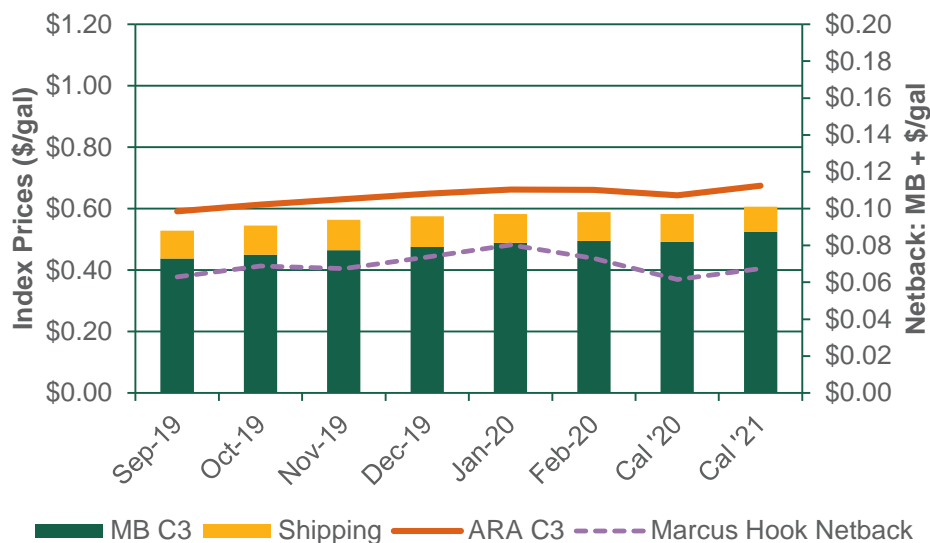
SEPTEMBER 9, 2019

This material is intended for benchmark pricing estimates only and does not reflect Antero actual contracted prices.

## LPG Arbitrage Futures to Europe (ARA)

Export Arbitrage to Northwest Europe - Propane \$/gallon					
Date	MB C3	ARA C3	Spread	Shipping	Marcus Hook Netback
Sep-19	0.437	0.591	0.154	0.091	MB +0.063
Oct-19	0.450	0.614	0.164	0.095	MB +0.069
Nov-19	0.465	0.631	0.166	0.098	MB +0.067
Dec-19	0.475	0.648	0.173	0.100	MB +0.074
Jan-20	0.489	0.662	0.174	0.093	MB +0.080
Feb-20	0.495	0.662	0.167	0.093	MB +0.073
Bal '19	0.457	0.621	0.164	0.096	MB +0.068
Cal '20	0.491	0.644	0.152	0.091	MB +0.062
Cal '21	0.524	0.674	0.150	0.082	MB +0.067

Export Arbitrage to Northwest Europe - Butane \$/gallon					
Date	MB C4	ARA C4	Spread	Shipping	Marcus Hook Netback
Sep-19	0.538	0.714	0.177	0.105	MB +0.072
Oct-19	0.546	0.791	0.244	0.109	MB +0.135
Nov-19	0.550	0.810	0.260	0.113	MB +0.146
Dec-19	0.553	0.821	0.268	0.115	MB +0.154
Jan-20	0.560	0.822	0.262	0.108	MB +0.155
Feb-20	0.559	0.821	0.262	0.108	MB +0.155
Bal '19	0.547	0.784	0.237	0.110	MB +0.127
Cal '20	0.536	0.792	0.256	0.104	MB +0.151
Cal '21	Not Available				

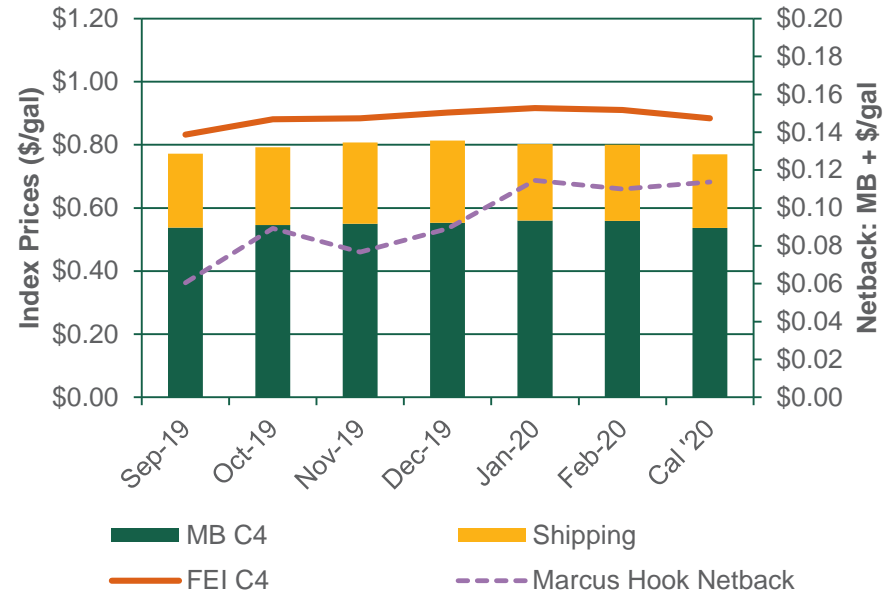
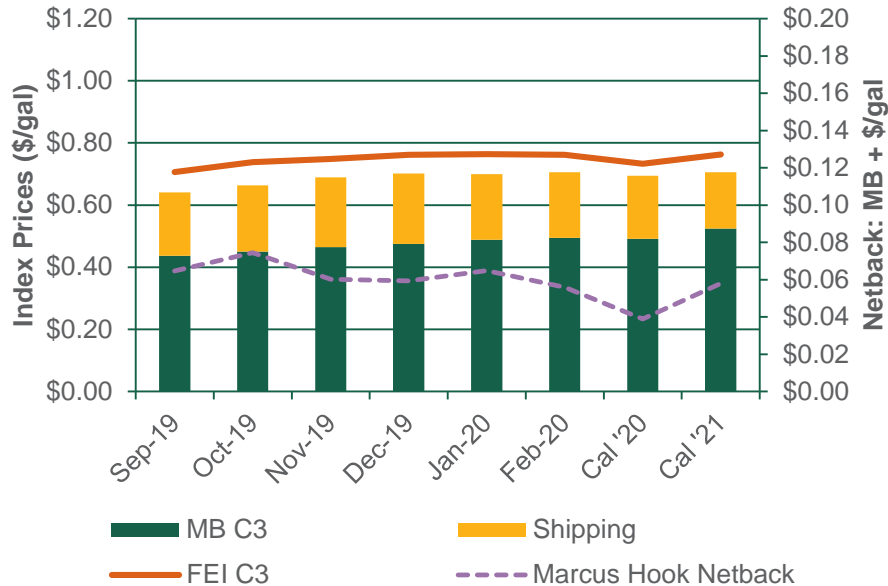


Sources: ICE for product pricing, Antero Internal Estimates for market shipping rates. Please see appendix for more information.

## LPG Arbitrage Futures to Asia (FEI)

Export Arbitrage to Far East Asia - Propane \$/gallon					
Date	MB C3	FEI C3	Spread	Shipping	Marcus Hook Netback
Sep-19	0.437	0.706	0.269	0.204	MB + 0.065
Oct-19	0.450	0.738	0.288	0.214	MB + 0.074
Nov-19	0.465	0.749	0.284	0.224	MB + 0.060
Dec-19	0.475	0.761	0.286	0.227	MB + 0.059
Jan-20	0.489	0.764	0.275	0.211	MB + 0.065
Feb-20	0.495	0.761	0.266	0.211	MB + 0.056
Bal '19	0.457	0.739	0.282	0.217	MB + 0.065
Cal '20	0.491	0.733	0.242	0.203	MB + 0.039
Cal '21	0.524	0.763	0.239	0.181	MB + 0.058

Export Arbitrage to Far East Asia - Butane \$/gallon					
Date	MB C4	FEI C4	Spread	Shipping	Marcus Hook Netback
Sep-19	0.538	0.833	0.295	0.235	MB + 0.060
Oct-19	0.546	0.881	0.335	0.246	MB + 0.089
Nov-19	0.550	0.884	0.334	0.257	MB + 0.077
Dec-19	0.553	0.903	0.350	0.261	MB + 0.089
Jan-20	0.560	0.917	0.357	0.242	MB + 0.114
Feb-20	0.559	0.911	0.352	0.242	MB + 0.110
Bal '19	0.547	0.875	0.329	0.250	MB + 0.079
Cal '20	0.536	0.884	0.347	0.234	MB + 0.114
Cal '21	Not Available				



Sources: ICE for product pricing, Antero Internal Estimates for market shipping rates. Please see appendix for more information.

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## Key Terms and Definitions:

- **ARA** – “Amsterdam-Rotterdam-Antwerp.” ARA is a port and refining area in the Belgian-Dutch region of Europe.
- **CIF** - “Cost, Insurance, Freight.” CIF means that the seller delivers the goods on board the vessel or procures the goods already so delivered. Note that the CIF ARA LPG prices represent a delivered cargo into Europe.
- **FEI** – “Far East Index.” The Argus Far East Index is the average of the Argus Japan CFR propane quotation and the Argus South China CFR propane quotation. Note that the FEI LPG prices represent a delivered cargo into Asia
- **CFR** - “Cost and Freight.” CFR means that the seller delivers the goods on board the vessel or procures the goods already so delivered.
- **Baltic Index** - The Baltic LPG Index is a shipping cost estimate based on a voyage from Ras Tanura, Saudi Arabia to Chiba, Japan round trip, laden (full) on the outbound journey and ballast (empty) on the return trip, carrying a fully refrigerated cargo of 44,000 MT (+/- 5%) propane, butane, or a mixture. The index is published by the Baltic Exchange.

**Intercontinental Exchange (ICE) provides the benchmark pricing Information used in this presentation. For more information, visit <https://www.theice.com/energy/natural-gas-liquids>**

ANTERO LABEL	ICE DEFINITION	
	HUB	PRODUCT
ARA C3	CIF ARA	Propane Argus Futures
ARA C4	CIF ARA	Butane Argus Futures
FEI C3	Far East	Propane Argus Futures
FEI C4	Far East	Butane Argus Futures
MB C3	MT.B-ENT	Propane OPIS Futures
MB C4	MT.B-ENT	Normal Butane OPIS Futures

## Relevant Conversions:

- Propane = 521 gallons per metric ton
- Butane = 453 gallons per metric ton

**Antero Internal Shipping Estimates are derived by Antero using several sources, including Baltic LPG Index Futures and broker estimates.**

- Rates are adjusted based on travel time from Marcus Hook, PA to Northwest Europe (Amsterdam-Rotterdam-Antwerp Region) and Marcus Hook, PA to Asia (Chiba, Japan).
- Antero’s actual shipping rates may differ from these estimates.