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# China in an evolving crude market

Chengdu

Reza Amanat  
12 September 2018

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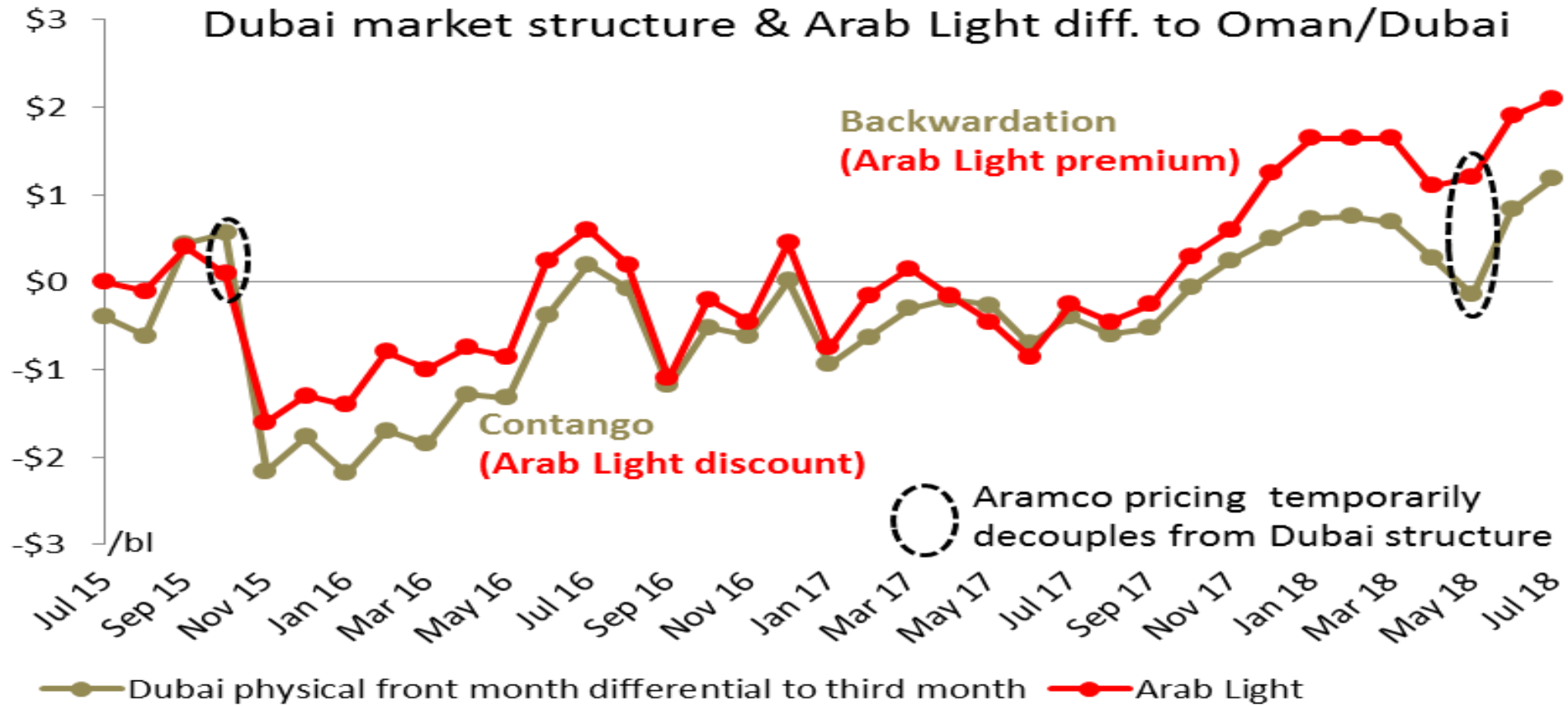
illuminating the markets

Market Reporting  
 Consulting  
 Events

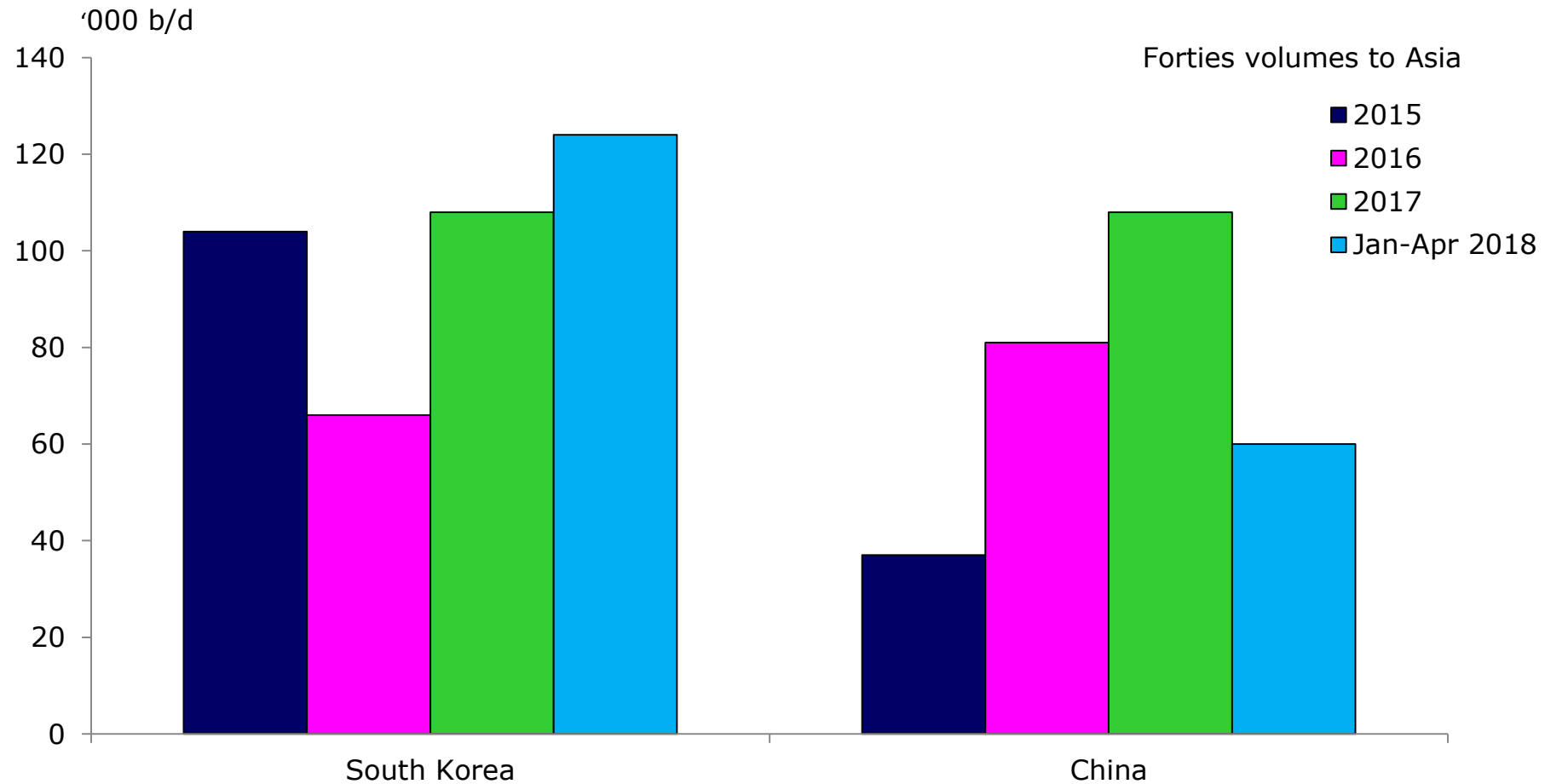
## US crude improves terms of trade for Asian refiners

- China & India, Asia's largest crude buyers, have grown increasingly frustrated with Middle Eastern OSP pricing
- Arbitrage is top consideration for Asian refiners seeking to reduce dependence on Middle East crude
- Argus WTI Houston (MEH) reflects stable and accurate price of Permian quality crude for export at the US Gulf coast (USGC)
- Shanghai's INE futures may develop as a Chinese marker for delivered crude, challenging traditional Middle East FOB pricing

# Arab Light OFP differential now strongest in four years

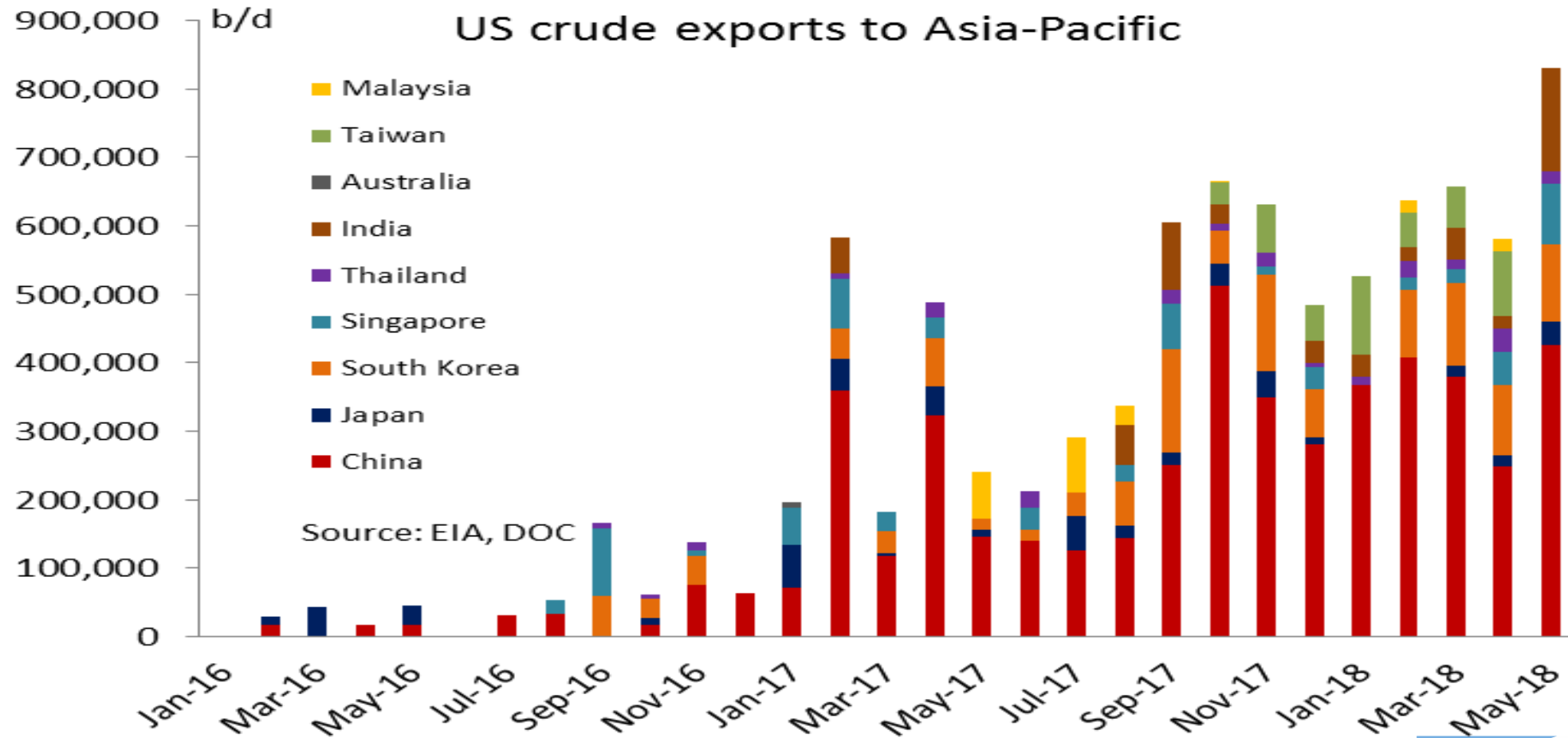


# More North Sea crude cargoes head east

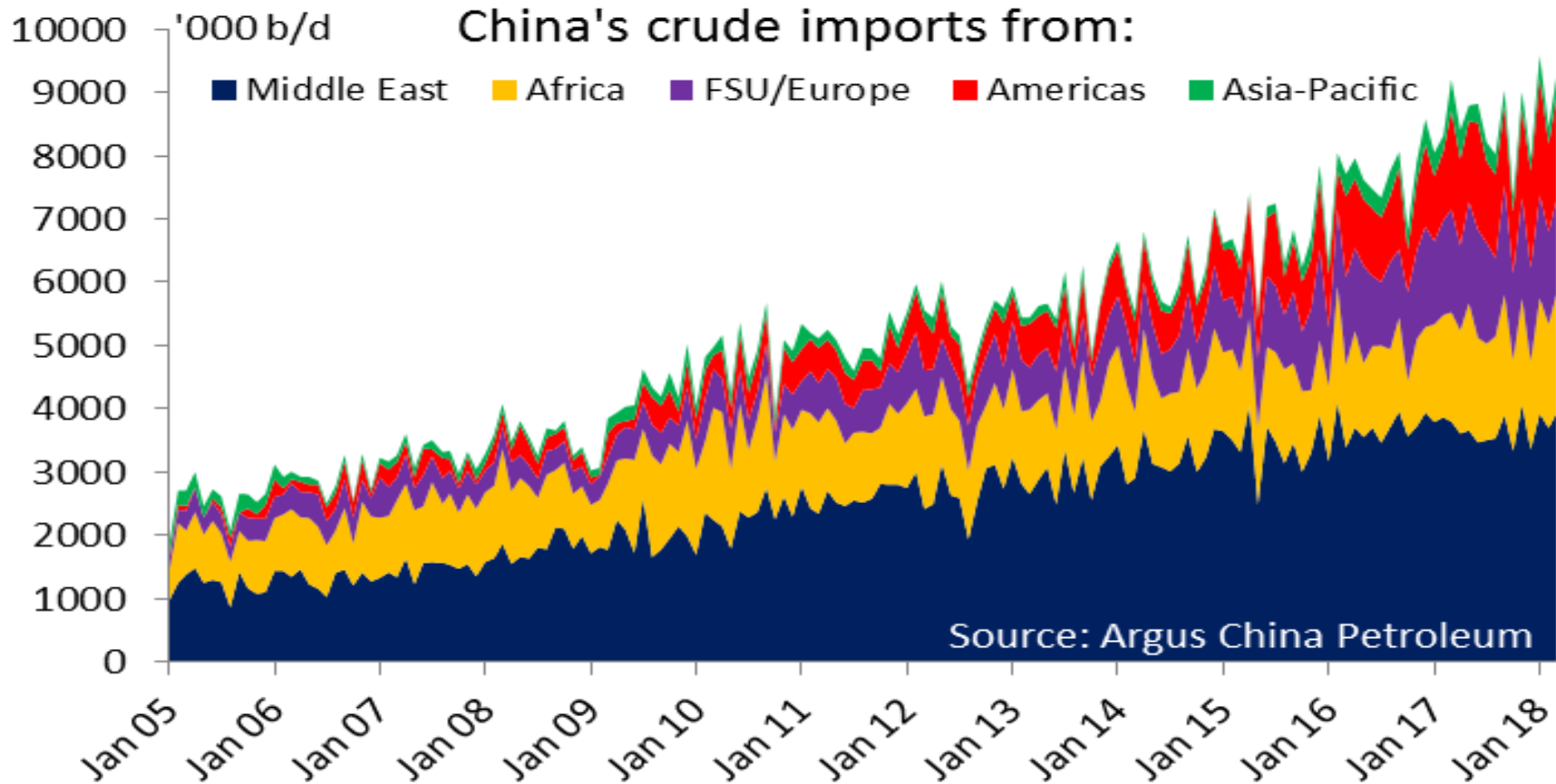


# Asia-Pacific: top destination for US crude exports

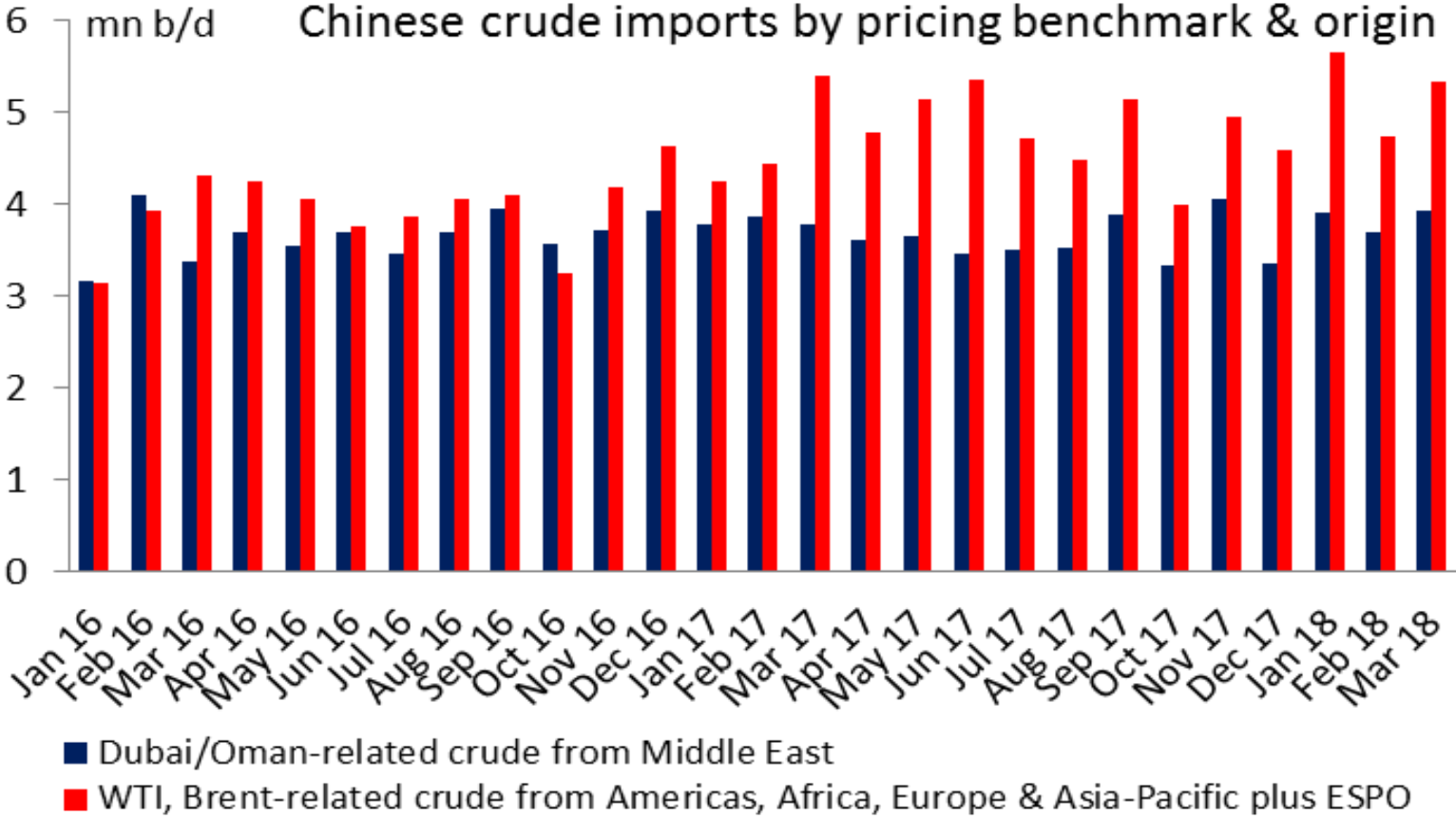
China had been taking two thirds of US exports



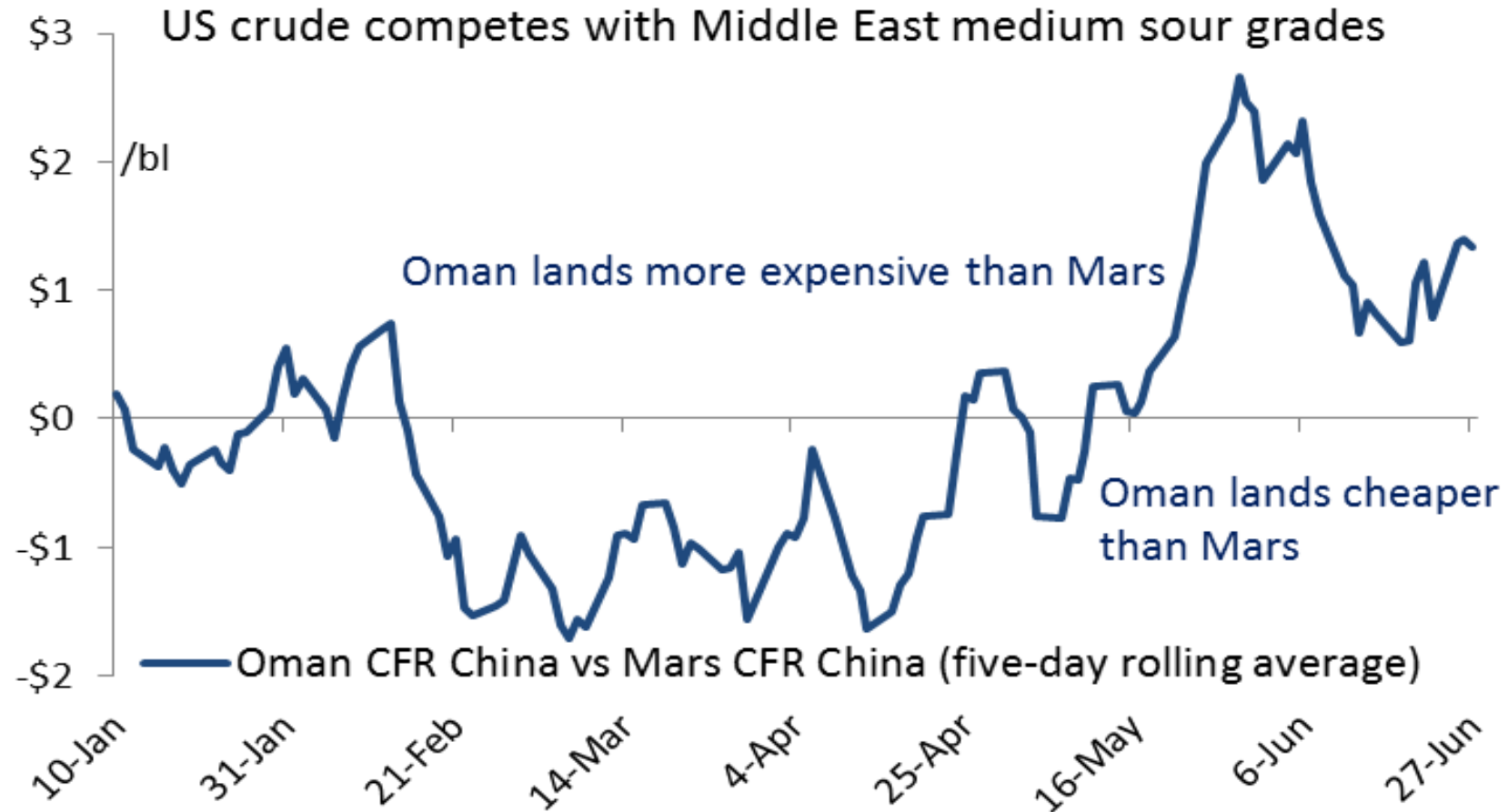
# Americas is China's fastest growing crude supplier



# WTI gains market share as pricing benchmark in China

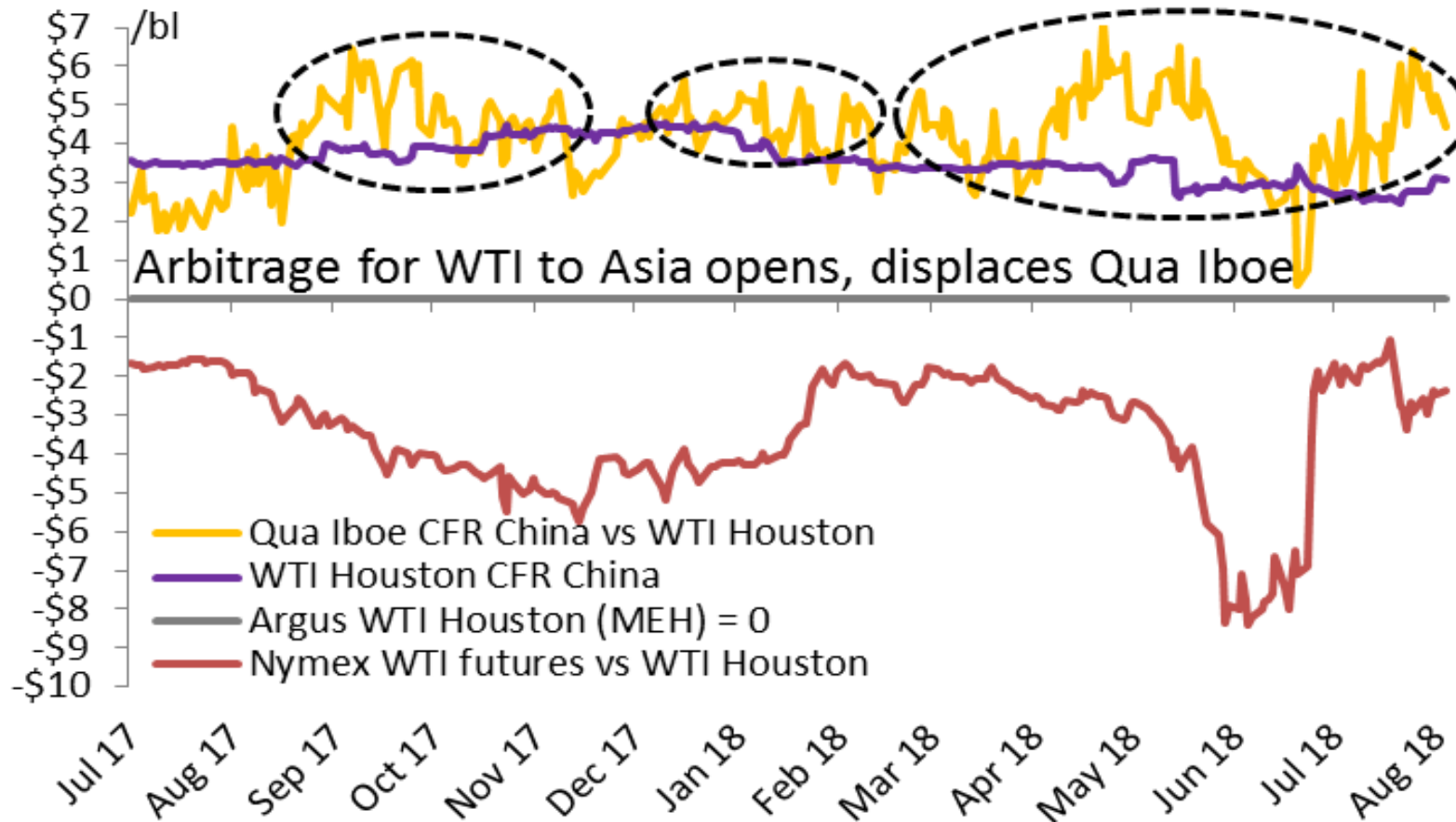


# Asia refiners focused on delivered pricing for arbitrage



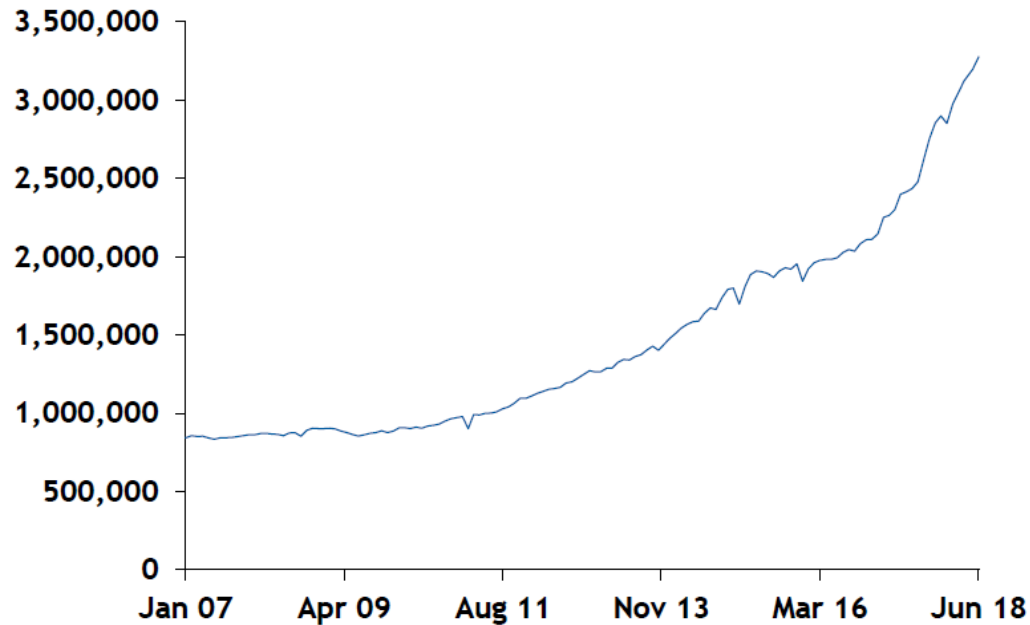


# WTI more competitive than Nigerian grades at present



# US output: Permian may reach 3.42mn b/d in September

Permian basin crude production b/d



\* Estimated May 18 and Jun 18  
— EIA

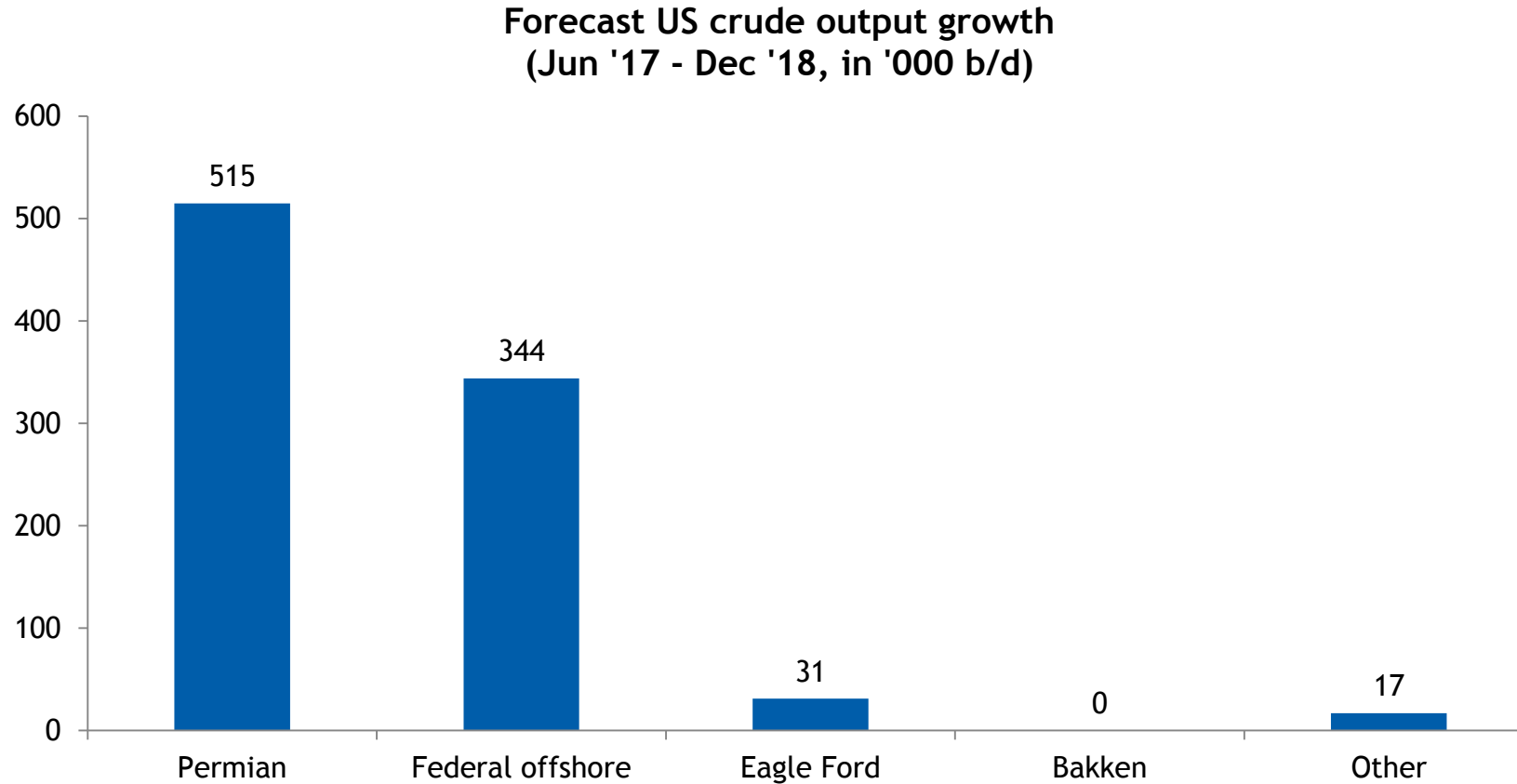
US shale output 000 b/d

Basin	May	± Apr
Permian	3,200	73
Eagle Ford	1,340	24
Anadarko	506	3
Appalachia*	110	3
Niobrara	590	7
Bakken	1,230	15
Haynesville	42	0
<b>Total</b>	<b>7,018</b>	<b>125</b>

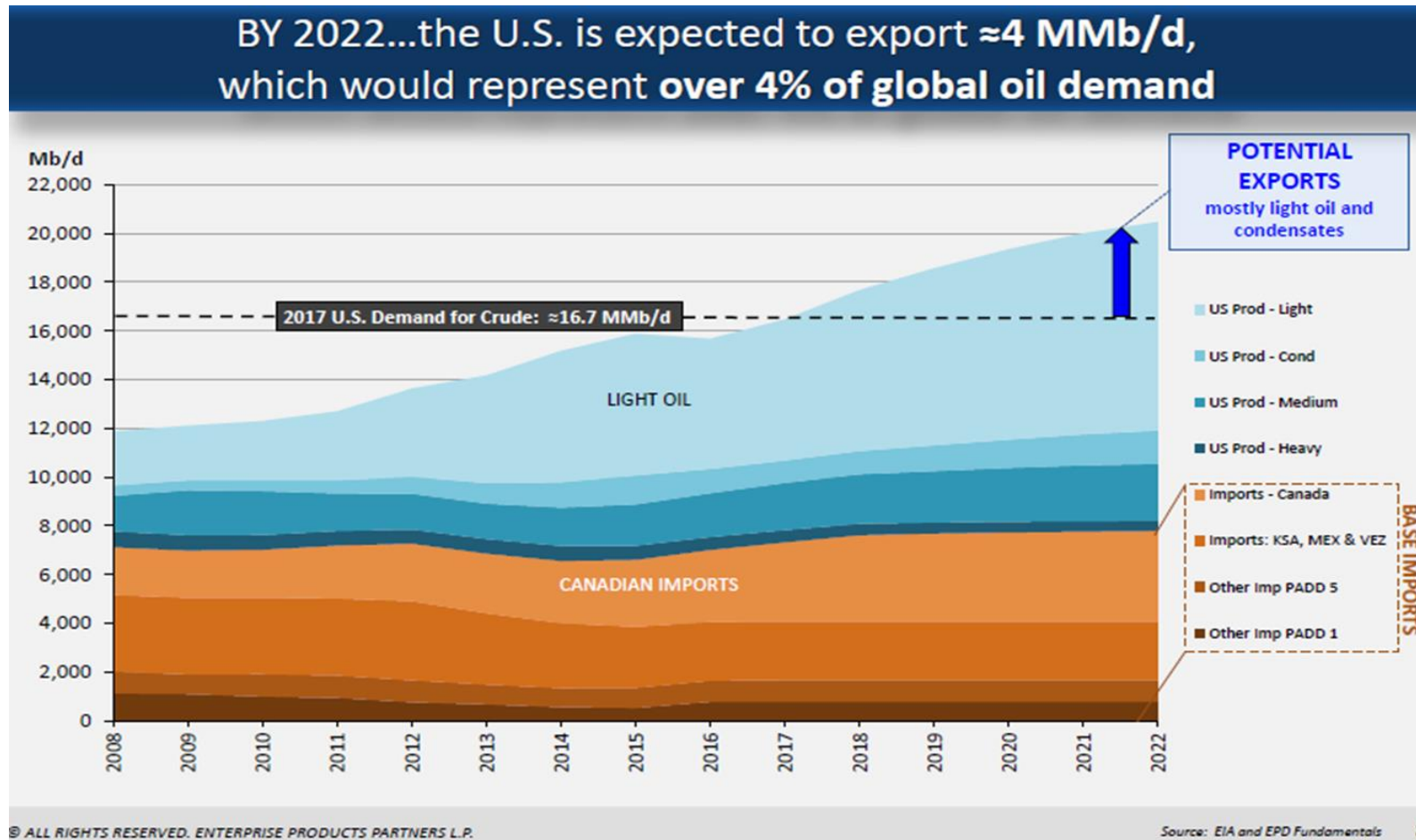
\*formerly Utica and Marcellus

— EIA

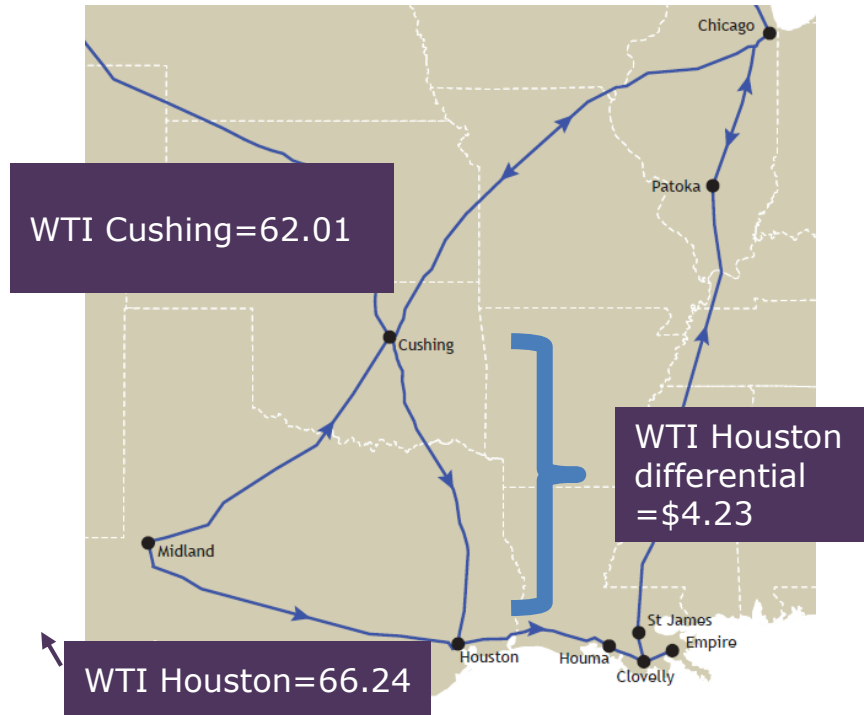
# US offshore output is also growing at healthy rates



# US crude exports may double over next four years

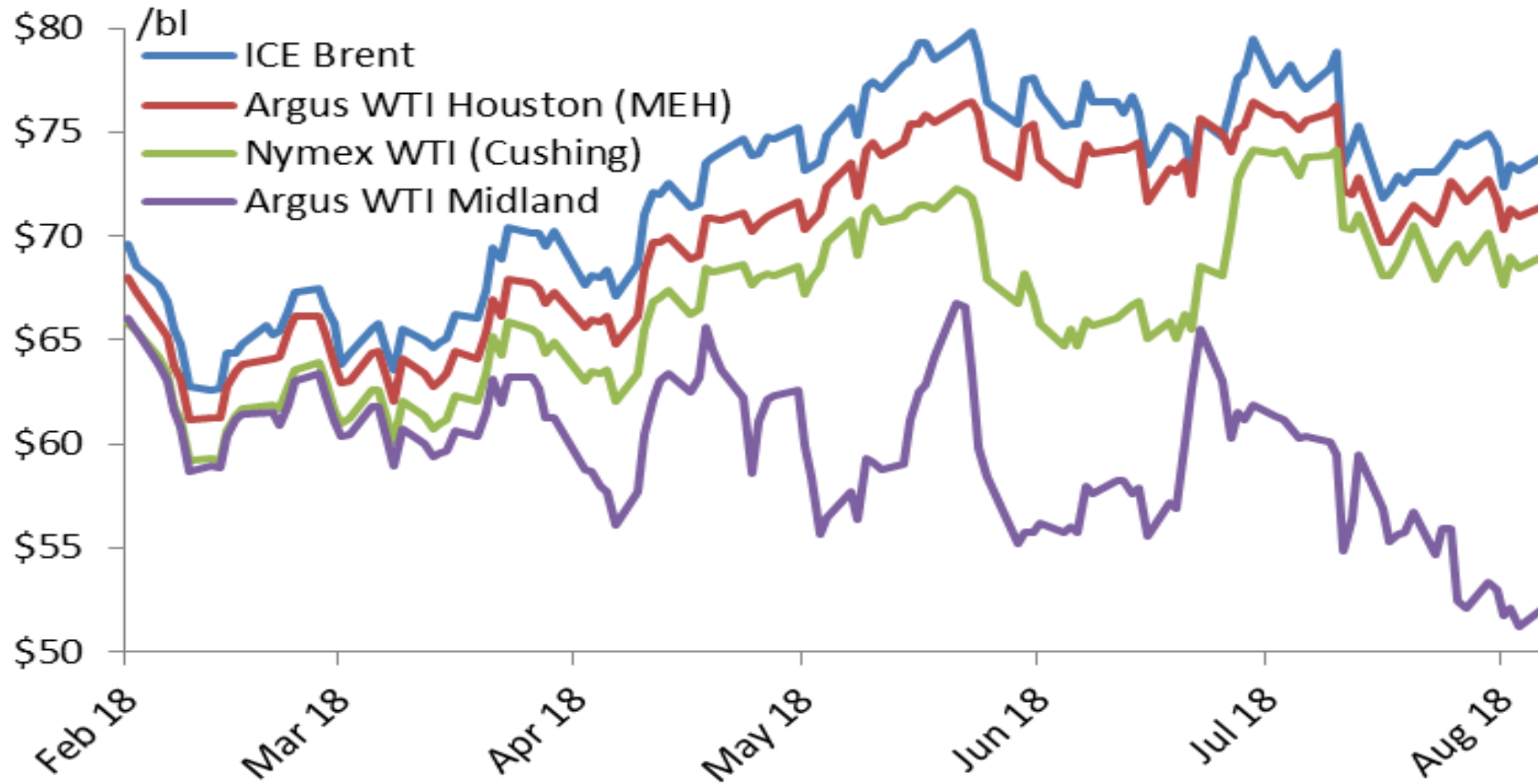


# WTI Houston brings together liquidity and precision



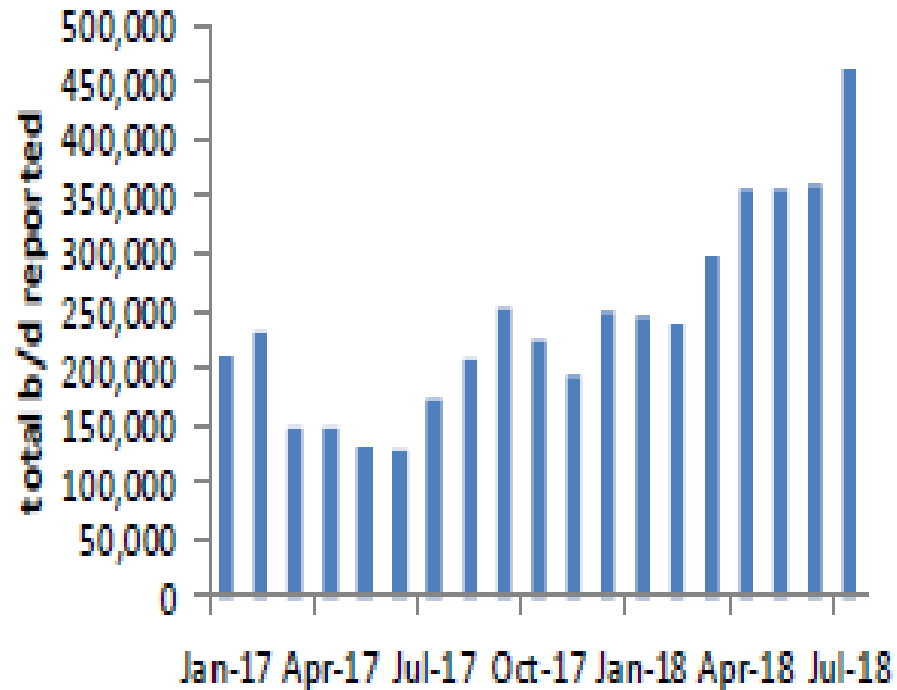
<b>Nymex WTI (Cushing)</b> [ \$ 62.01 ] <i>Most liquid paper crude contract in the world (BASIS)</i>	+
<b>Argus WTI Houston (Magellan East Houston) diff</b> [ +\$ 4.23 ] <i>Adds precision by reflecting trade on value differential at the coast</i>	
=	
<b>\$ 66.24</b>	

## WTI Houston (MEH) represents US crude exports price

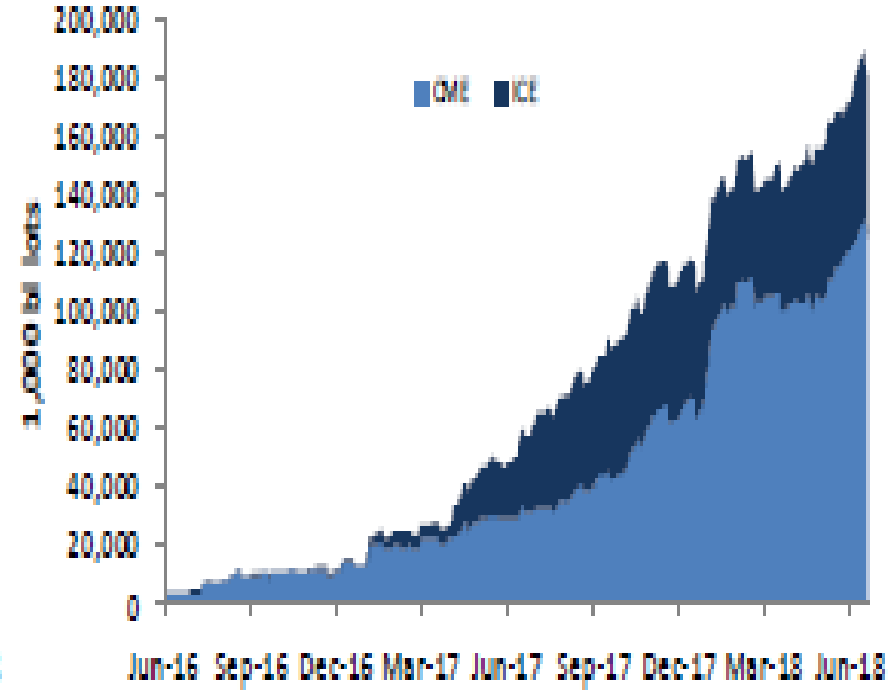


# Argus WTI Houston: physical & derivatives liquidity

## WTI Houston Physical Volume



## WTI Houston Open Interest

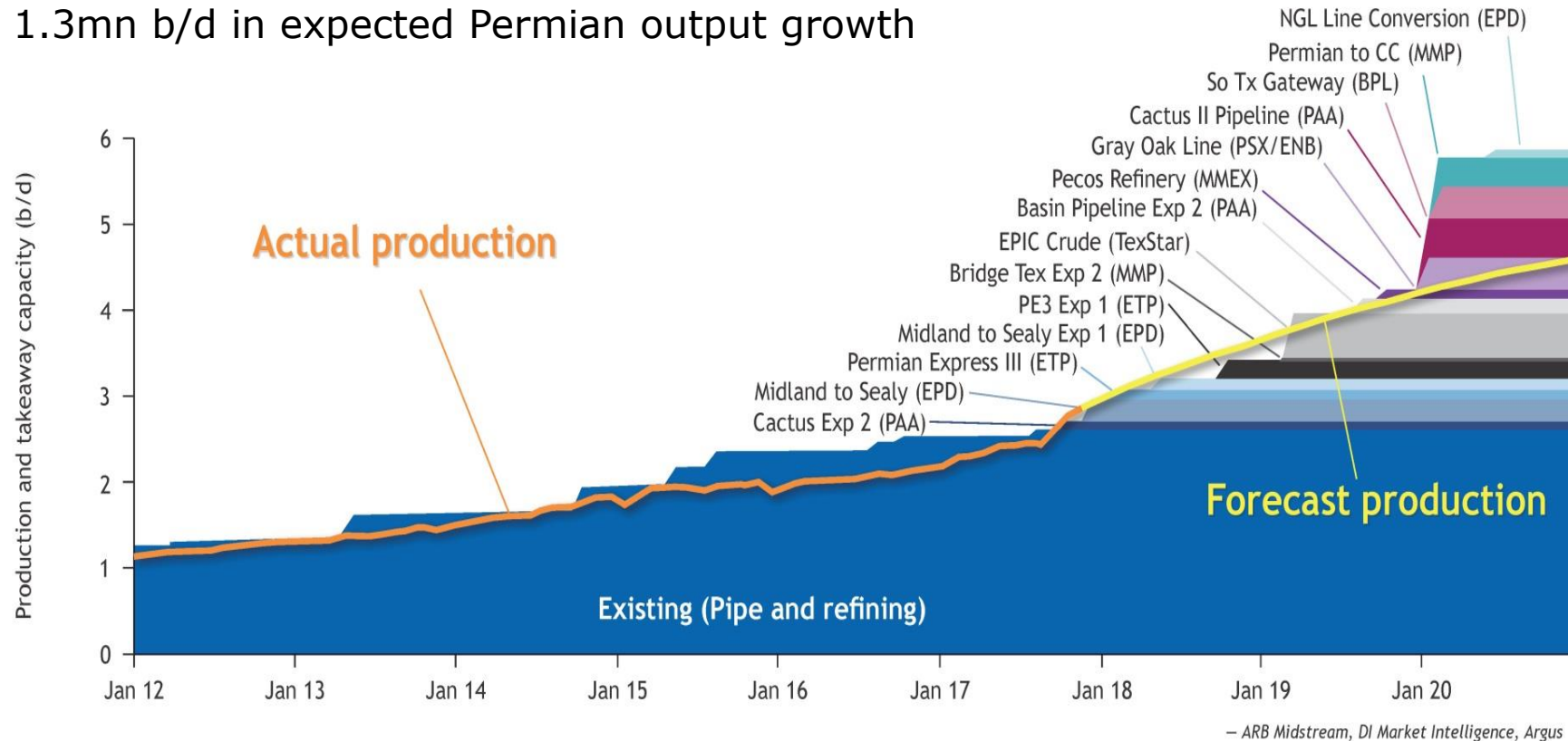


# Permian output outpacing pipeline capacity until 2019

1.55mn b/d of new pipeline capacity expected by end of 2019

vs

1.3mn b/d in expected Permian output growth



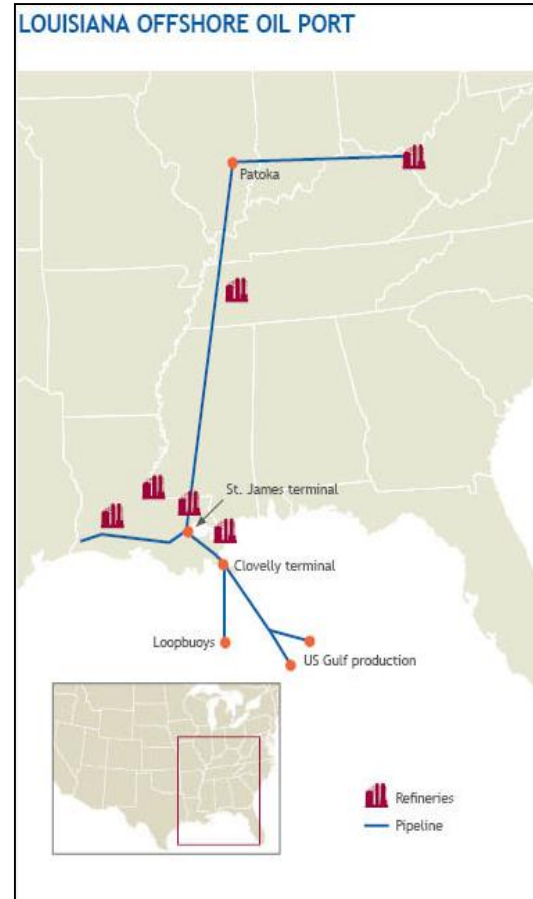


# New US crude pipelines due onstream from Q3 2019

Permian crude pipeline capacity additions			
Company	Pipeline	Texas destination	Capacity ('000 b/d)
<b>Proposed</b>			
Phillips 66/Andeavor	Gray Oak	Corpus Christi/ Sweeny	700-1,000
Energy Transfer Partners	Unnamed new pipeline	Houston	600
Plains All American Pipeline	Cactus 2	Corpus Christi	575
Plains All American Pipeline	Sunrise 1 and 2	Wichita Falls	500
Epic	Epic	Corpus Christi	440-675
Enterprise Products Partners	Unnamed NGL line conversion	Houston	>200
Energy Transfer Partners	Permian Express 3 expansion	Nederland	TBD
Jupiter MLP	Unnamed new pipeline	Brownsville	TBA
Total proposed capacity			>3,015-3,550
<b>Recent</b>			
Enterprise Products Partners	Midland-to-Sealy	Houston	575.0
Energy Transfer Partners	Permian Express 3	Nederland	200.0
Plains All American Pipeline	Cactus expansion	Corpus Christi	140.0
Magellan/Plains	BridgeTex expansions	Houston	140.0
Total recent capacity			1,055.0

## LOOP became first US port capable of loading VLCCs

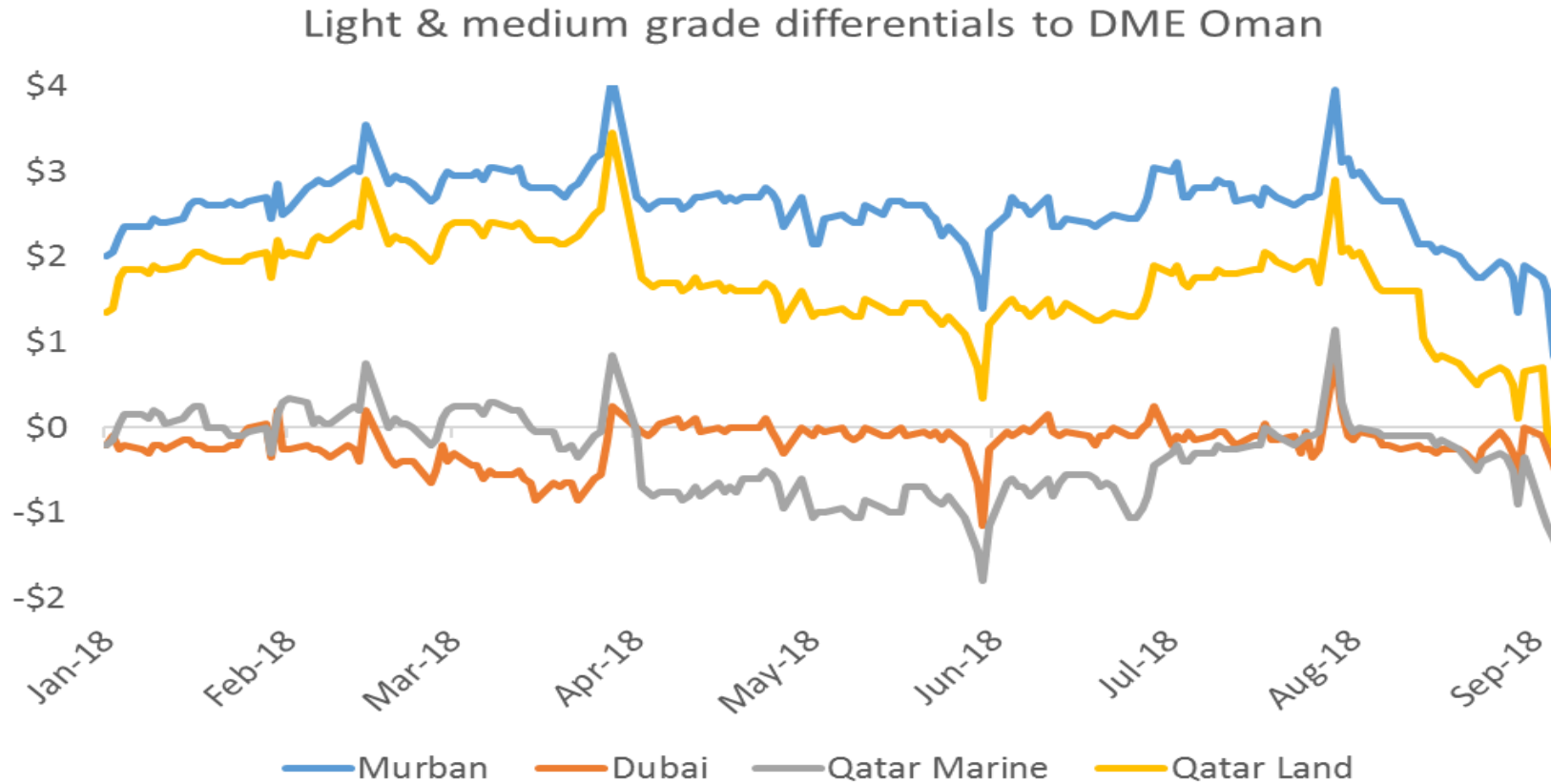
- First VLCC exported in early 2018
- One VLCC per month initially
- Only VLCC-capable port in US Gulf coast



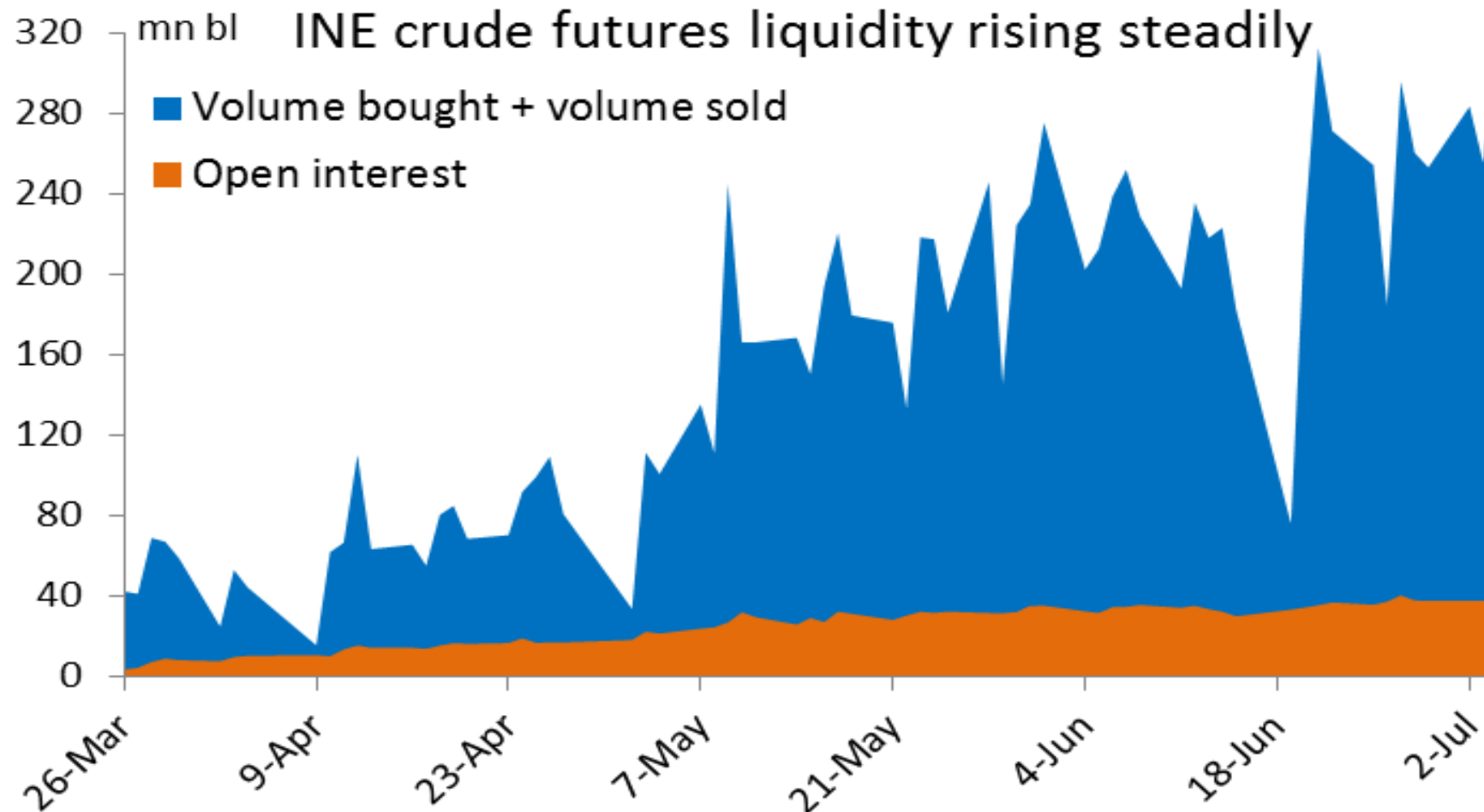
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- Likely to keep exporting medium sour (eg Mars)
- Mars and Thunderhorse trade at Clovelly (LOOP onshore terminal)

## As exchanges become more relevant, Argus publishes diffs



# China's INE futures introduce delivered marker for Asia



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