FACTS GLOBAL ENERGY

Balance for Oil, Imbalance for LNG?

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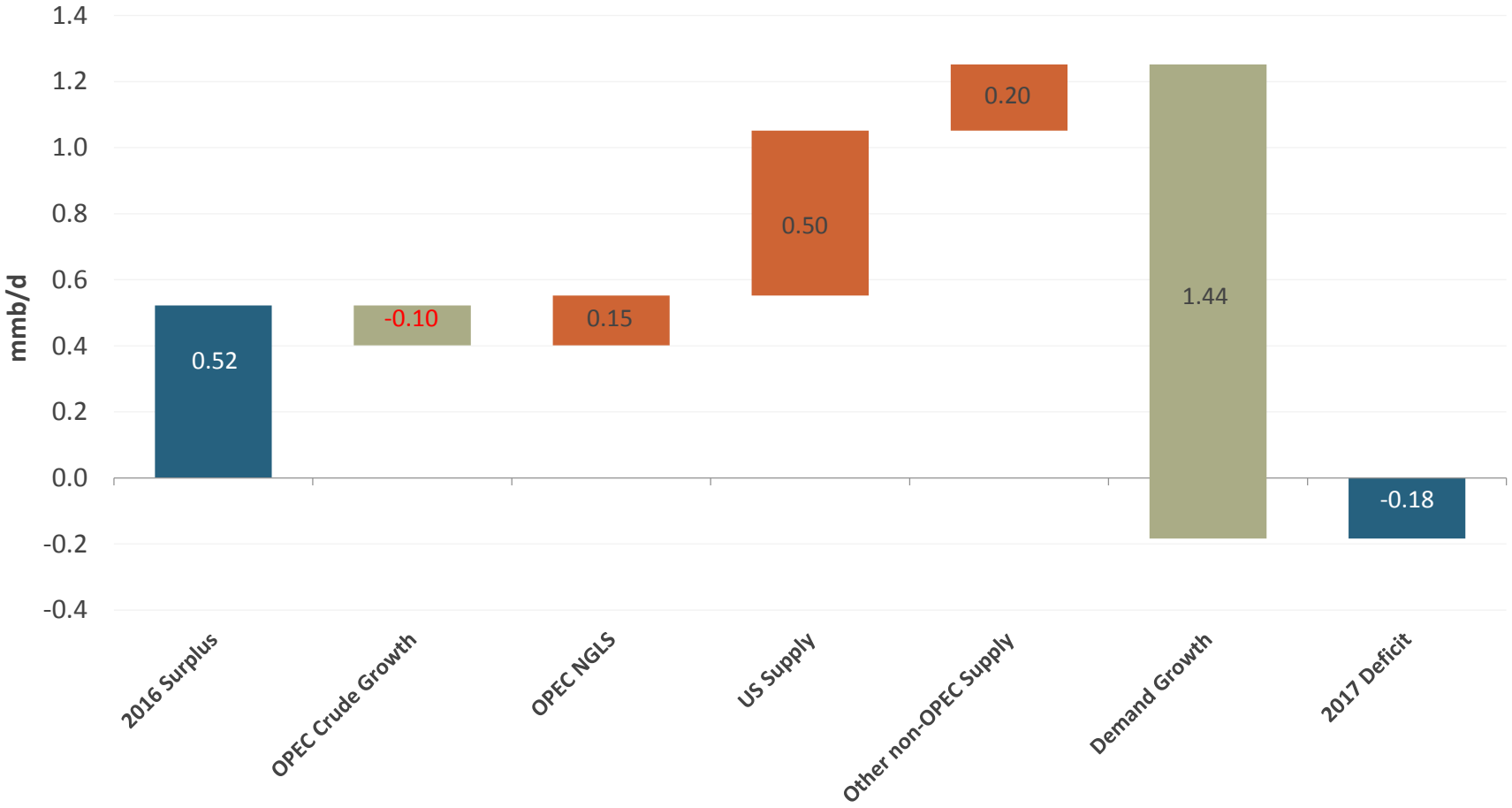
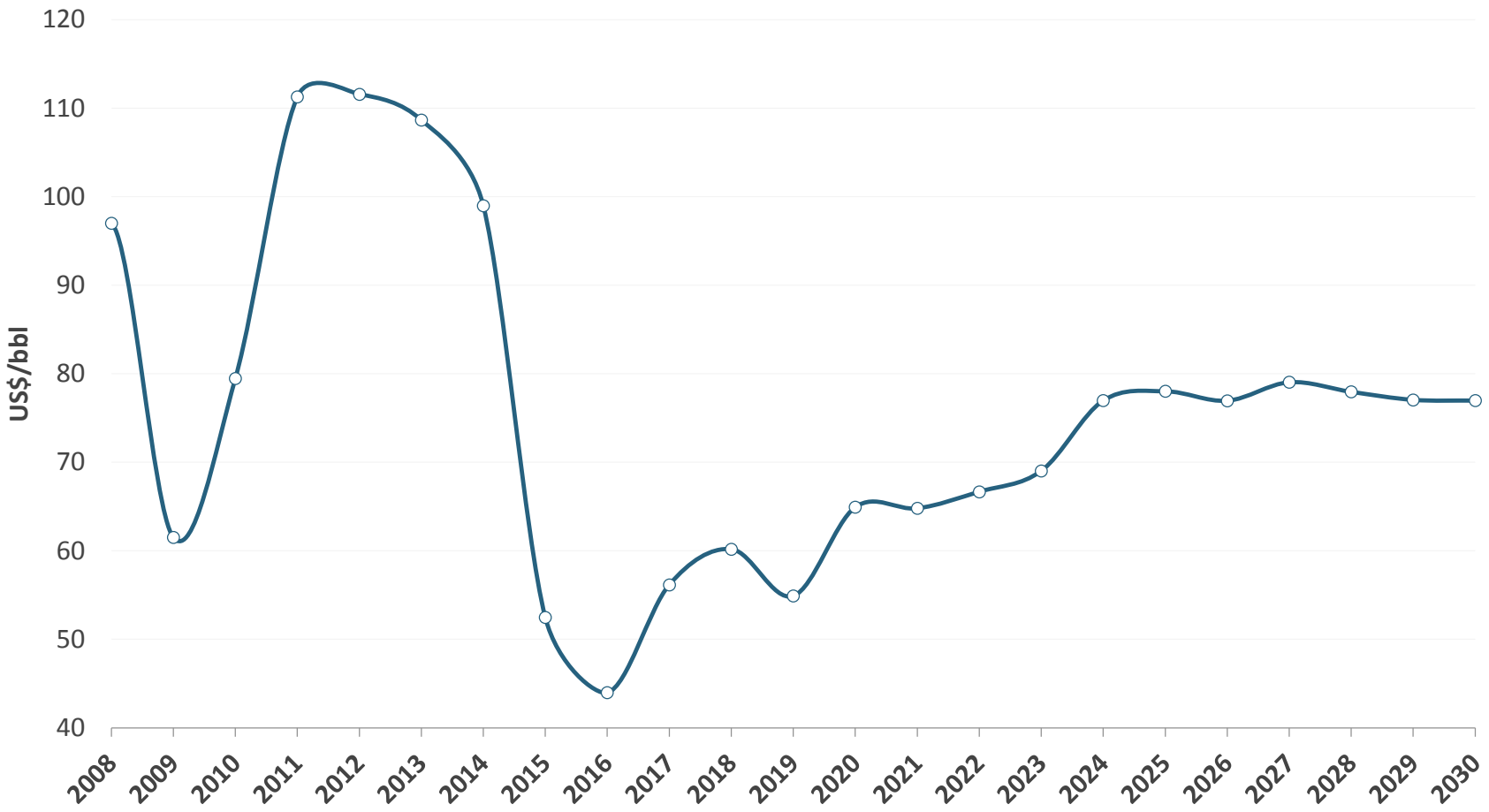
Crude Market: Balance or Imbalance

- OPEC has done a remarkable job in compliance with agreed cuts.
- Policy is a balance between market share and market management.
- Demand growth very solid at 1.5-1.6 million b/d, helping to move towards a balance.
- Market is watching carefully when buildup of inventory stops and draws begin.
- Will the inventory draws take place in 2H 2017?
- Oil prices of US$50-60/bbl might be sustainable. However, with the buildup in US volumes higher than expected, there is a downside risk of price sinking into the low US$40s over the next 12 months.
- OPEC's dilemma:
    a. If prices go above US$60/bbl, demand weakens and new supplies will appear;
    b. What if prices stay below US$50/bbl? More cuts? Who will cut?
- OPEC is committed to extend the agreed cuts at the OPEC Ministerial meeting on May 25, 2017 till end of this year or till end of 1Q 2018. Saudis tell us Russia is on board and they will do "whatever it takes" to stabilize the market.
- Black swan: Weaker demand and rising US tight oil supplies result in OPEC giving up on market management.

Oil Moves from Large Surplus to Small Deficit: 2017 vs. 2016



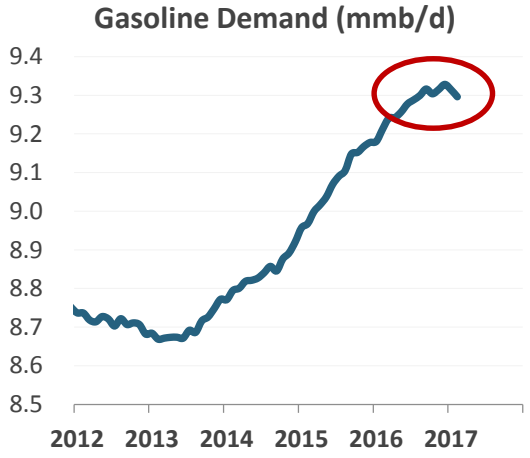
Base-Case Brent Crude Outlook: A Bouncy Climb

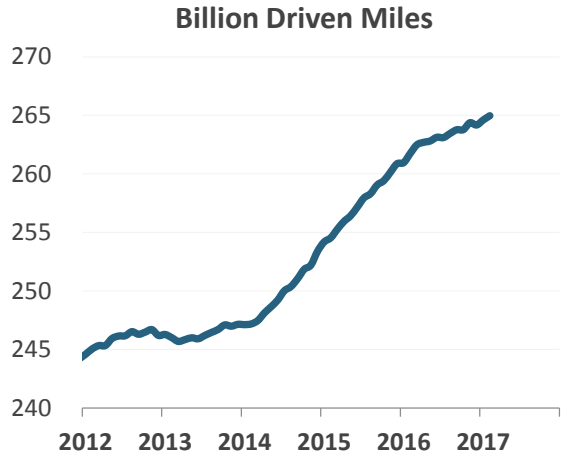


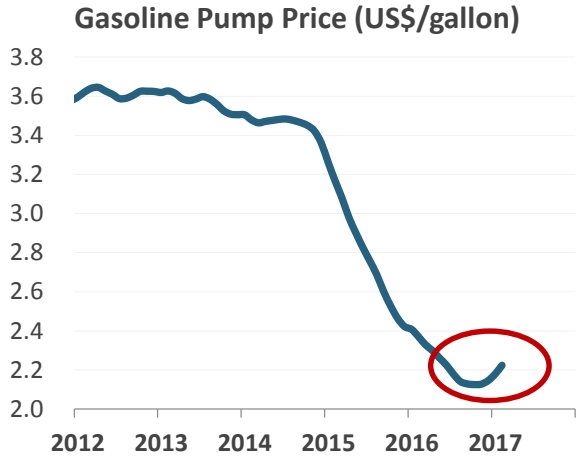
US Gasoline Strength – End of the Growth Cycle?

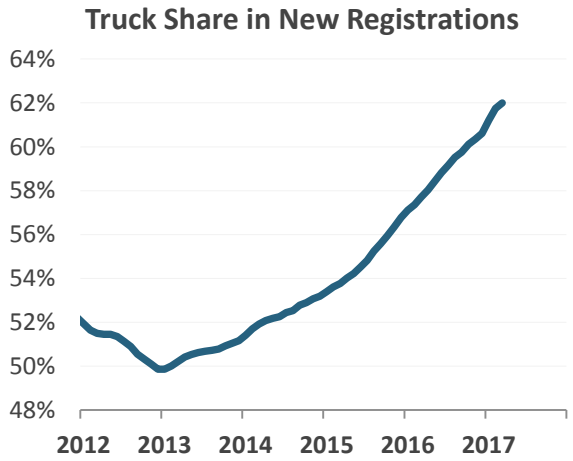
All data 12-Month Moving Average

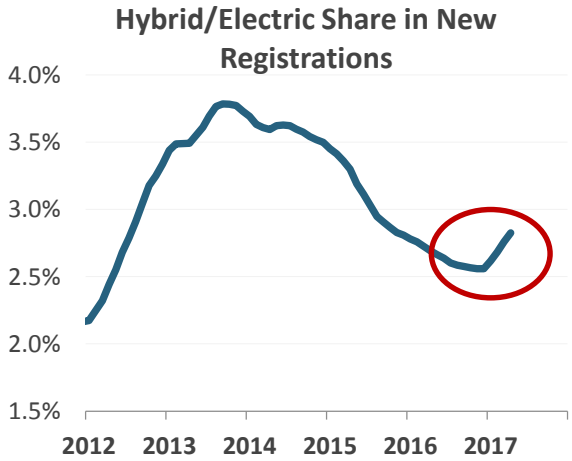
Demand growth of 2% average between 2013-2016 seems to come to an end. 2017 transition to stagnation?

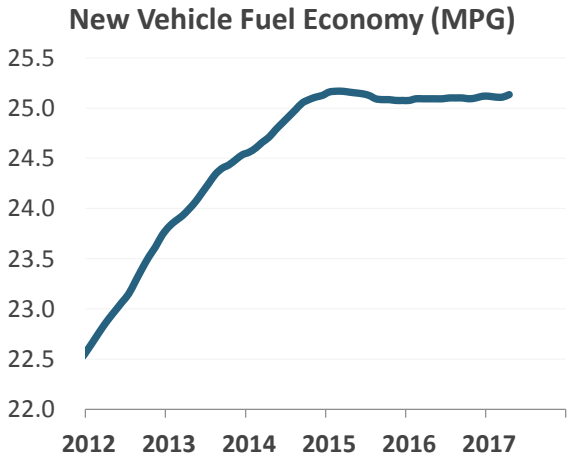




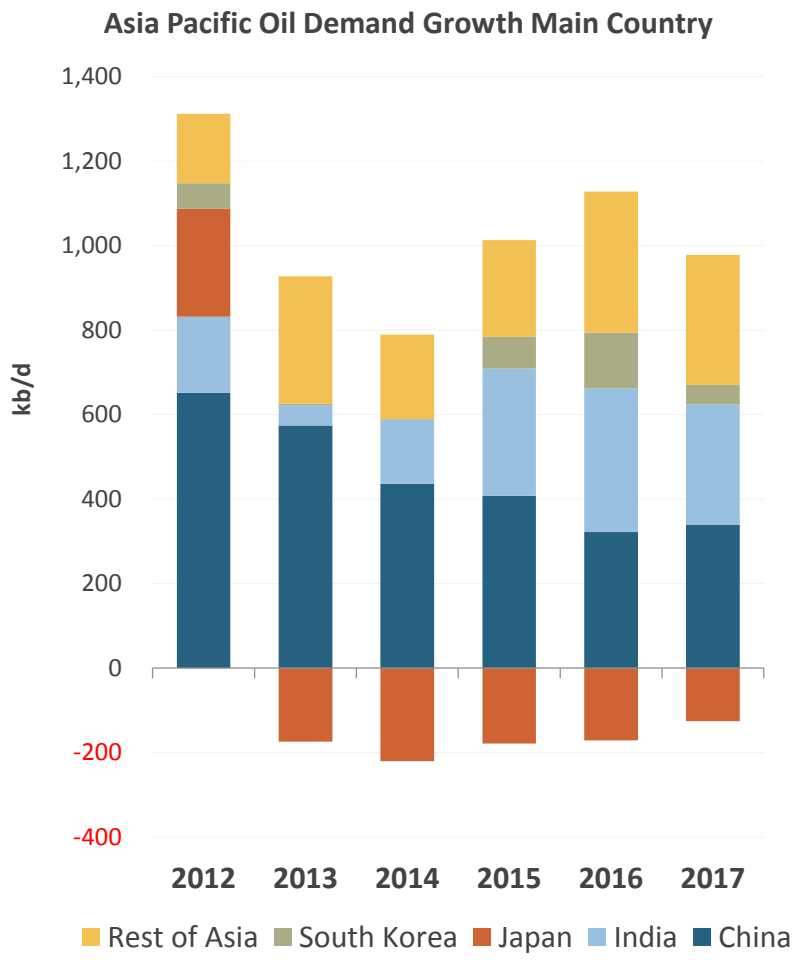








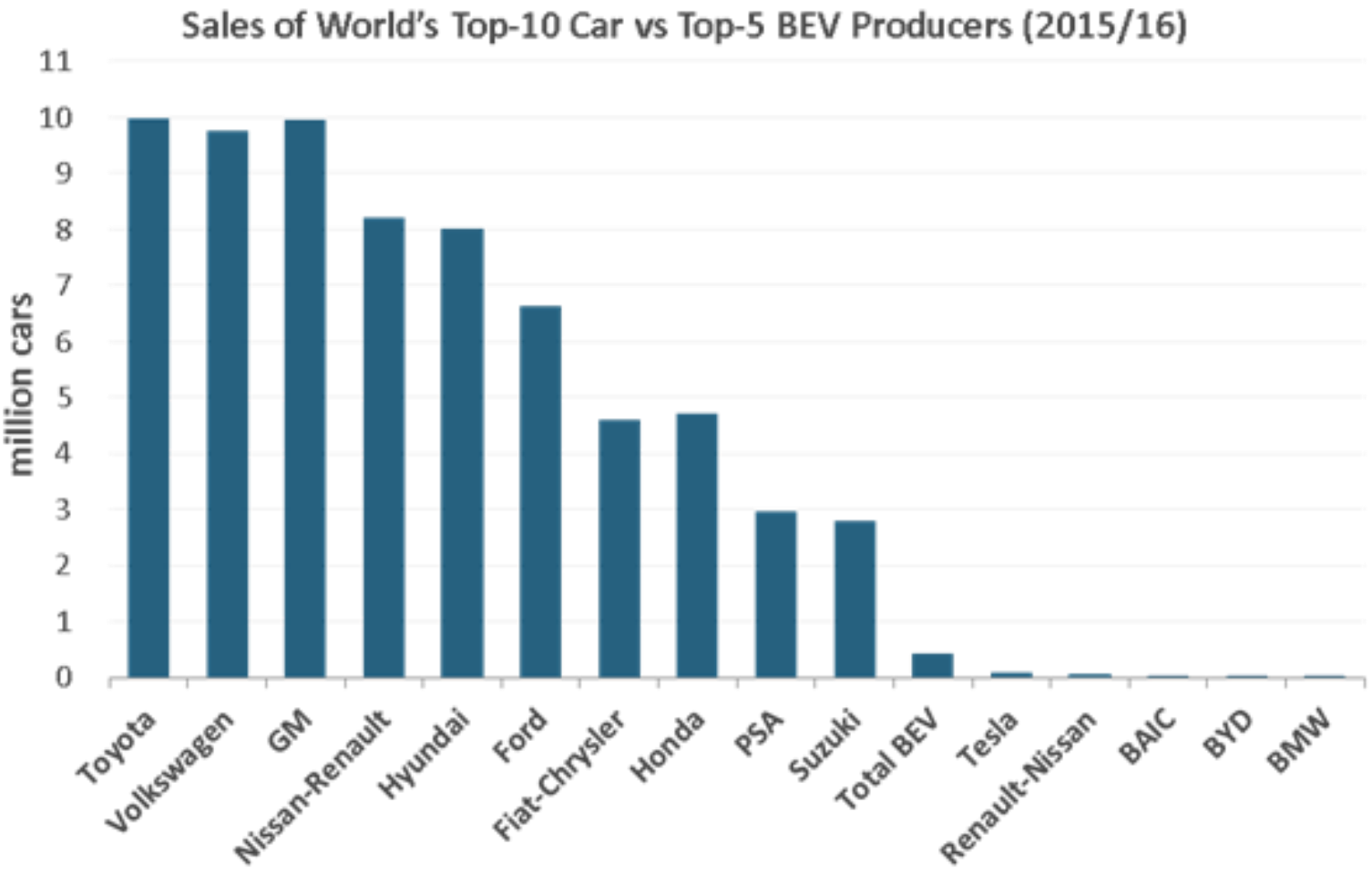
Asian Demand Moderating, But Still Solid Growth



Total Oil Demand Growth,* kb/d					
	2013	2014	2015	2016	2017
China	574	437	408	322	339
India	48	151	302	340	285
Japan	-174	-220	-178	-171	-126
South Korea	3	1	75	132	47
Rest of Asia	302	200	228	334	307
Total	**753**	**569**	**834**	**957**	**852**

*Includes other products and direct crude burn for Japan

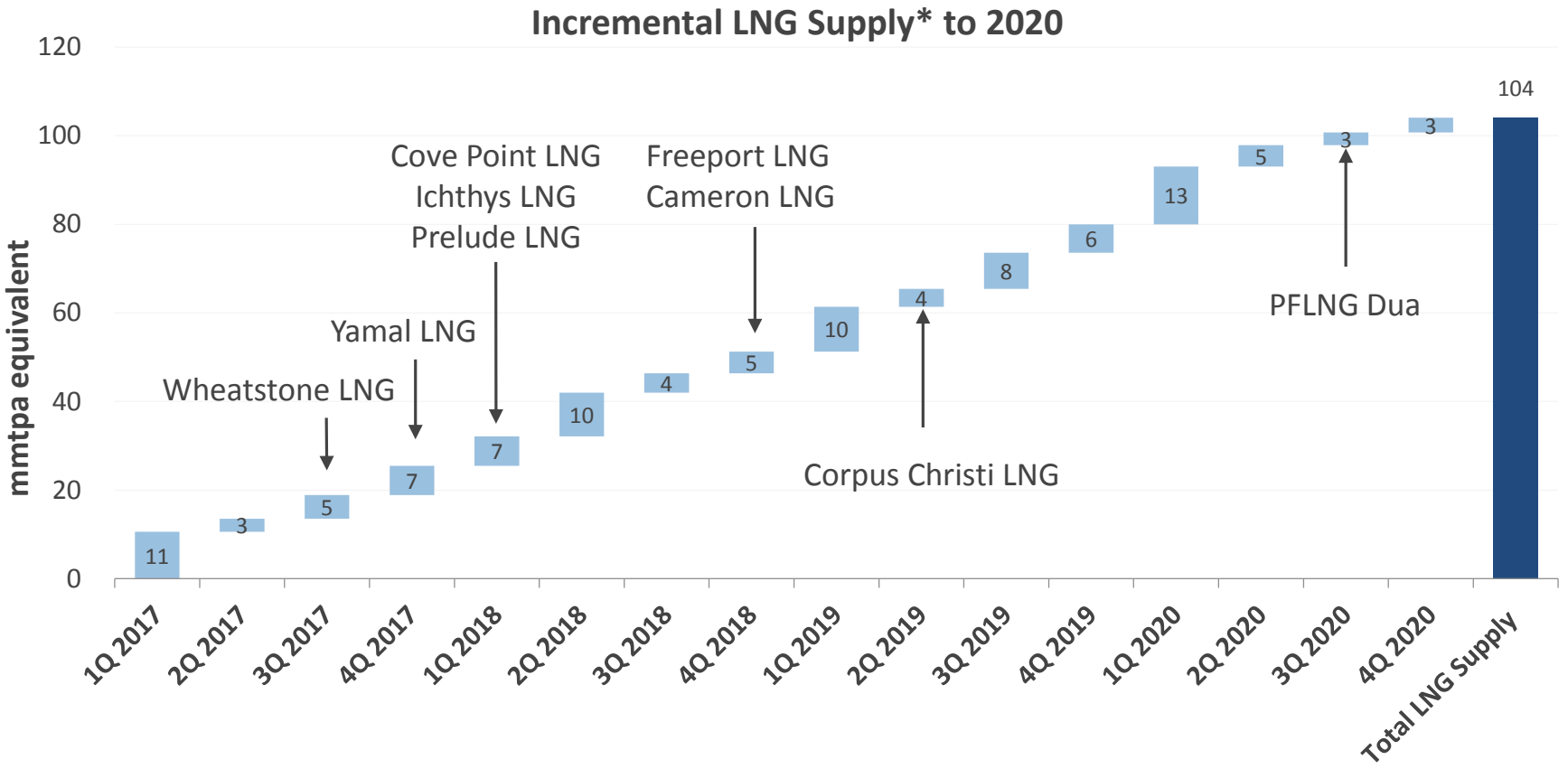
Electric Vehicles: A Lot of Excitement, but Still a Long Way to Go



The LNG Market: Slow Recovery

- While the balance in the oil market is upon us, the LNG market can take many years, around 2022-24, to reach a balance.
- The US exports face the biggest challenge as 50% of the LNG are still looking for a home; Australia faces similar problems on a smaller scale.
- There is just too much supply for 2018-2020! Demand is growing, but at a slower pace than supplies.
- Japan, with 35 mmt of re-contracting will lead the recovery and defines the market.
- New emerging markets are playing a key role, led by Pakistan, Thailand, and Indonesia.
- There will be a significant **deficit of LNG supplies beyond 2023**.

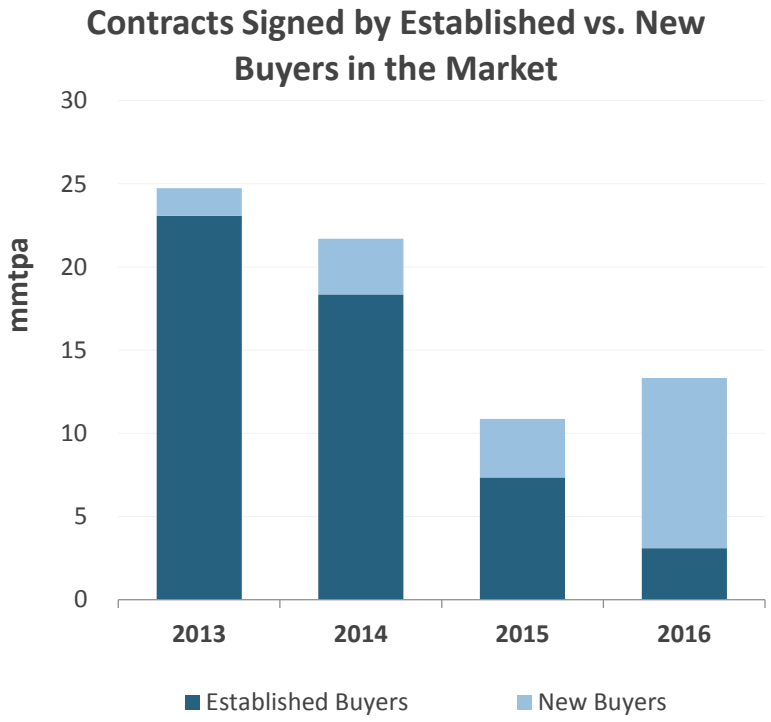
By 2020, Global LNG Supply Will Grow by 40% Due to Australia and US LNG Projects

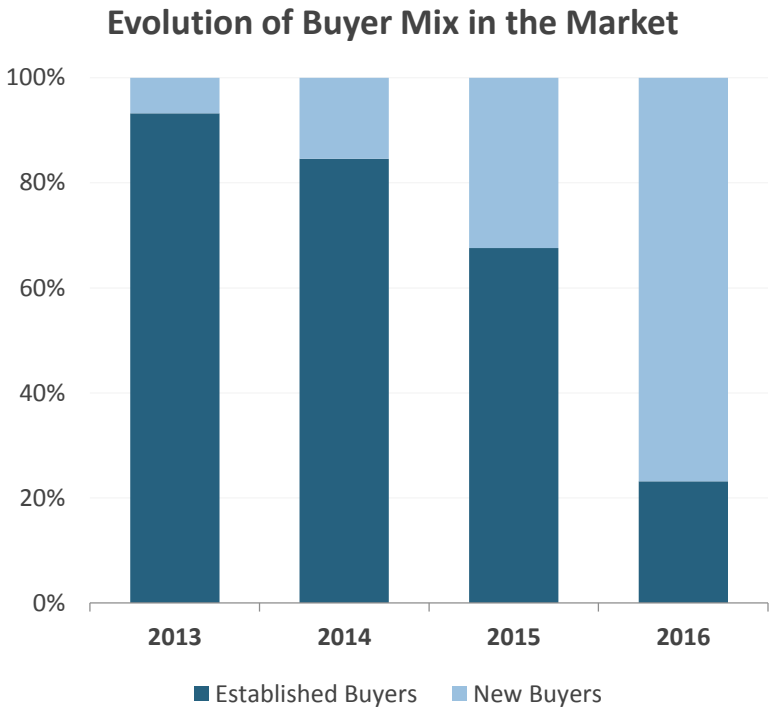


Notes: **Numbers reflect LNG deliveries per quarter in mmtpa equivalent.*
All the above shaded areas are FGE's project start-up dates assumptions and FGE's utilization rates assumptions.

- LNG supply additions from Australia and US Gulf Coast will increase current global LNG supply (+260 mmtpa) by more than 40%.

Current Market is Dominated by New Buyers

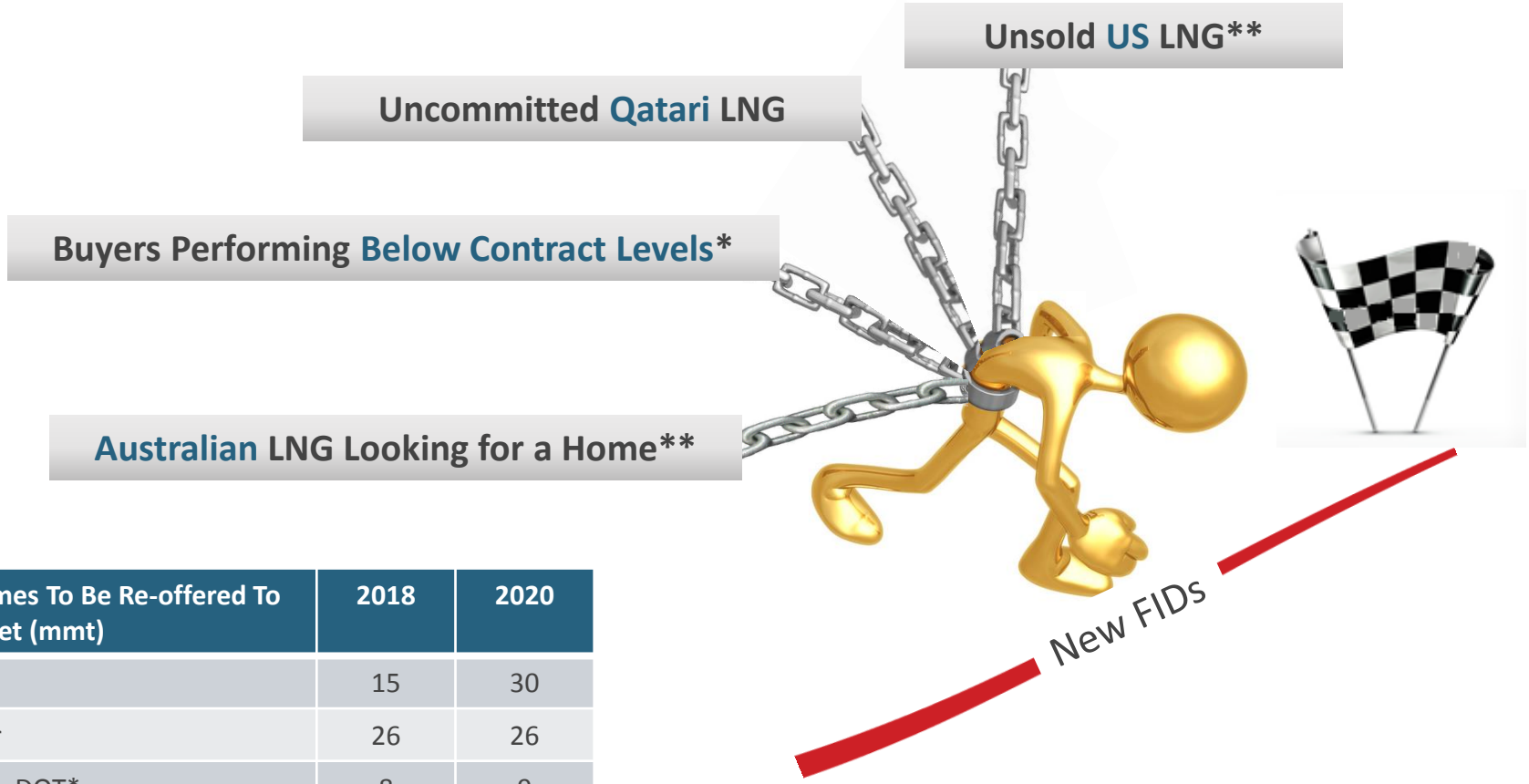




Note: charts include firm and likely mid- to long-term contracts signed by Asian and Middle Eastern buyers only.

New buyers include: ENN, Global Energy Infrastructure Limited, GS Energy, Huadian, JOVO, NEPCO, Okinawa Gas, Pakistan State Oil, Pavilion Gas, PLN, and Sembcorp.

“4 Chains” Weigh Down the LNG Market: The View Today… Something’s Gotta Give!

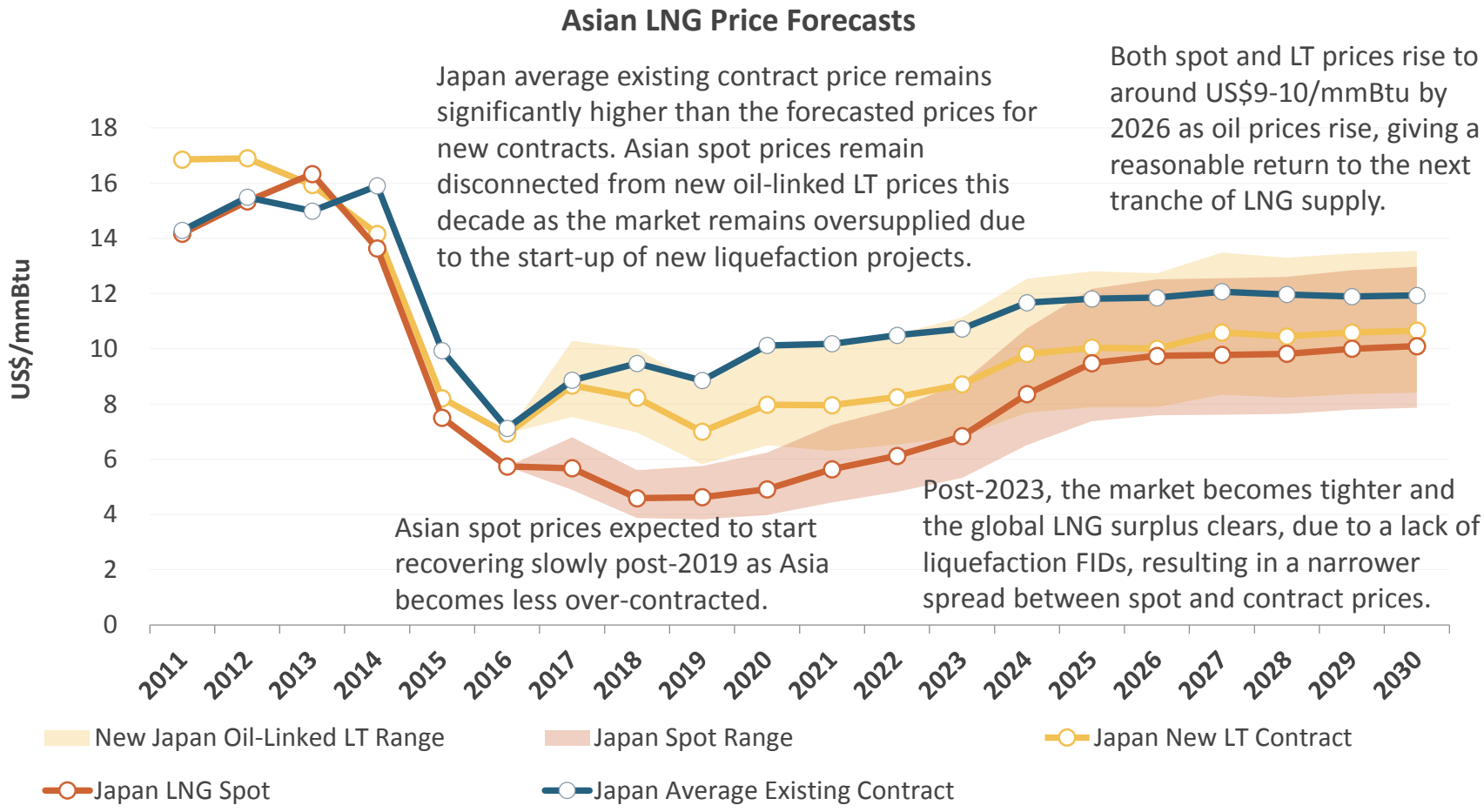


Volumes To Be Re-offered To Market (mmt)	2018	2020
US	15	30
Qatar	26	26
Below DQT*	8	9
Australia	9	12
TOTAL	**58**	**77**

Note: **Only for higher priced contracts (slope >13%).*

***Uncommitted volumes, equity offtake, and potential volumes re-entering market from ‘middleman’ buyers.*

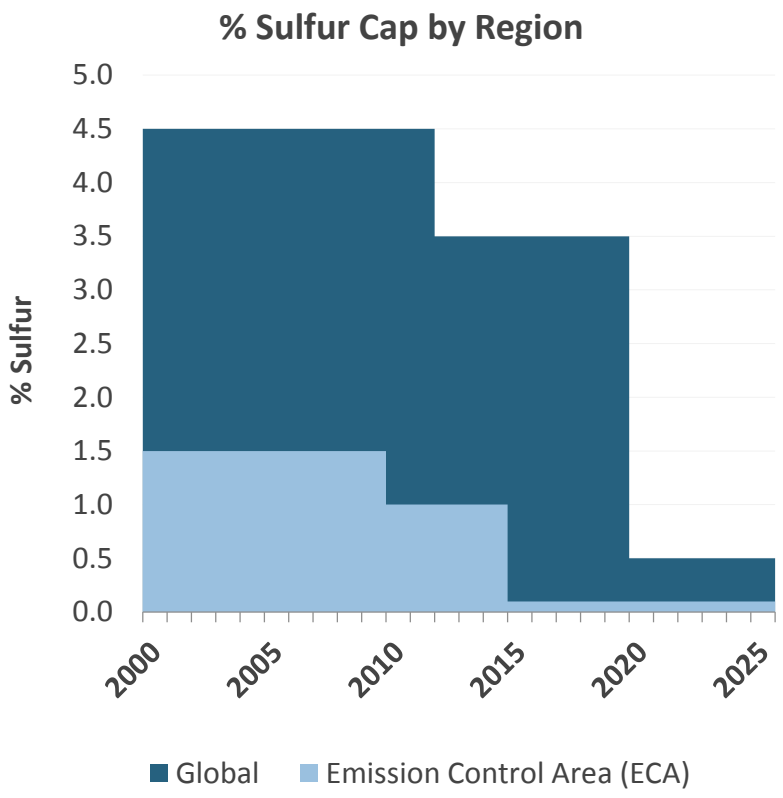
New Long-Term Contracts and Spot LNG Prices in Asia Remain Disconnected in the Near Term Due to an Oversupplied Market

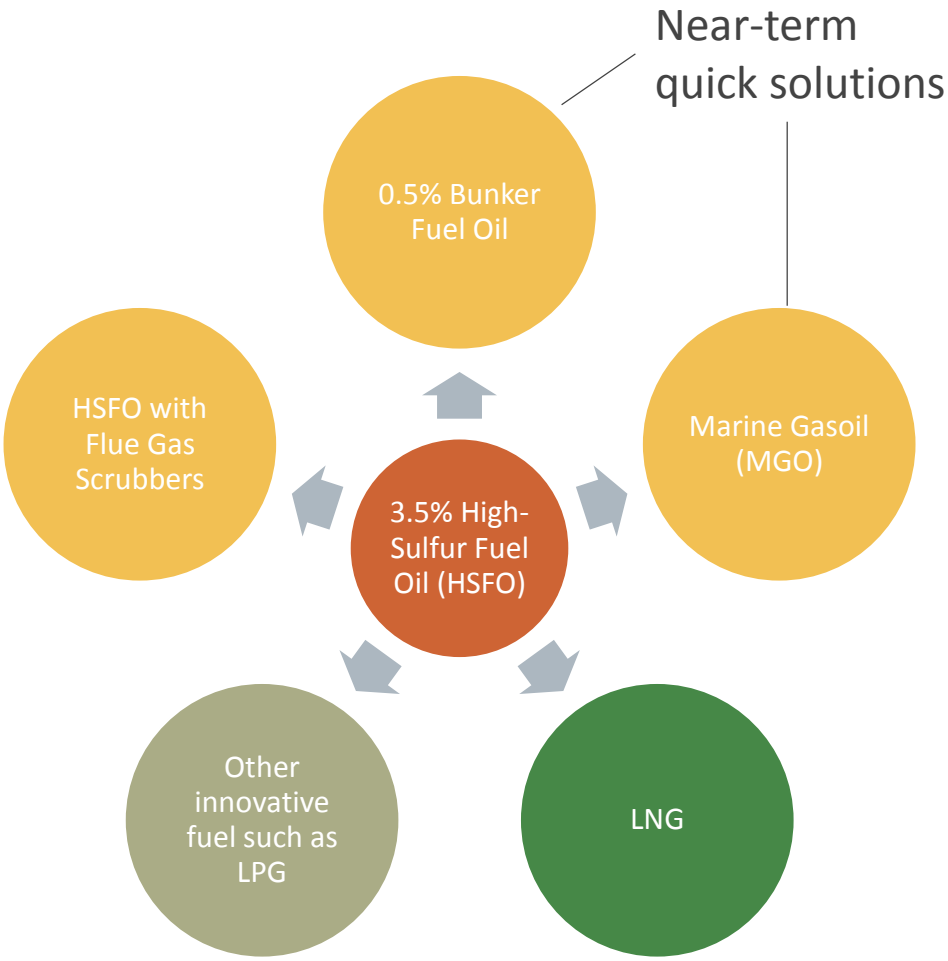


***Note**: Forecasts from 2017 are in 2017$ real terms.*

Note that defining long-term contract prices is not trivial as price outcomes are driven by current year oil/gas prices, but formulas are negotiated earlier. Our oil-linked price projection is based on current year oil price and our view on price formulas negotiated 2-4 years earlier. These formulas vary over time depending on market conditions.

Implementation of IMO Regulations for 0.5% Global Sulfur Cap by 2020—Potential Role for LNG?





Note: *Scrubbers work by spraying alkaline water onto the exhaust to remove sulfur before it is released to the atmosphere. ECAs includes the Baltic Sea, North Sea, North America (most US and Canadian coast), and US Caribbean (Puerto Rico and US Virgin Islands).*

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