Oil Prices Below $70 a Barrel Until 2030: What This Means For Shipping and Bunkering

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Introduction

- BFO 380 fell below $300/ton in the ARA at the beginning of this year half what is was six months before

- Distillate - Residual differentials have come down from $300 to $200/ton

- Halving bunker prices appears to have a muted impact on our industry

- Most ships have not speeded up significantly

- Economic growth has slowed this year flattening trade volume growth

- Energy consumption has just started to grow but not bunker demand

- These are unexpected outcomes

Price formation

Non OPEC

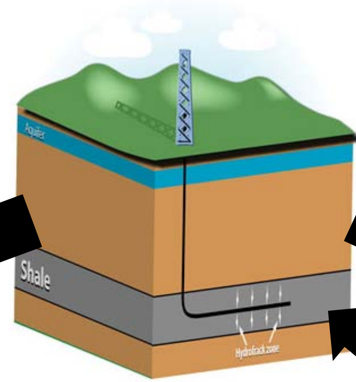
Slowing Economies

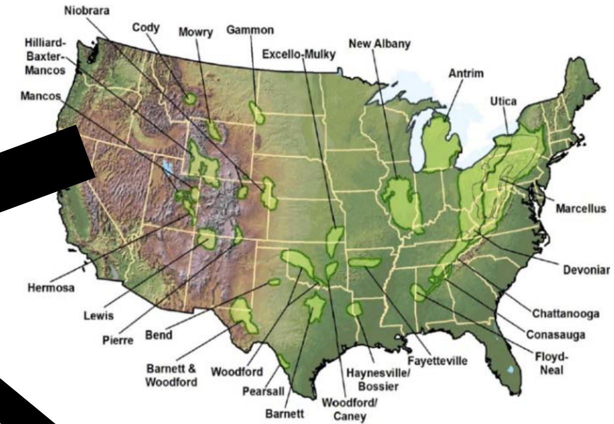
OPEC

New Reserves

Politics

Production Costs



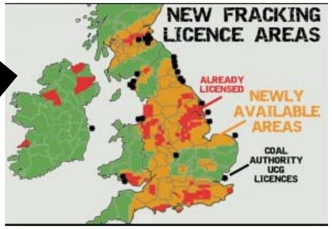


Margin

Strategic Importance

Location

Regional Differences



Expansion / Closures

Quality

Markets continually try to balance after disruption from

- New regulations
- Interruption of supply
- New fuels
- Technologies

Quantity

Credit

Requested Spec

Service

Location

What is pushing prices?

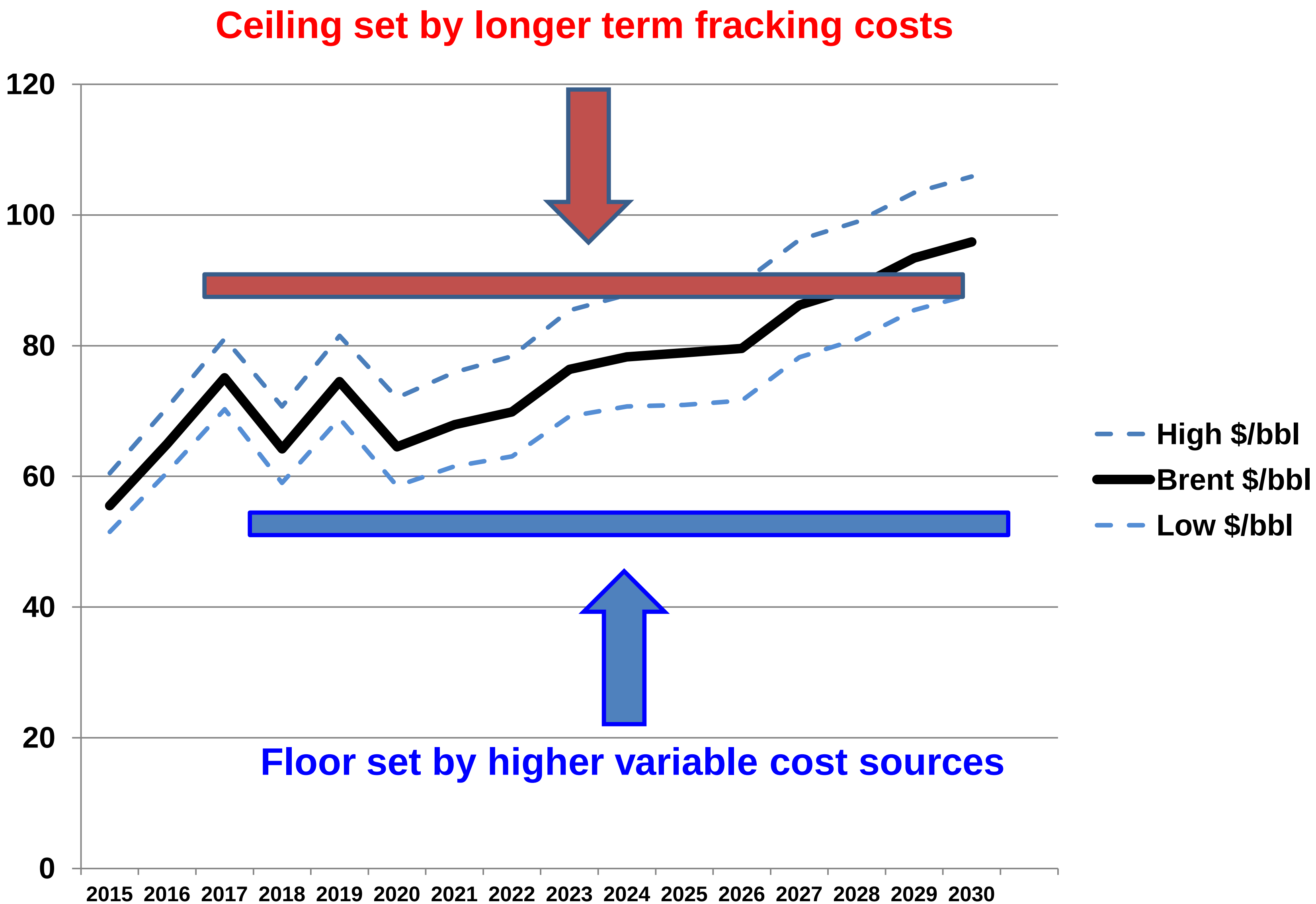
- **Price range**
  - At prices above $60/bbl fracking is viable with new technologies
  - This sets future longer term ceiling price
  - Floor price set by break even costs in high-cost production areas
  - This is around $45/bbl

- **Demand growth will be slower in the next decade**
  - Longer term global economic recovery slowed to less than 3.5% pa
  - Most existing energy efficiency technologies will continue to be implemented
  - And improved
  - No significant increase yet in demand for bunkers resulting from lower energy prices
  - Paying to emit GHG will eventually further inhibit demand growth for conventional oil
  - The switch away from auto diesel will only have a marginal impact

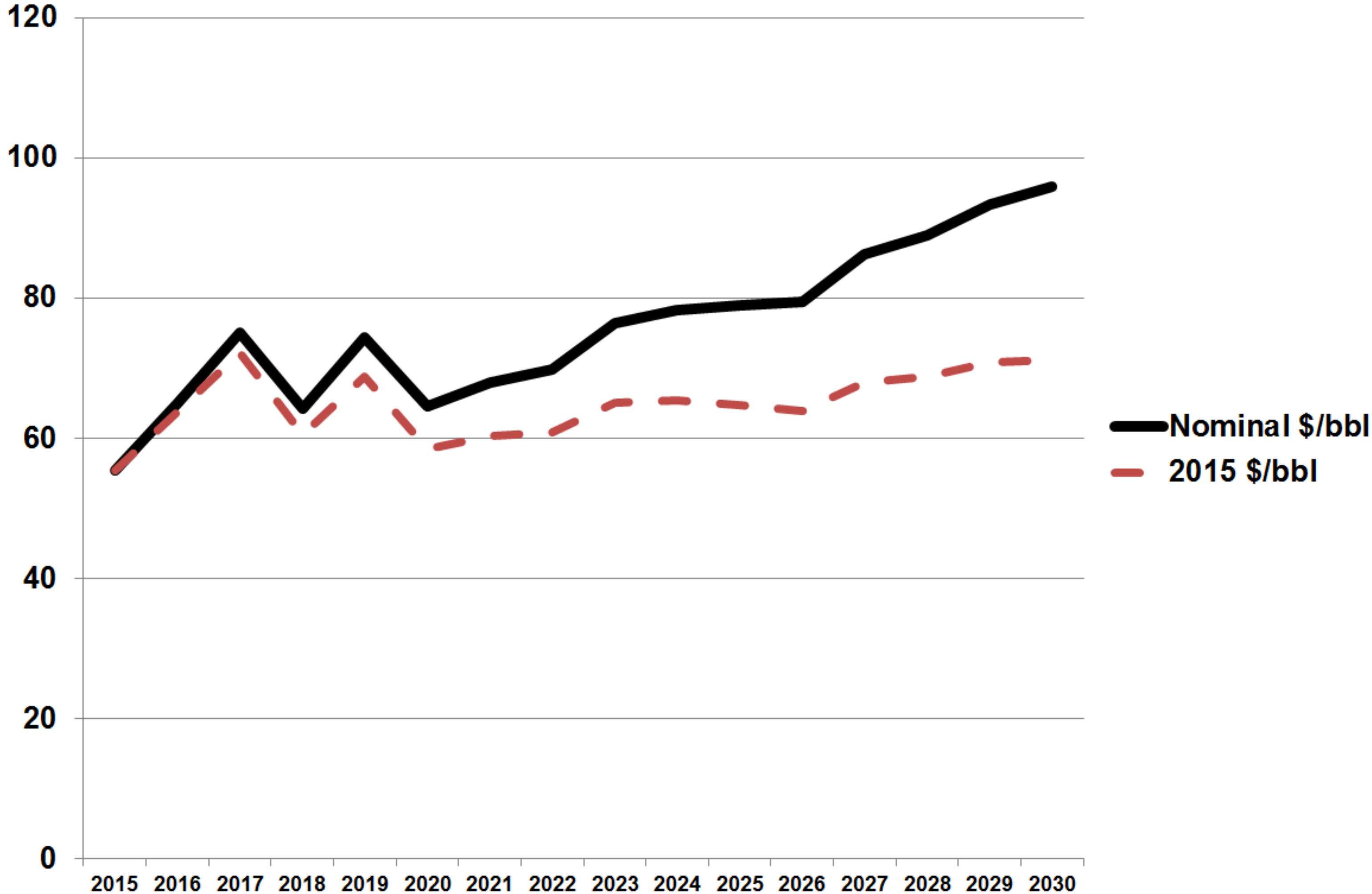
Where will Crude Oil prices go?

- **Market forces**
  - **Crude oil market has changed from cartel-controlled to supply-demand based**
  - **Increased volatility – but in a range of $50 to $70/bbl for Brent in today's dollars**
  - **Reduced investment in conventional exploration**
  - **OPEC less influential**
  - **Prices will continue to be influenced by politics and disruptions**
- **Some initial forecasts**
  - **BP suggest 3 years before prices rise**
  - **Low prices for 4 or 5 years then $200/bbl – ENI**
  - **Prices will be lower longer – Goldman Sachs**
  - **Bank of America Merrill Lynch - Brent average $58/bbl in 2015 and $62 in 2016**

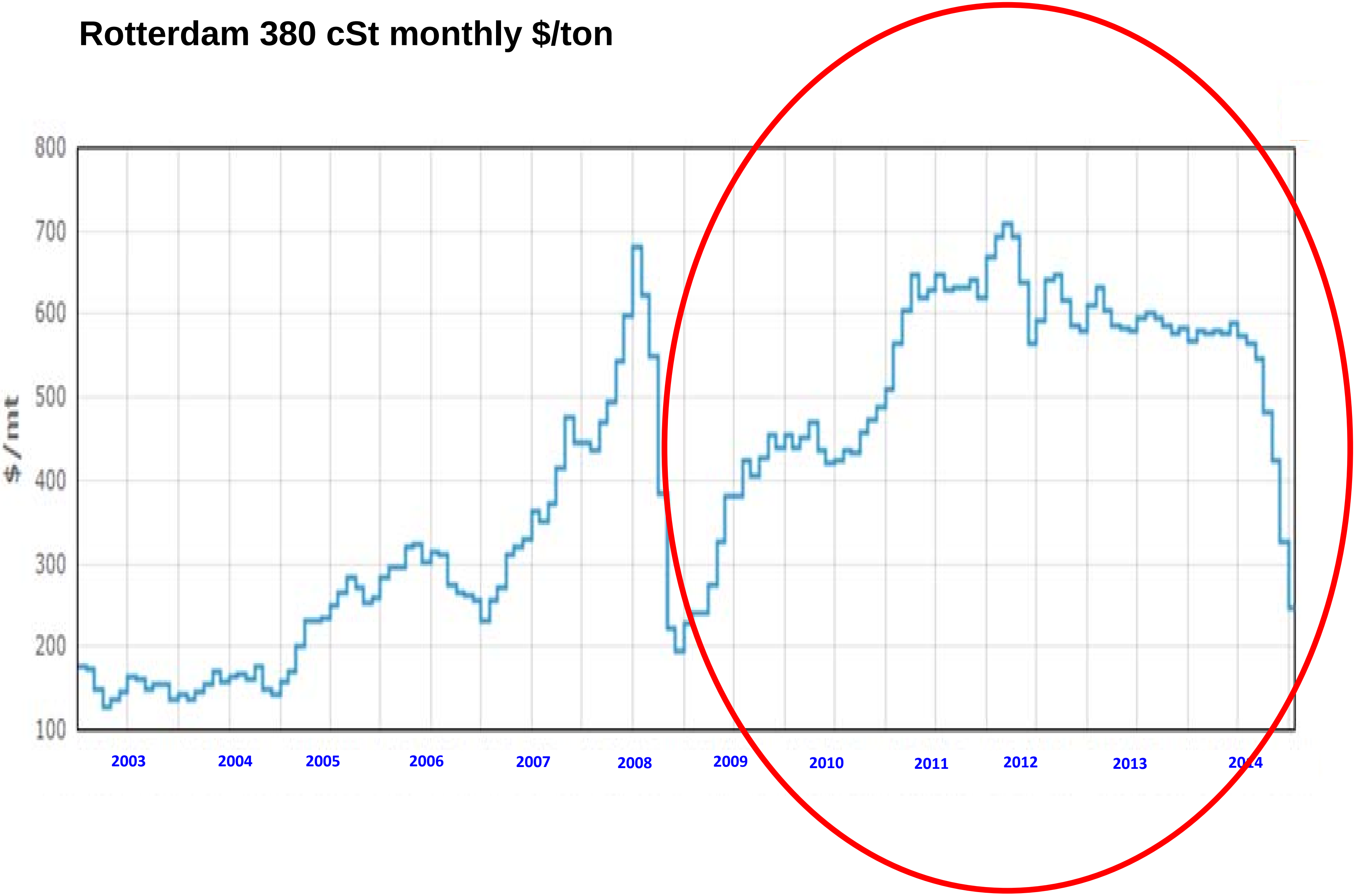
Predictions of spot annual average Brent $/bbl



Perception of little increase in crude prices in constant terms Brent $/bbl

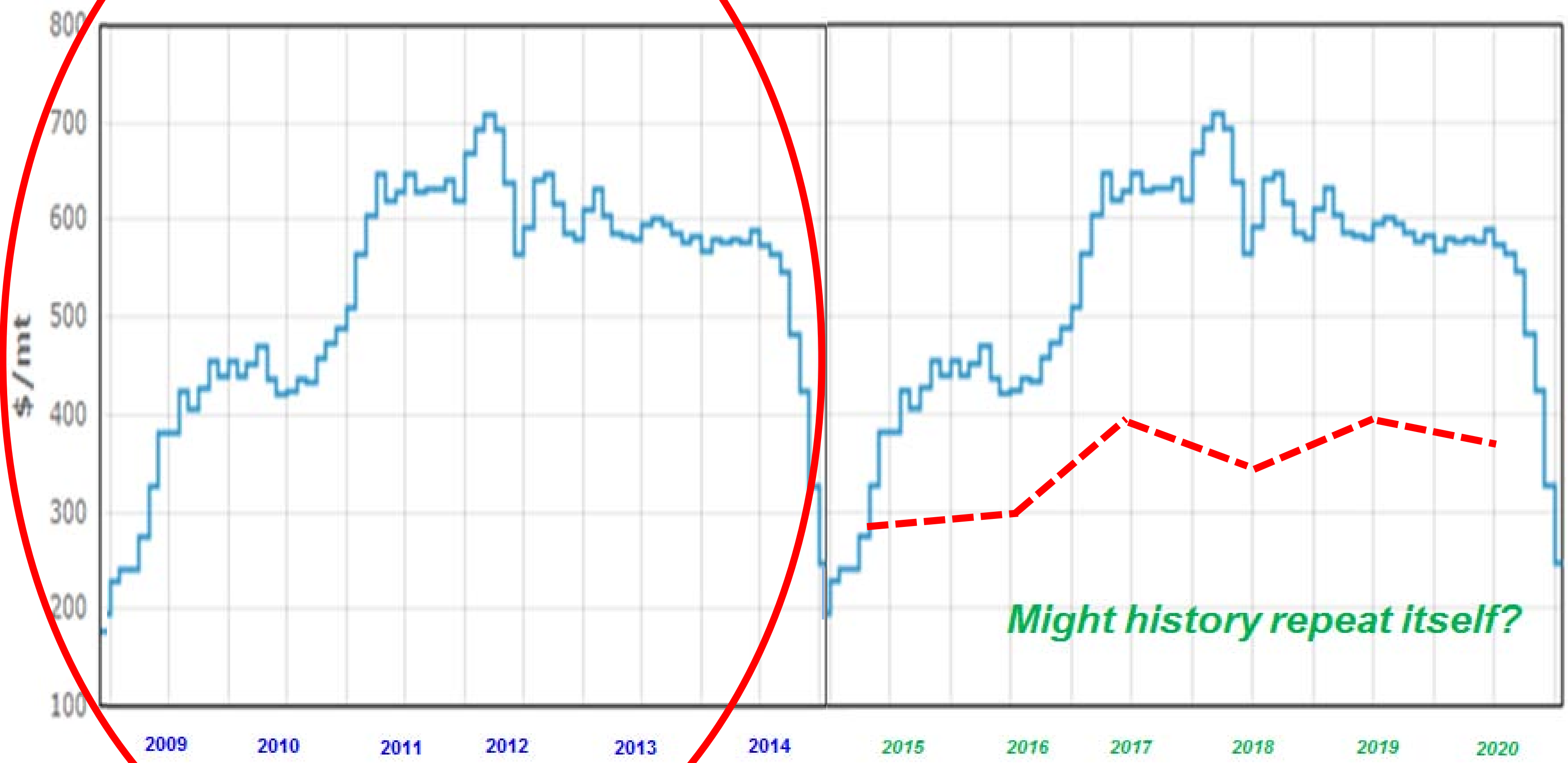


Rotterdam 380 cSt monthly $/ton



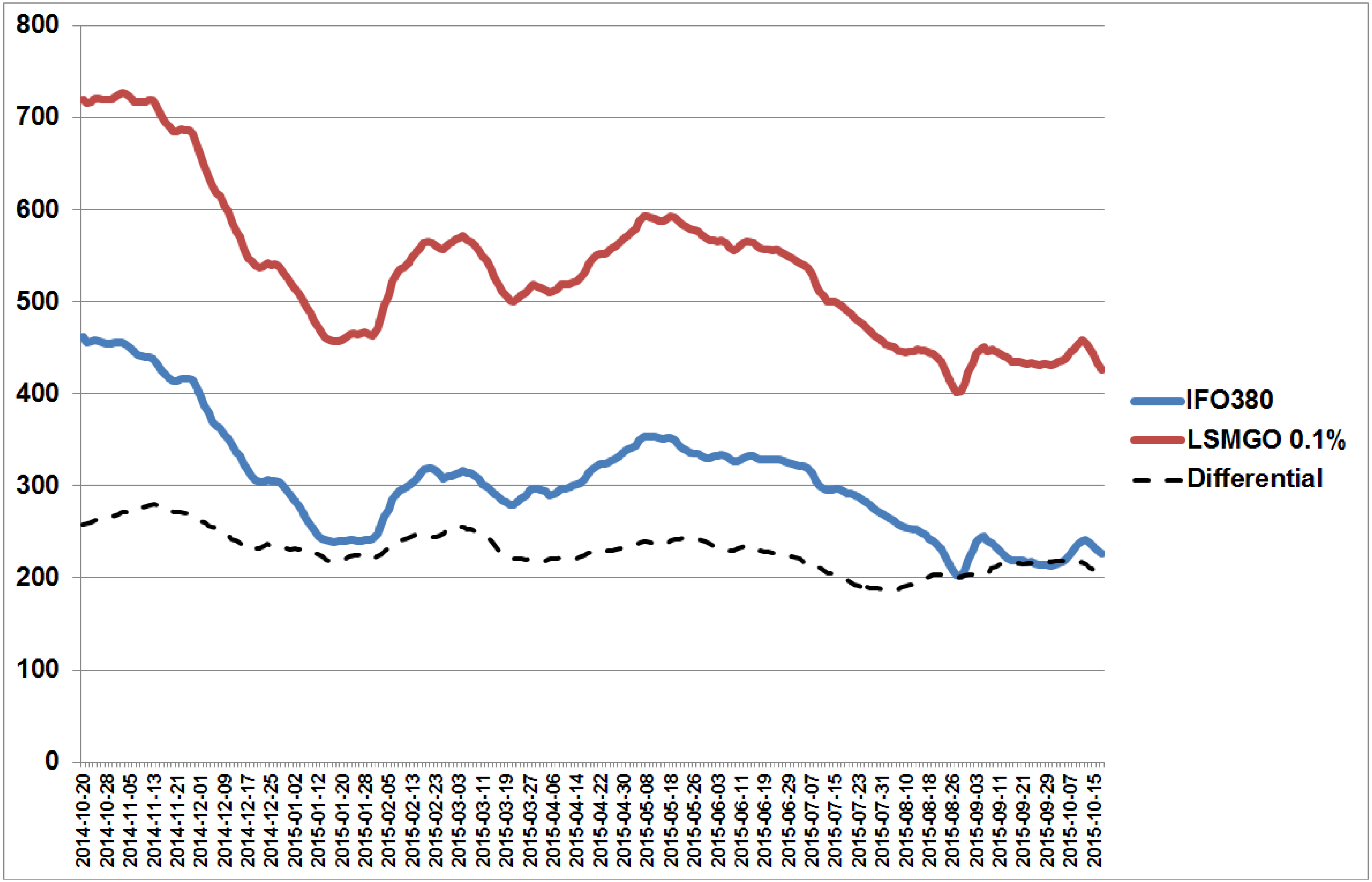
Source: Bunkerworld

Future Rotterdam 380 cSt monthly $/ton

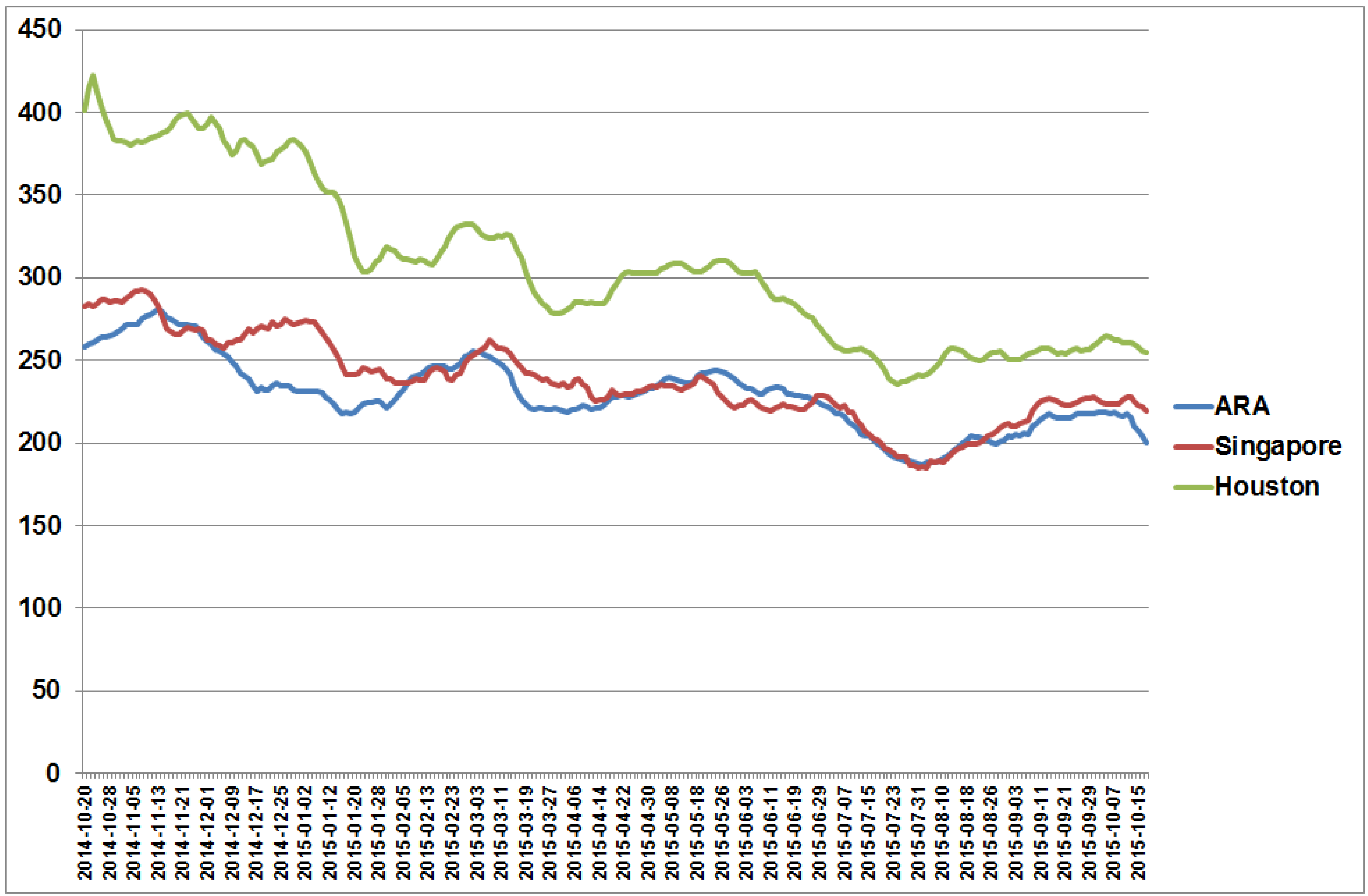


Less likely with changed supply scene

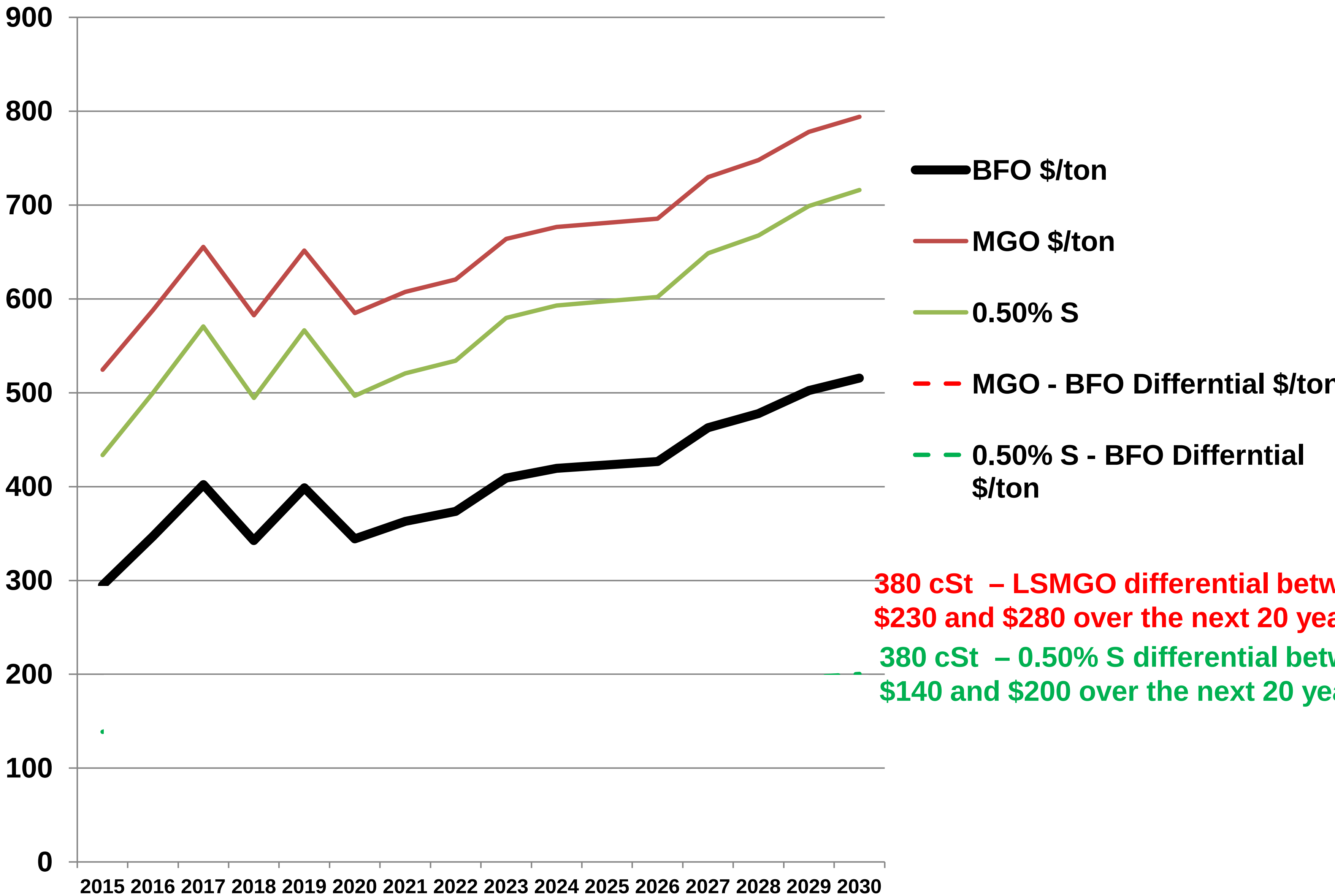
ARA BFO prices have come down by 50%, MGO by 40% but the differential by only 20%



The differentials have remained above $200/ton in the key locations



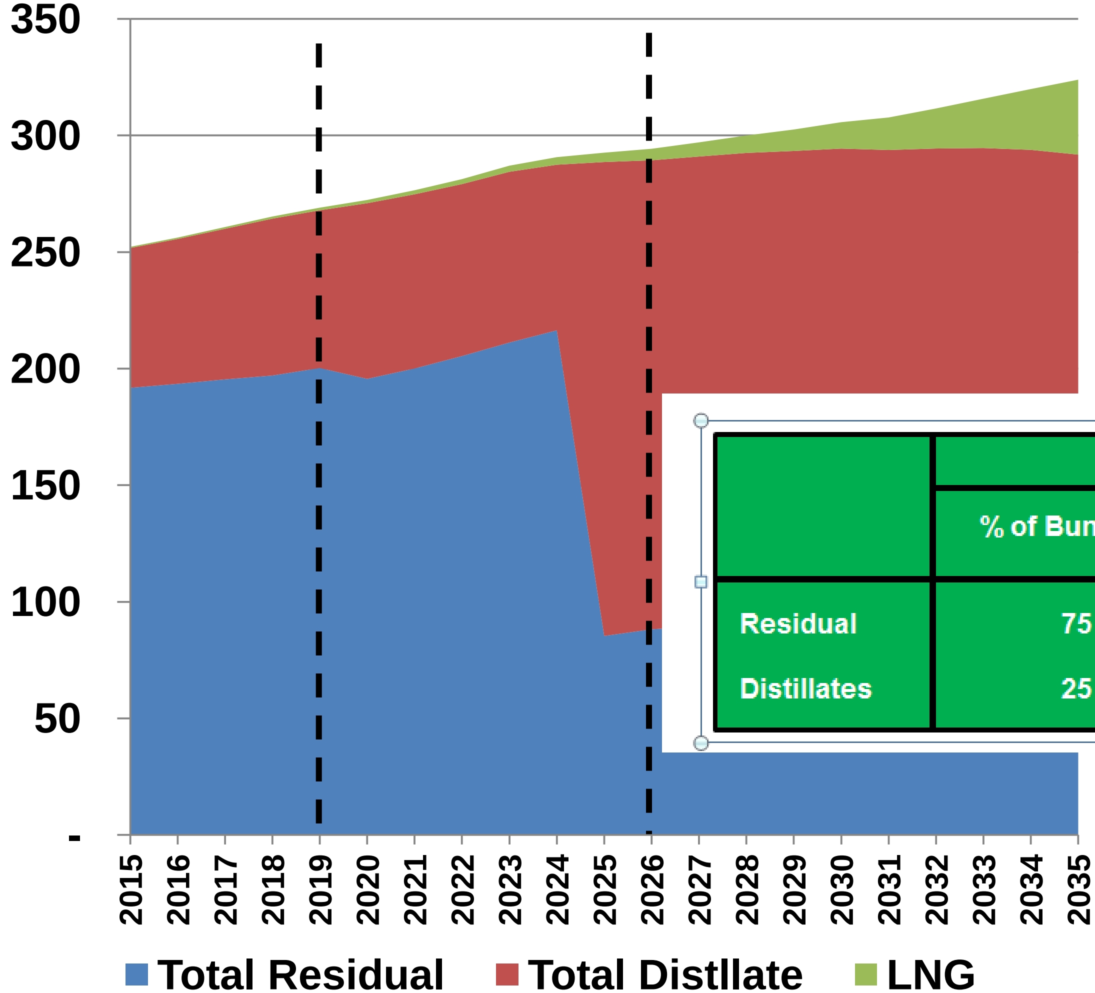
Bunker prices $/ton



380 cSt – LSMGO differential between $230 and $280 over the next 20 years

380 cSt – 0.50% S differential between $140 and $200 over the next 20 years

Demand growth will remain slow over the next decade with distillate becoming the dominate fuel



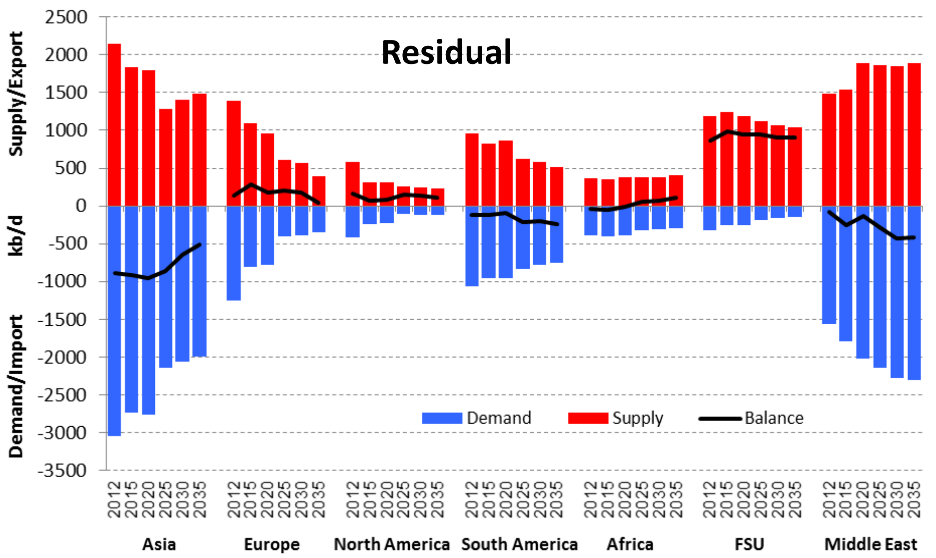
Demand growth suppressed by
- Slower economic growth in next decade
- Reduced trade per $1 of GDP
- Greater energy efficiency

Two key influences
- Global cap
- Use of alternative fuels

	2019		2026	
	% of Bunkers	% of Global Demand	% of Bunkers	% of Global Demand
Residual	75	47	30	25
Distillates	25	5	67	12

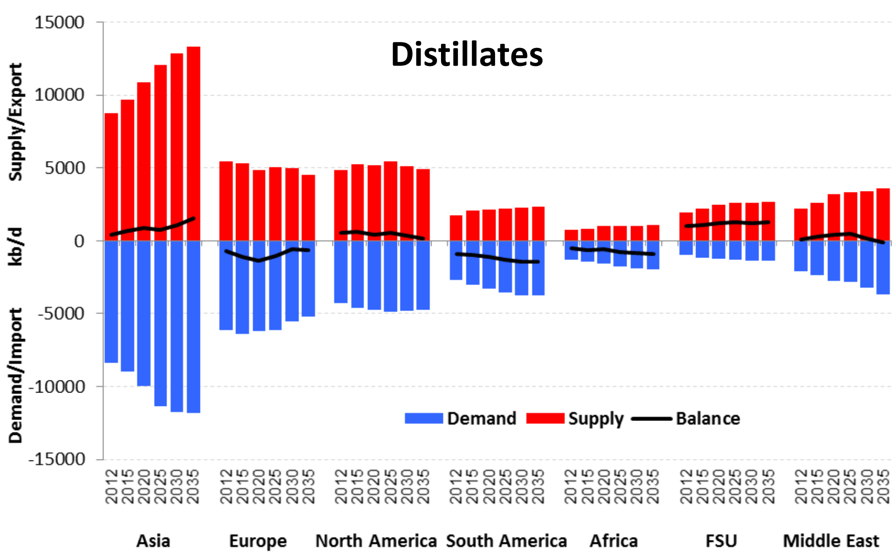
As a result future bunker costs will be much more influenced by inland markets

The product balances are changing with implications for global markets



Residual Bunkers

- Residual will continue to flow into the Middle East and Asia from western sources
- Future price differentials between major markets will not change significantly



Distillate Bunkers

- Distillate surpluses in Asia and the Middle East will see lower prices than in Europe
- In the future distillate bunker prices could be higher in the ARA than Singapore or USGC

The need to consume lower sulphur fuels will influence prices

ECA

- Price premium on 0.10% S of $250/ton
- ECA compliance relatively high in Europe and North America – greater than 80%
- Possible new ECA in China – may be

EU EEZ

- Price premium on 0.50% S of $150/ton
- Low compliance under current enforcement uncertainties
- Owners may well switch to 0.10% on the edge of the EEZ

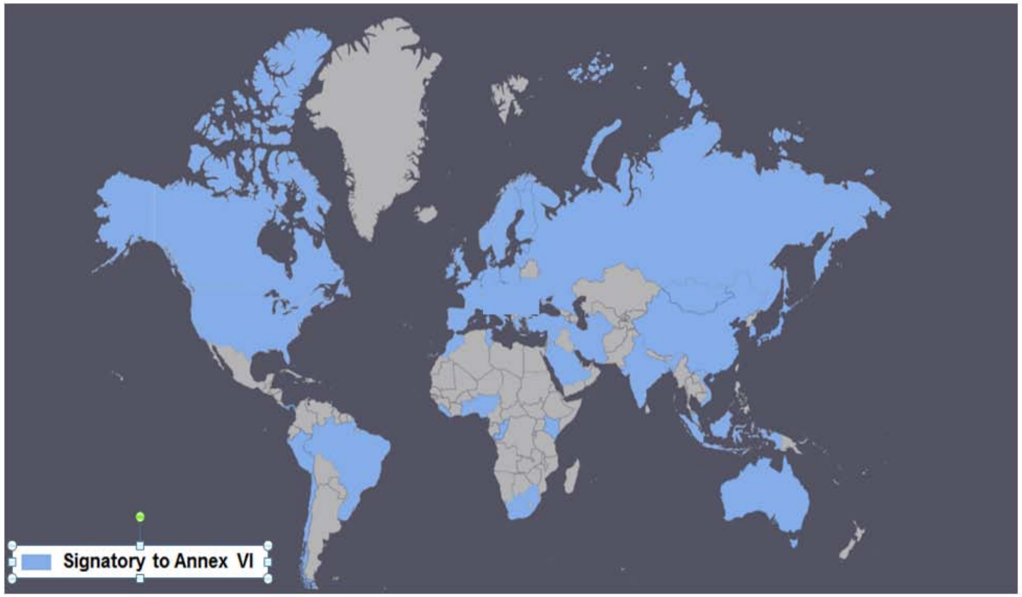
Global Cap

- Price premium on 0.50% S of $150/ton
- Introduction in 2020 more likely
- Flag states have jurisdiction on high seas – will they enforce? – doubtful for open registries
- Who can afford to comply in these circumstances?
- Until the uncertainty is minimised there will remain a reluctance to invest by
  - Refiners in upgrading capacity
  - Ship owners in abatement

Suppliers and ship operators remain in limbo until the issues of timing and enforcement are resolved

Improving enforcement will improve the environment and freight competitiveness

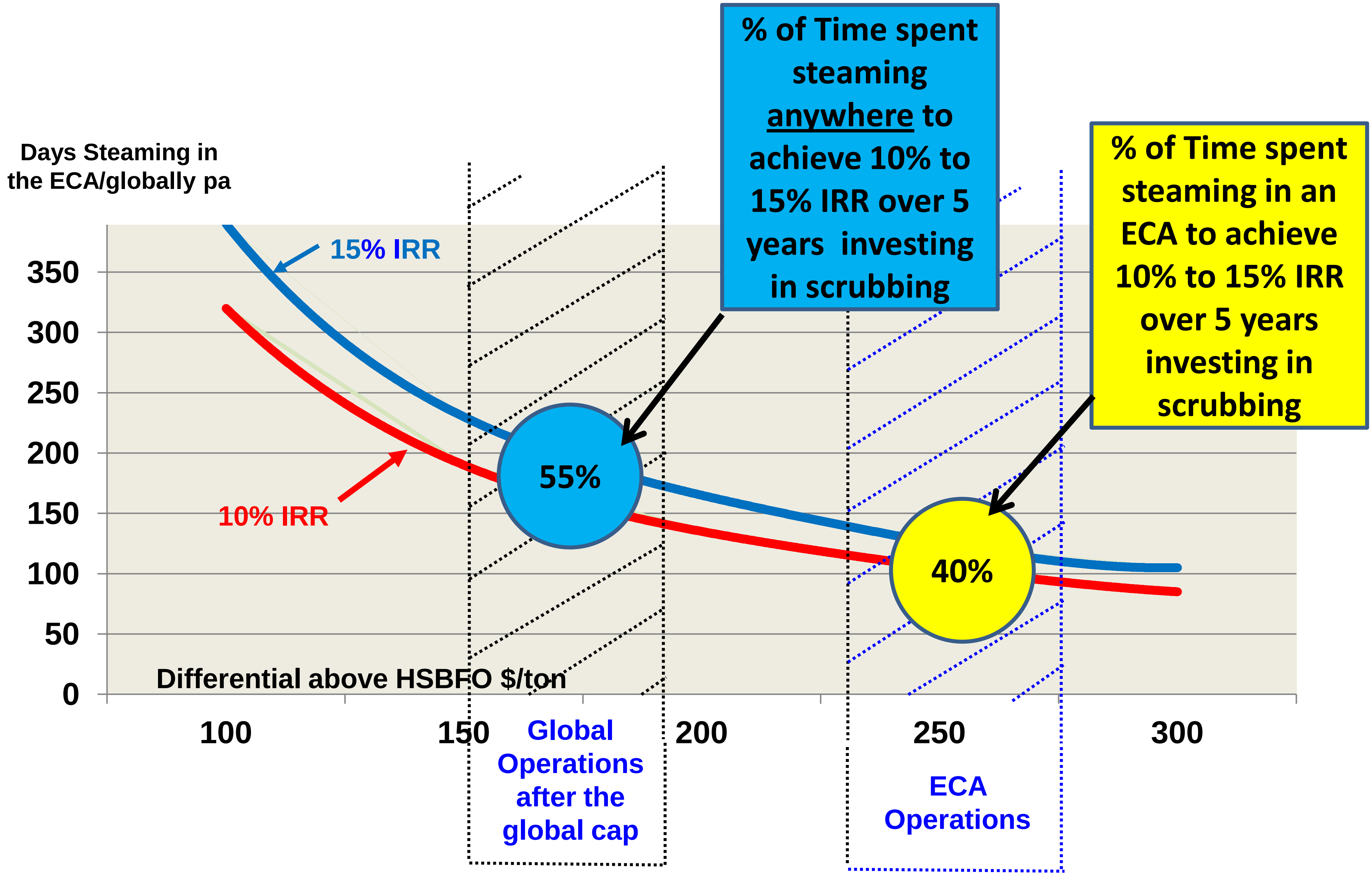
- Over 90% of global trade is through the ports of the 86 states that are signatories to Annex VI
- Making it illegal to have uncompliant fuel in bunker tanks without abatement equipment on board would give the PSC jurisdiction under their domestic laws
- This removes the need to involve the flag state – only inform them
- Inspection would be reality easy
  - Check the oil log book
  - Occasional tank samplings
  - Infrequent checking for false tanks/connections
- It is likely that transgressors could be made to de-bunker as a minimum
- Checking that abatement equipment has been operated remains an issue
- As does the propensity for PSC to penalise dissuasively



Proposed amendment to Annex VI

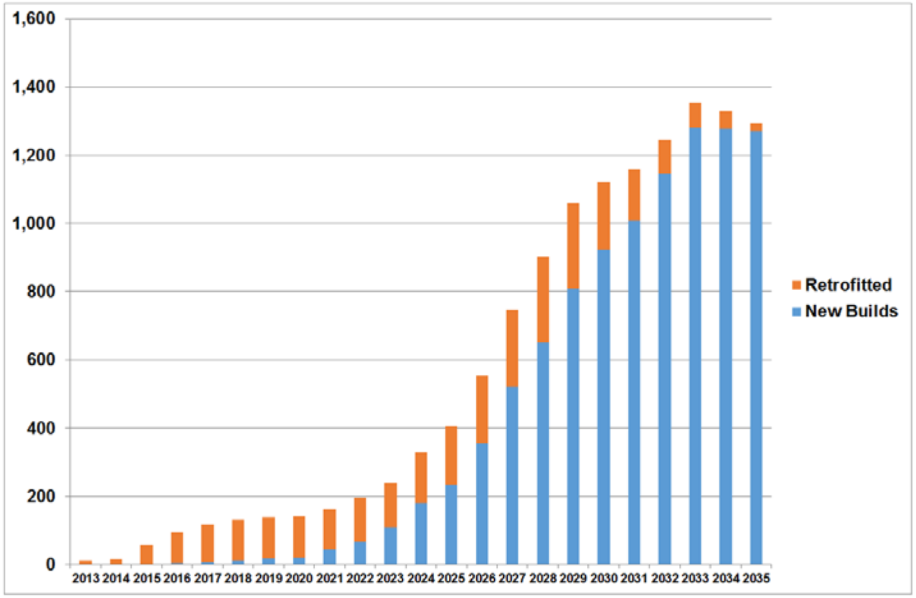
Regulation 14 (8) - The sulphur content of any fuel in the ship's bunker tanks at any time shall not exceed 0.50% m/m after [2020/2025] unless the ship has such fitting, material, appliance or apparatus or other procedures, alternative fuel oils, or compliance methods that are at least as effective in terms of emissions reductions as that required by this Annex, including any of the standards set forth in regulations 13 and 14.

Scrubbing remains financially viable even with lower prices

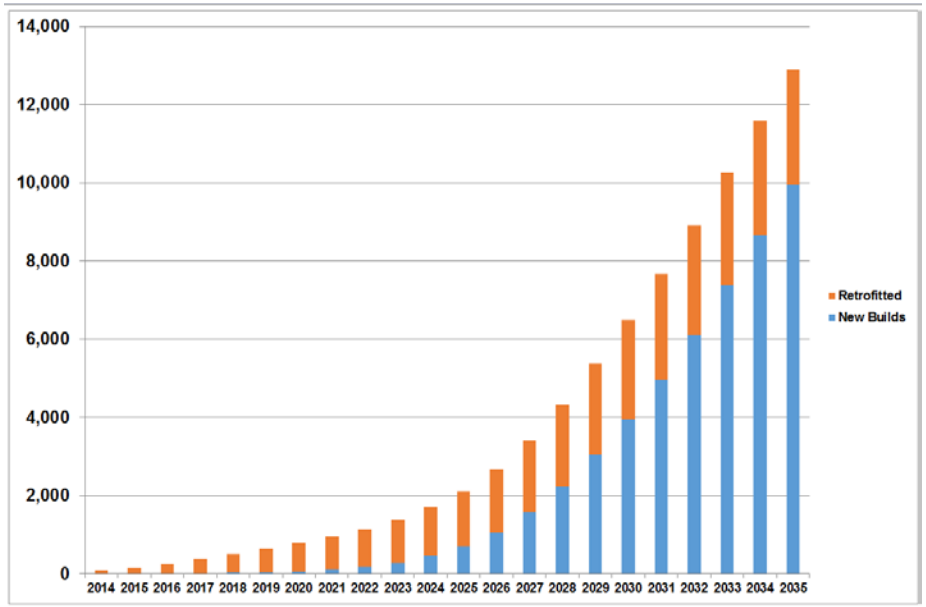


Payback in the ECA have extended from three to five years
But is still the cheapest global compliance method

Number of scrubbers commissioned each year



Number of scrubbers in operation each year



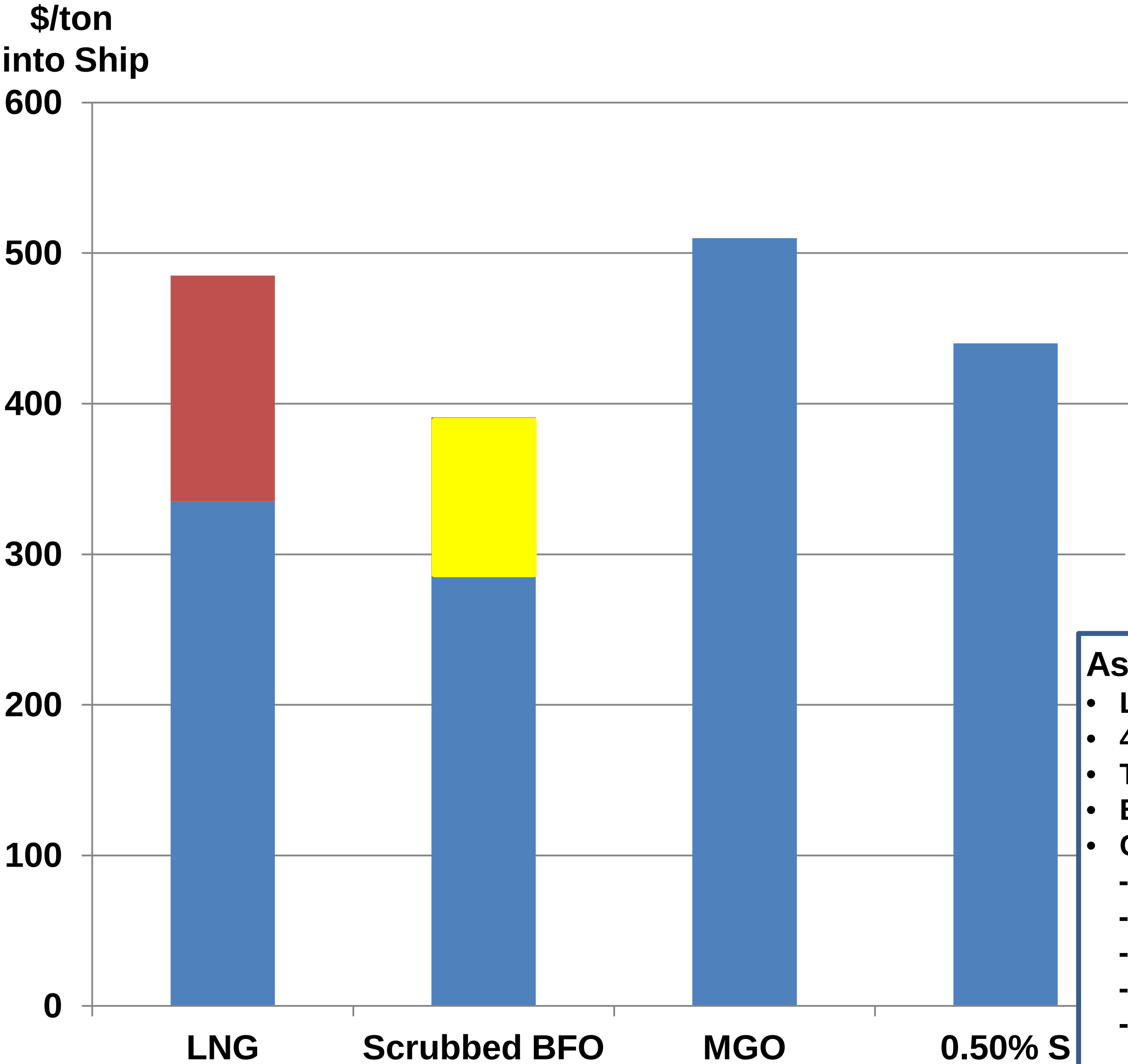
Take up is inhibited by a lack of

- **Ship owners' funds and obtaining a return outside ECA**
- **Confidence in future price differentials**
- **Technology confidence**
- **Certainty on future environmental regulations and enforcement**

	2020	2025	2035
Number of ships with scrubbers	890	2,600	14,100
% of global fleet with scrubbers	1	42	11
Million tons HSFO scrubbed pa	4	12	64
Cumulative investment $billion	3	9	50

Lower prices will slow down the take up of scrubbing

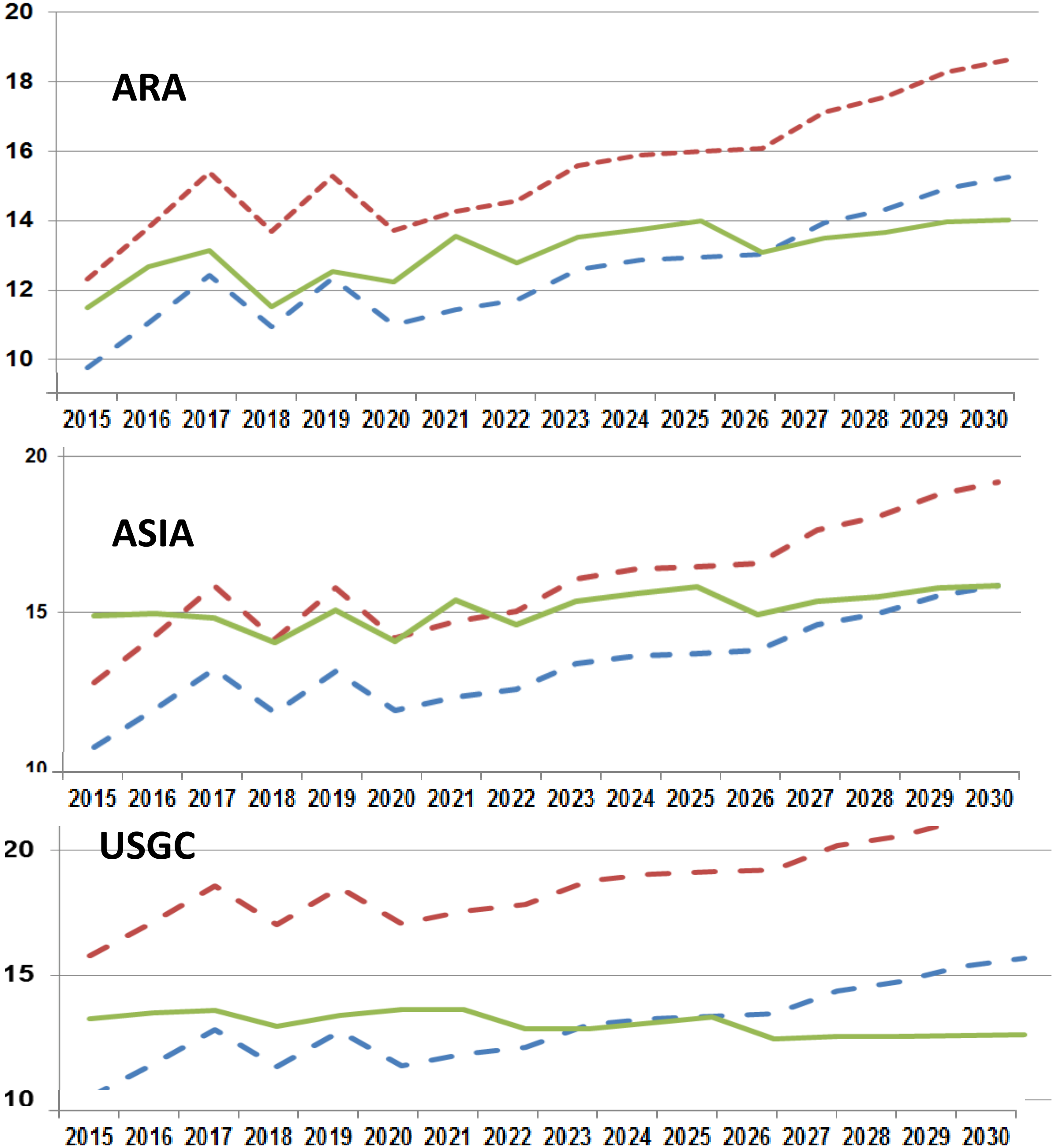
Scrubbing is currently the lower cost means of complying



Assumptions

- LNG European bulk price of $6.95/mmBTU
- 48.5 mmBTU/ton
- Terminalling costs based on DMA report
- BFO & MGO prices – average 2015 $/ton
- Costs of scrubbing include
  - Capital recovery
  - Additional fuel
  - R&M and insurance costs
  - Sludge disposal
  - Chemicals

Comparative into ship prices $/mmBtu



LNG may not be so attractive price wise in Europe or Asia
But should take off in the US

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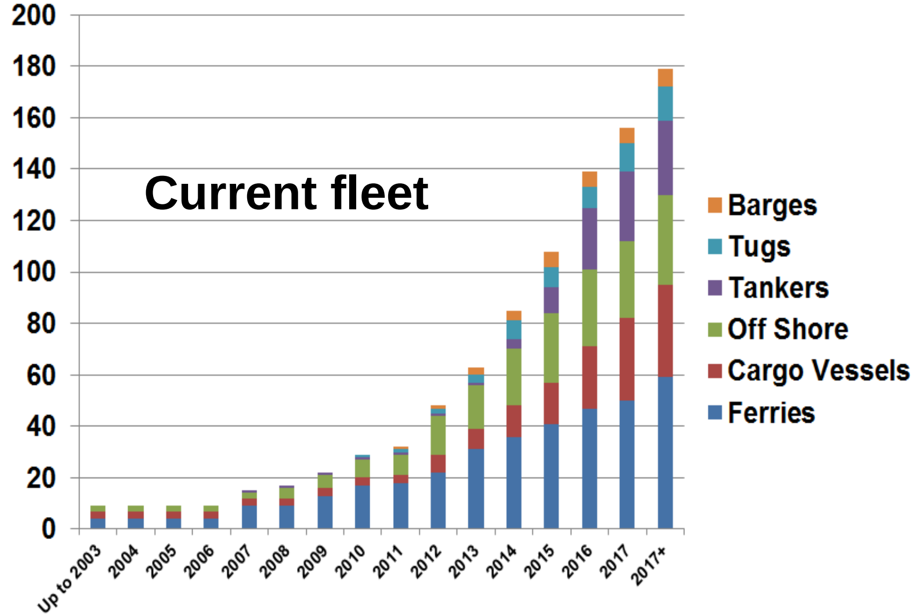
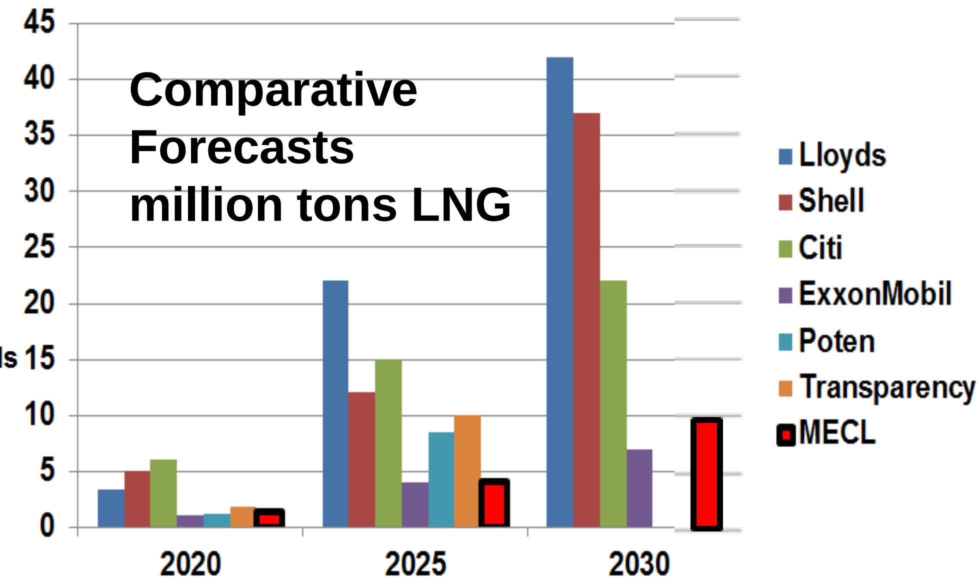
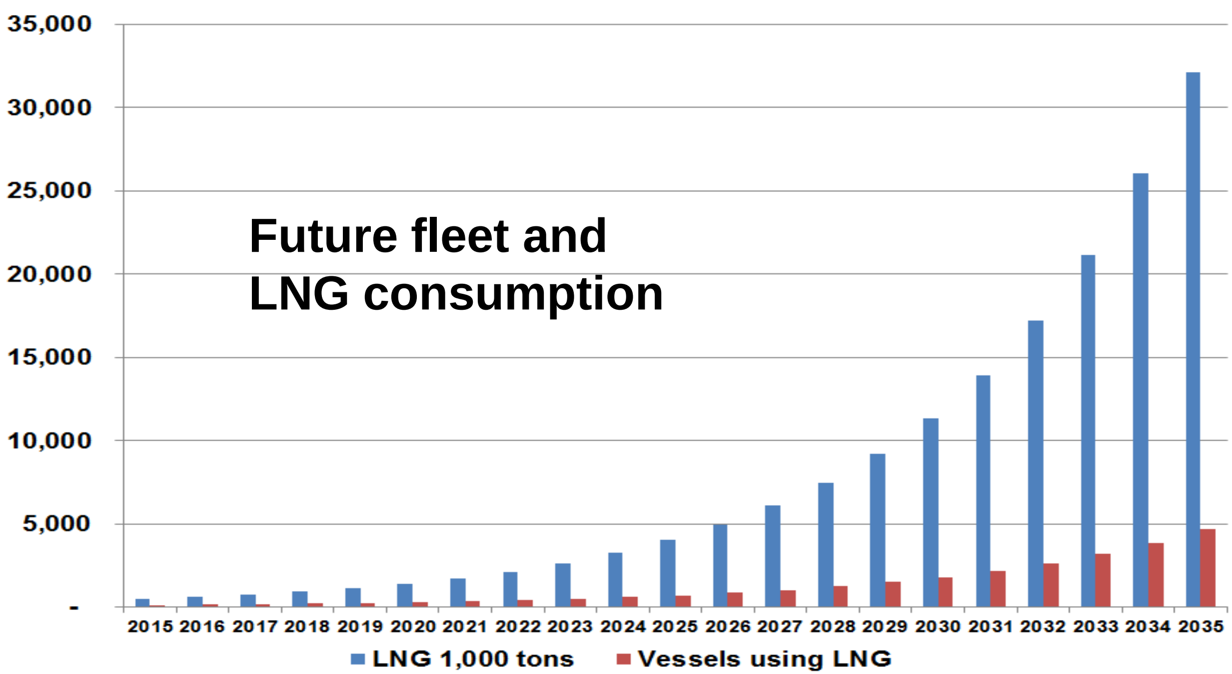
The take up of LNG will be retarded by lower bunker prices







However by 2030

- 10 millions tons pa of LNG used as bunkers
- By 1,800 mainly smaller ships
- Accounting for 4% of bunkers consumed
- Accelerated growth there after

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Impacts on shipping of lower bunker prices

Lower oil prices have yet to stimulate economic growth or oil consumption

- **Reduced costs providing near term improved margins**
  - **Although benefits for newer, more efficient ships are reduced**
- **Reduced scrapping - older, less efficient ships may be traded longer**
- **Slow down in investment in fuel saving devices and technologies**
  - **But EEDI and SEEMP will see efficiencies continue to improve**
- **There is a propensity to speed up**
  - **But this will increase the capacity of the fleet further softening already low rates**
  - **Freight rates will also remain low for perhaps a decade due to over supply and slow economic growth**
- **New eco ships have less degrees of freedom to speed up – designed for slower maximum speeds**
- **Lower prices will not result in the global fleet speeding up significantly until freight markets improve**
- **Reduced volatility and bearish price forecasts have reduced ship owners appetite for hedging instruments**
- **Reduced the attractiveness of scrubbing and LNG**
- **Lower distillate and low sulphur fuel prices in Asia increasing purchases in these regions**
- **Lack of confidence in low future prices is inducing indecision**

Impacts on bunker suppliers of lower bunker prices

- Credit easier to support
- Slowed down the consolidation of suppliers
- Terminalling and barging operating costs down
- Reduced volatility reduces need for hedging instruments reducing traders incomes
- Some increase in size of stems
- Continuing slow growth in demand
- Opportunities for more “special blend fuels” with the 0.50% cap
- Lube prices haven’t come down as quickly as feedstocks increasing margins
- The performance of the larger traders have suffered compared to the independents
- Low freights ensure owners continue to negotiate hard even with lower prices
- In this era of low prices, prudent companies are hedging by embracing the new price levels with caution rather than abandon

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