World Bunkering Scene

Robin Meech

Marine and Energy Consulting Limited

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Gibraltar

Marine and Energy Consulting Limited (MECL) was established 12 years ago

Consulting Services

Ship Owners
- Fuel Strategies
- Scrubber Selection
- Compliance Options
- Technology investments

Bunker Suppliers
- Supply Strategies
- Investment Evaluation
- Strategic Development
- Organisation

Investors
- Vessels
- Terminals
- Bunker Suppliers
- Finance

MARINE + ENERGY TRAINING
- Bunker for Managers
- Blending
- Claims

Abatement Technology and Finance Limited
- Leasing Scrubbers
- Hedging Sulphur Premium

Publishing
"Outlook for Marine Bunkers and Fuel Oil to 2035"
"Bunkers to 2035 - Technical and Environmental Issues"

The industry has recently been hit by

Price Collapse

- Will prices return to previous levels and if, when
- Will LNG prices track fuel oil
- Will the market stand speeding up
- Should actions on fuel efficiency investments be reassessed
  - New builds and retrofits

Sulphur Regulations

- 0.10% in ECA
- Scrub
- LNG – new build / retrofit
- Risk non compliance
- Timing of global cap

OW Bunkers Collapse

- Seek new T&C's for bunker purchases
- Change the ratio of Contract to Spot purchases
- Vet suppliers more carefully

What is pushing prices?

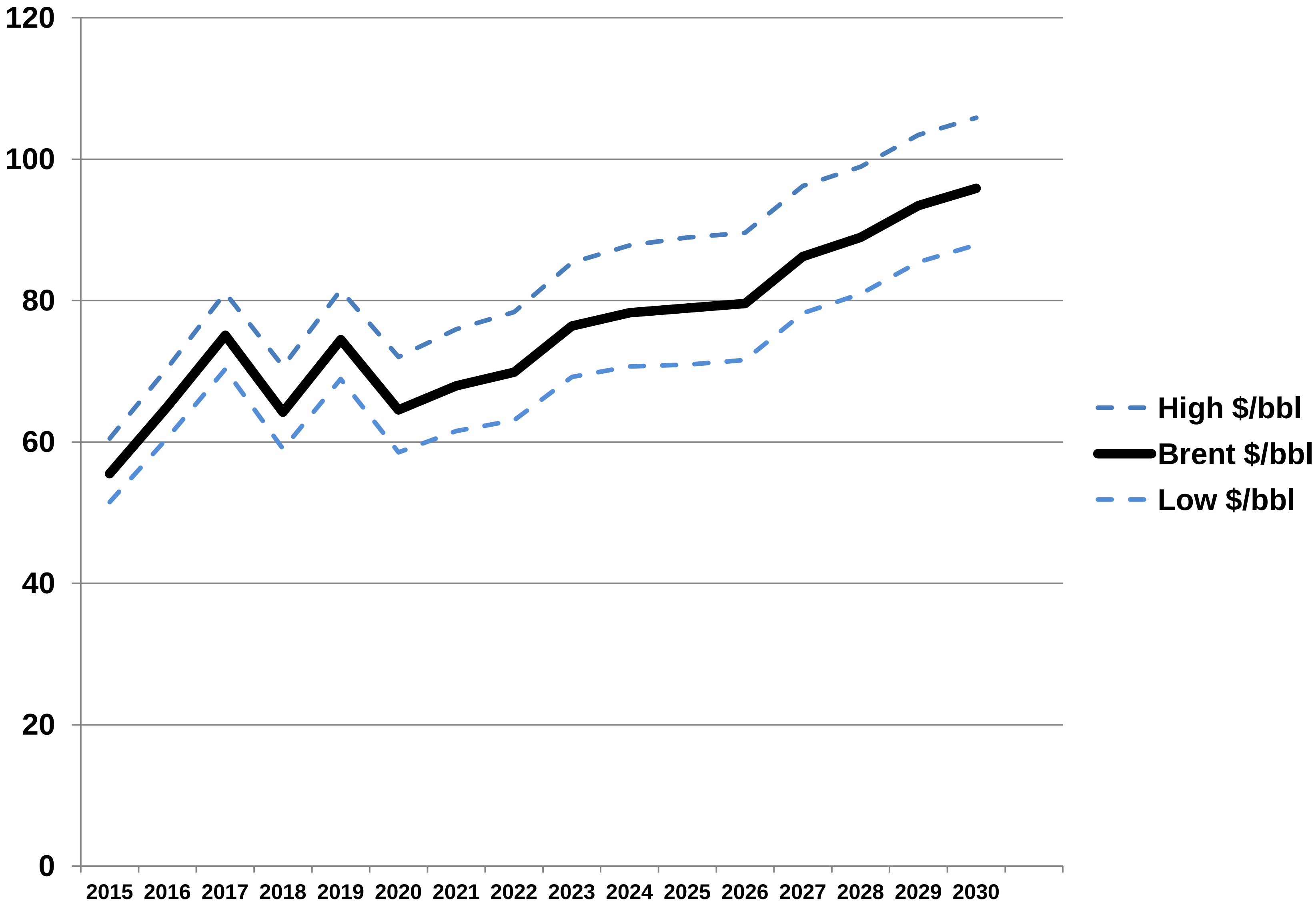
- **Supply issues**
  - **Fracking avails significant at prices above $60/bbl**
  - **Hence future term ceiling price set by modern fracking at $60/bbl**
  - **Short term floor set by producer country economic and political survival - $30/bbl**
  - **OPEC less influential in medium term**
  - **Greater price volatility but faster realignment**
- **Demand issues**
  - **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 obvious increase yet in demand resulting from lower energy prices**
  - **Paying to emit GHG will eventually further inhibit demand**

Where will Crude Oil prices go?

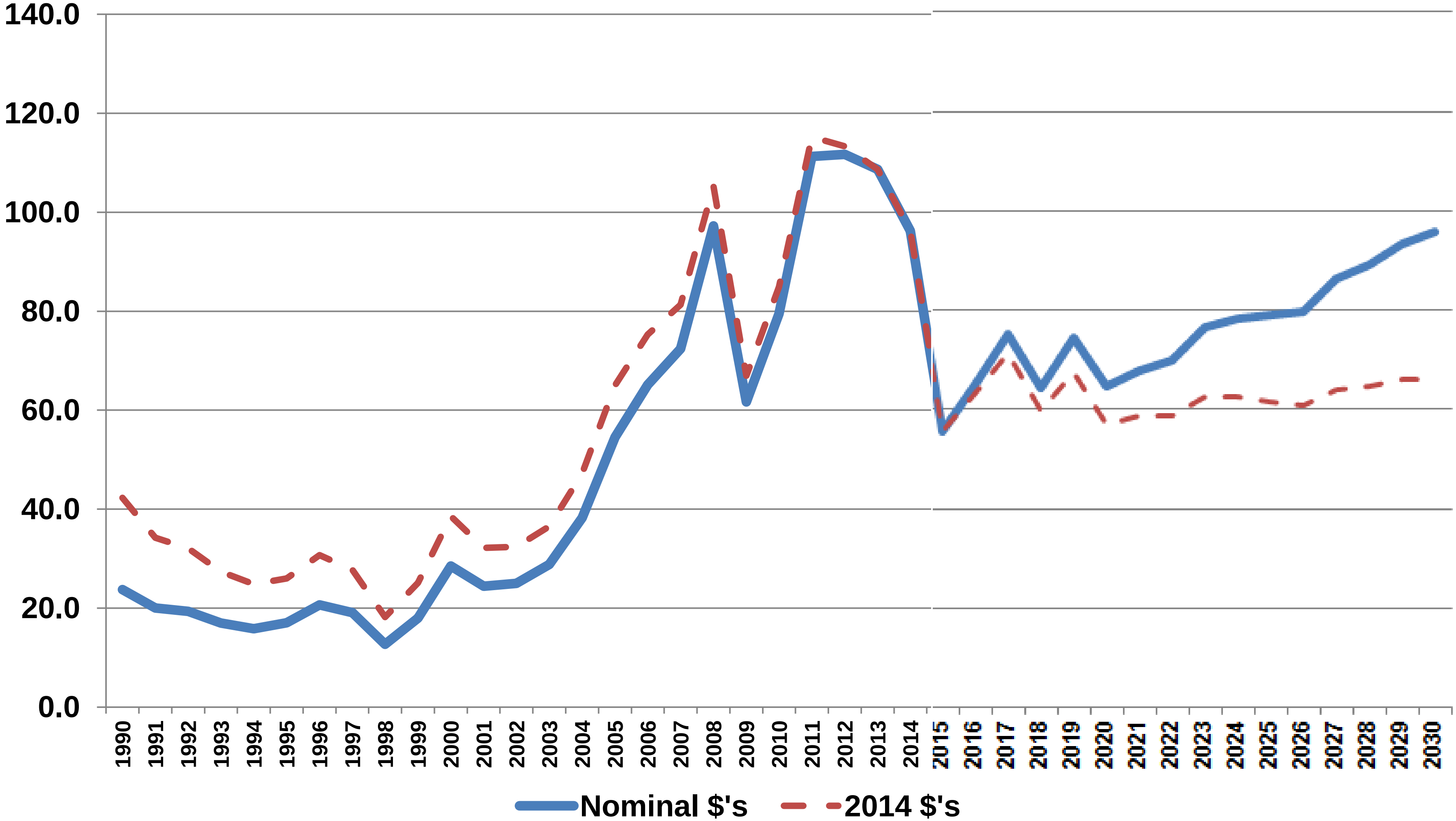
- **Over supply reduced by**
  - **OPEC changing stance**
  - **US shale production falls in H2 2014**
  - **Canadian tar sands production falls 2016**
  - **Reduced investment in exploration**

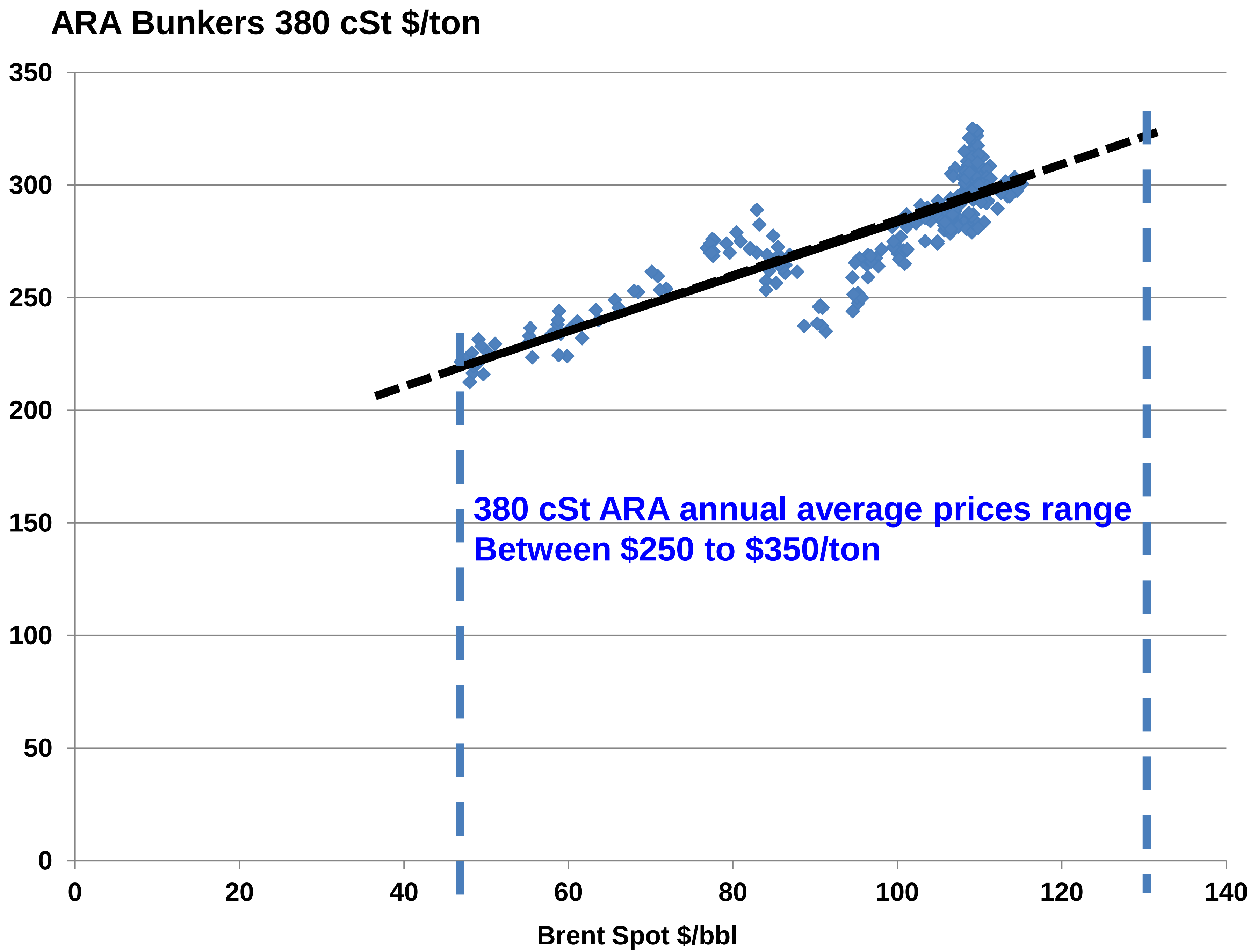
- **Some initial forecasts**
  - **BP suggest 3 years before prices rise**
  - **OPEC next regular meeting in June 2015**
    - **OPEC secretary – prices could start upwards within a month**
    - **Prices will not fall below $30/bbl**
  - **Low prices for 4 or 5 years then $200/bbl – ENI**
  - **Prices will be lower longer – Goldman Sachs**

Predictions of spot annual average Brent $/bbl

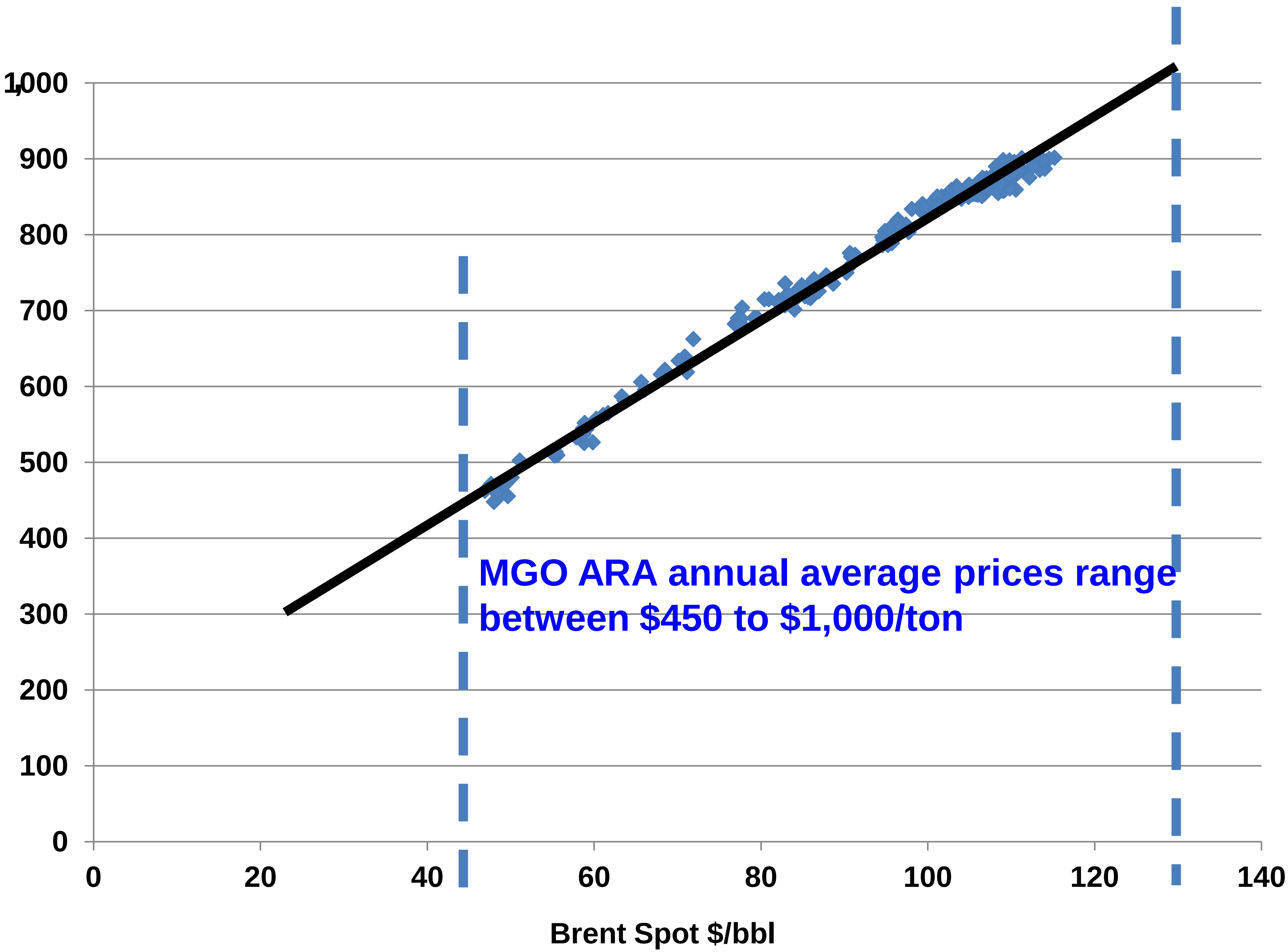


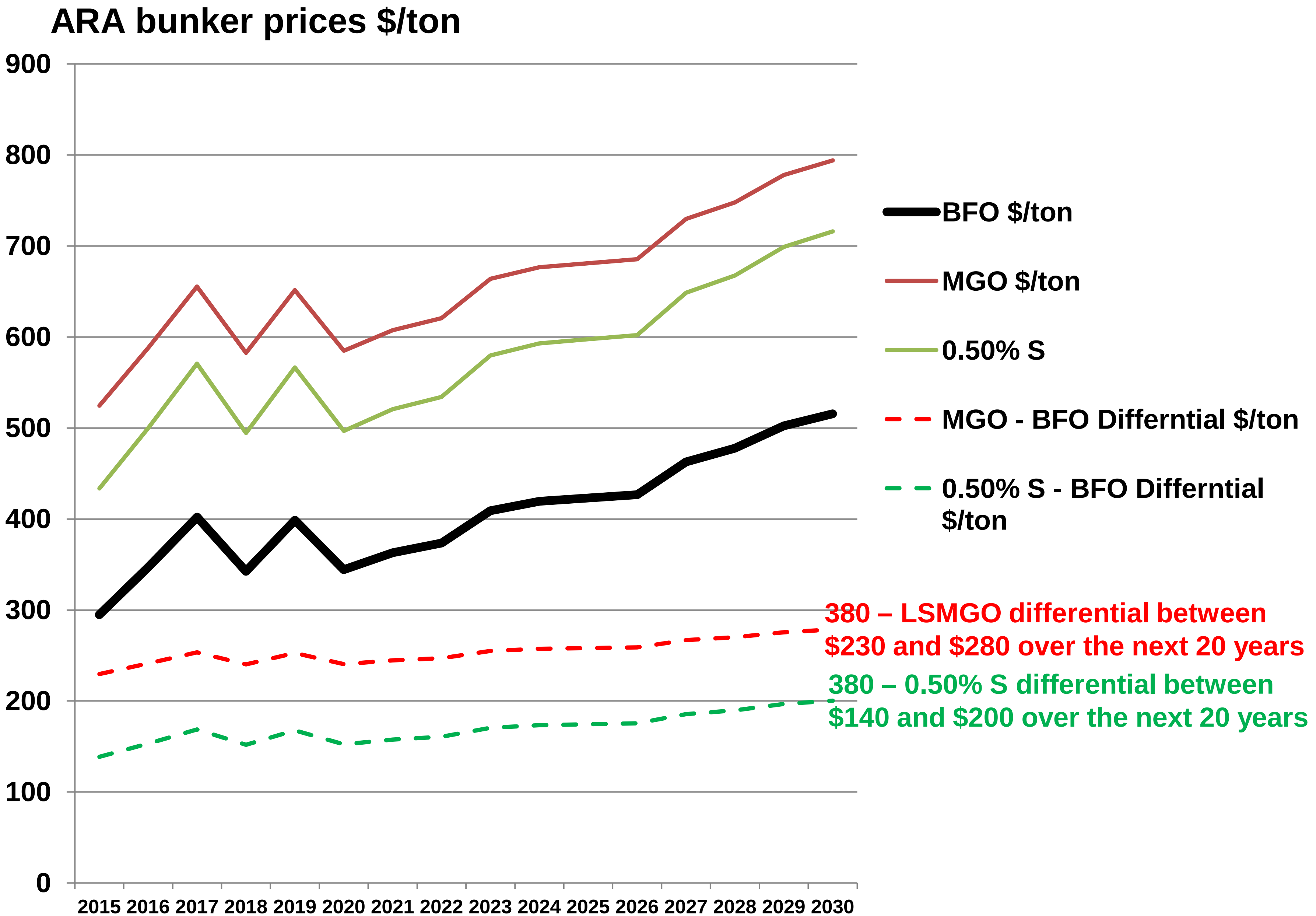
Perception of little increase in crude prices in constant terms Brent $/bbl




ARA Bunkers 380 cSt $/ton
350
300
250
200
150
100
50
0
0
20
40
60
80
100
120
140
Brent Spot $/bbl
380 cSt ARA annual average prices range
Between $250 to $350/ton

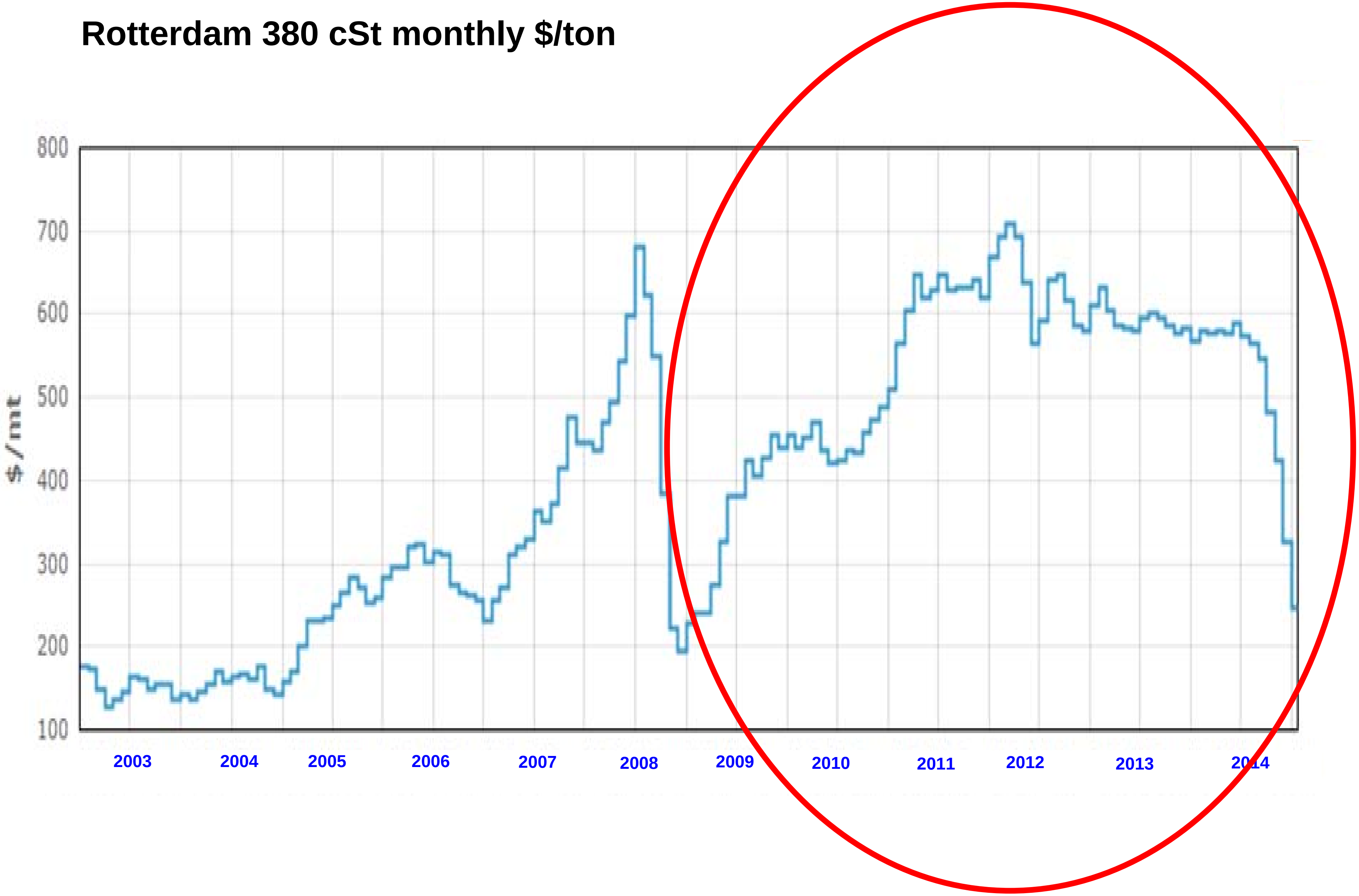
ARA Bunkers MGO $/ton





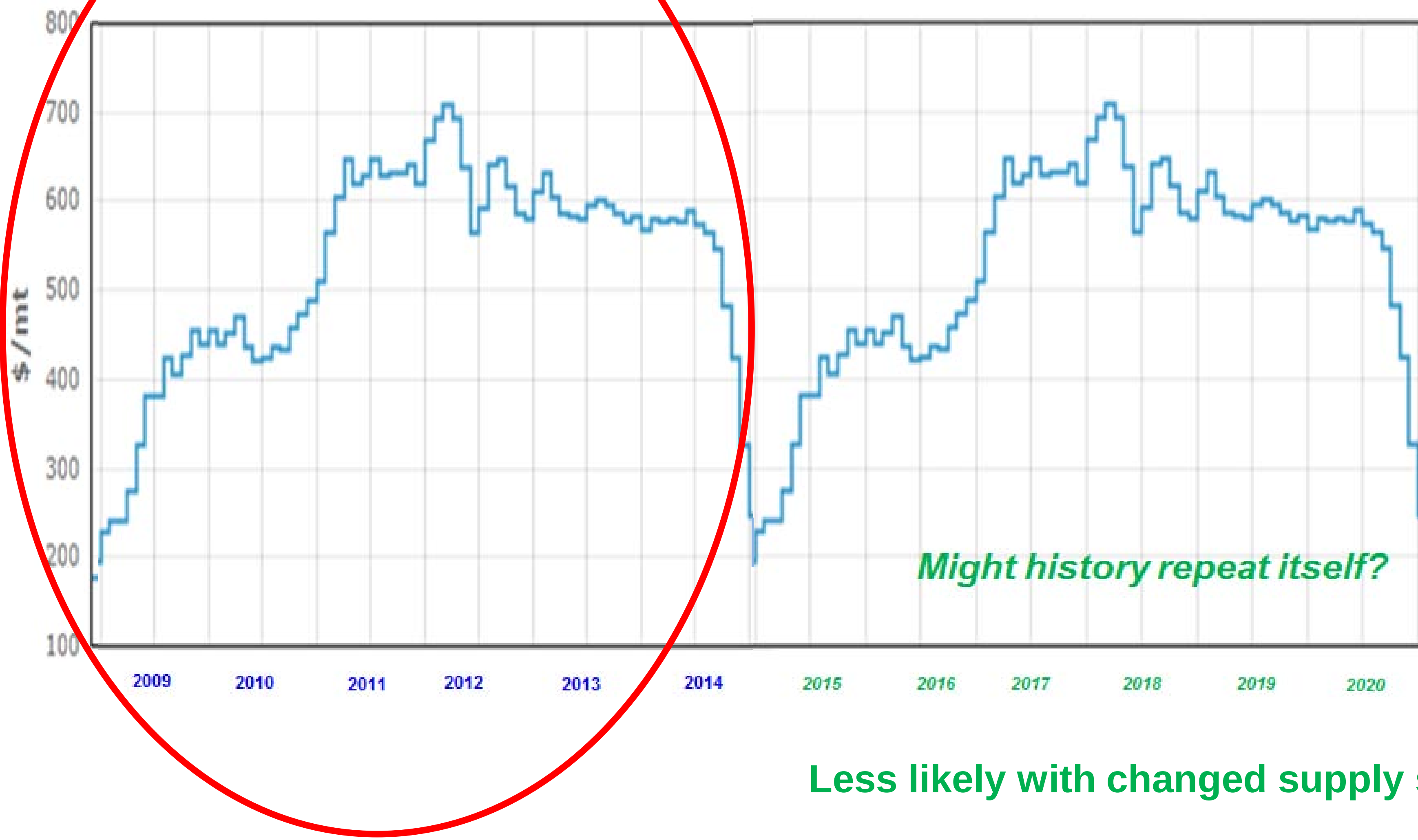
ARA bunker prices $/ton
900
800
700
600
500
400
300
200
100
0
2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030
BFO $/ton
MGO $/ton
0.50% S
MGO - BFO Differntial $/ton
0.50% S - BFO Differntial $/ton
380 – LSMGO differential between $230 and $280 over the next 20 years
380 – 0.50% S differential between $140 and $200 over the next 20 years

Rotterdam 380 cSt monthly $/ton

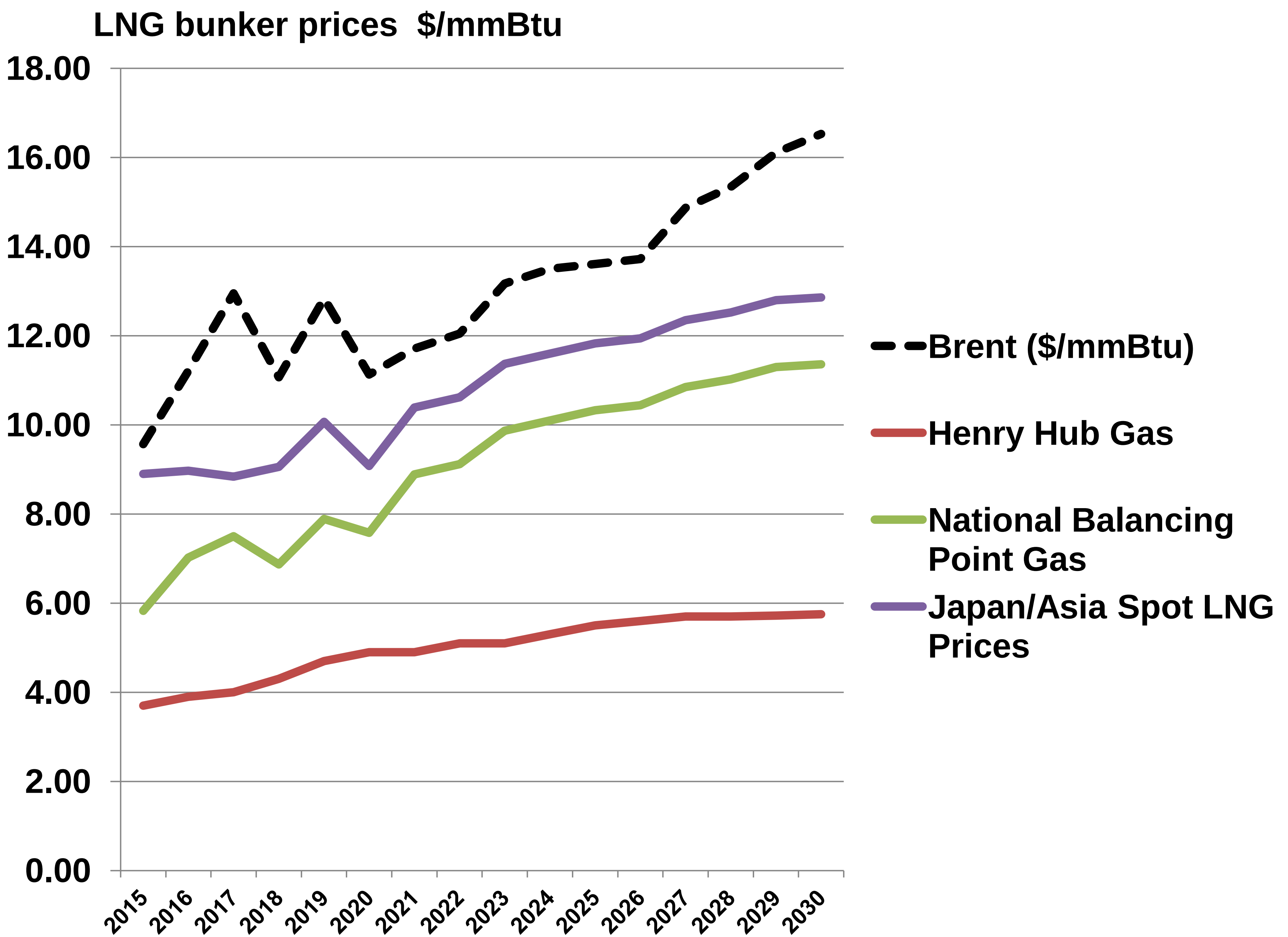


Source: Bunkerworld

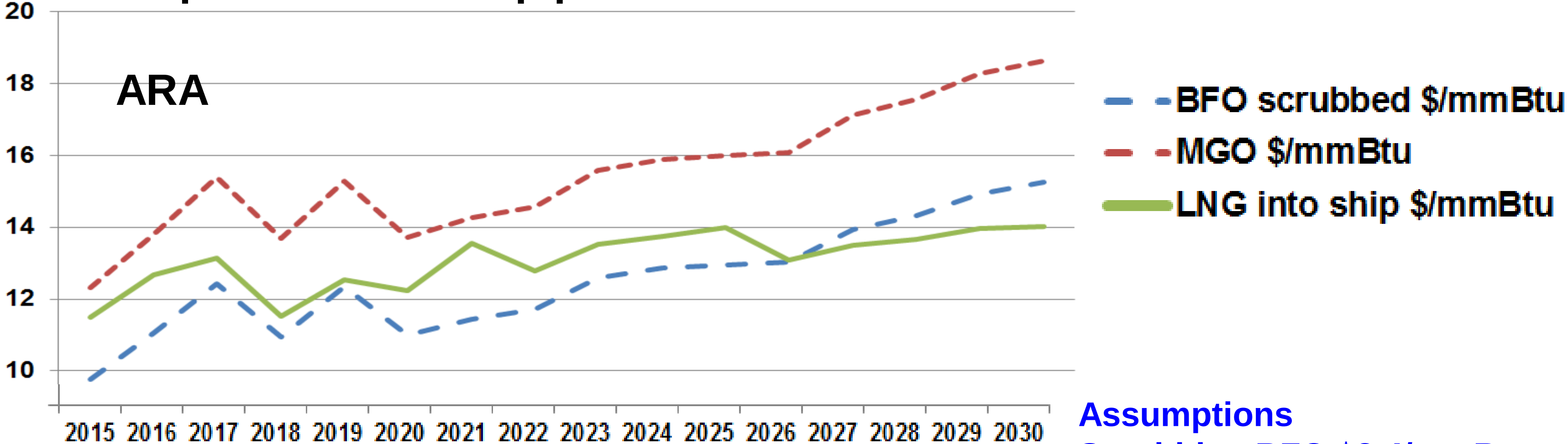
Future Rotterdam 380 cSt monthly $/ton

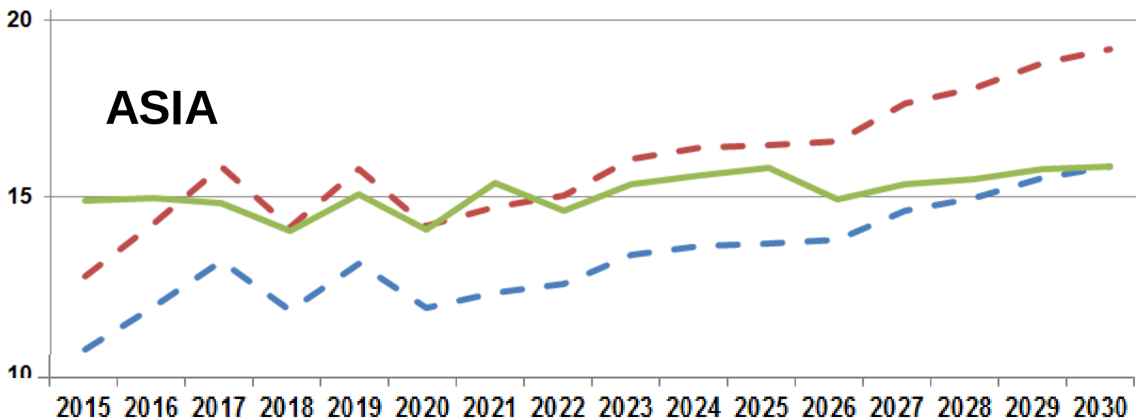


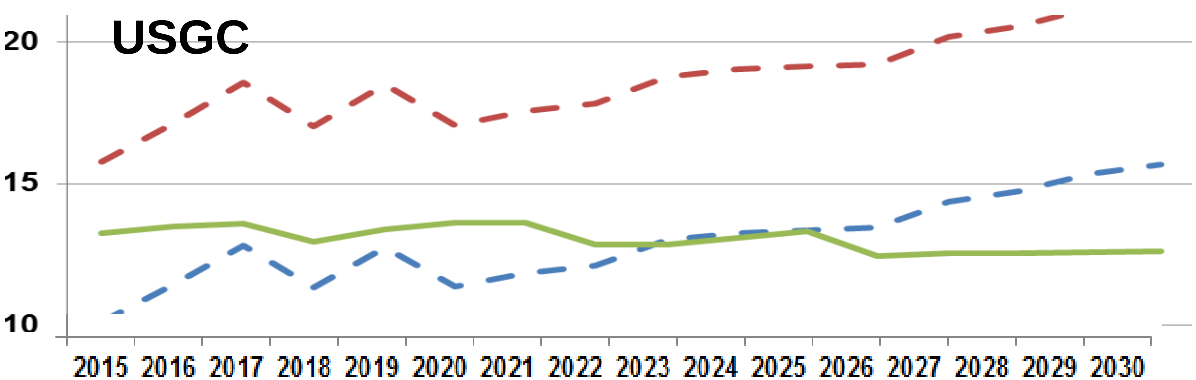
Less likely with changed supply scene


LNG bunker prices $/mmBtu
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Brent ($/mmBtu)
Henry Hub Gas
National Balancing Point Gas
Japan/Asia Spot LNG Prices

Comparative into ship prices $/mmBtu







Assumptions

Scrubbing BFO $2.4/mmBtu consumed

LNG liquefaction costs $3.0/mmBtu

LNG bunker delivery $6/mmBtu now reducing to $3/mmBTU

LNG prices

- **ARA = NBP - $0.35**
- **USGC = HH + 15% + $3.0/mmBtu**
- **ASIA = Japan spot LNG $/mmBtu**

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

Will speeds increase?

- Practical all types of ships above 6,000 dwt have slowed down over the last 5 years
- Most owners perceive the lower bunker prices as short term and are waiting
- T/C rates remain relatively low for most vessel types
- Increasing speed will only exacerbate the over supply keeping rates down
- Many owners will be reluctant to reverse relatively recent investments in enabling vessels to persistently steam more slowly
- Many eco designs do not have the flexibility to speed up significantly
- Immediate exceptions are
  - VLCC's where the T/C rates have improved due to
    - Lower reordering
    - Current take up for floating storage
- Larger liners on key routes with some improvement in rates may speed up but not yet

Assuming

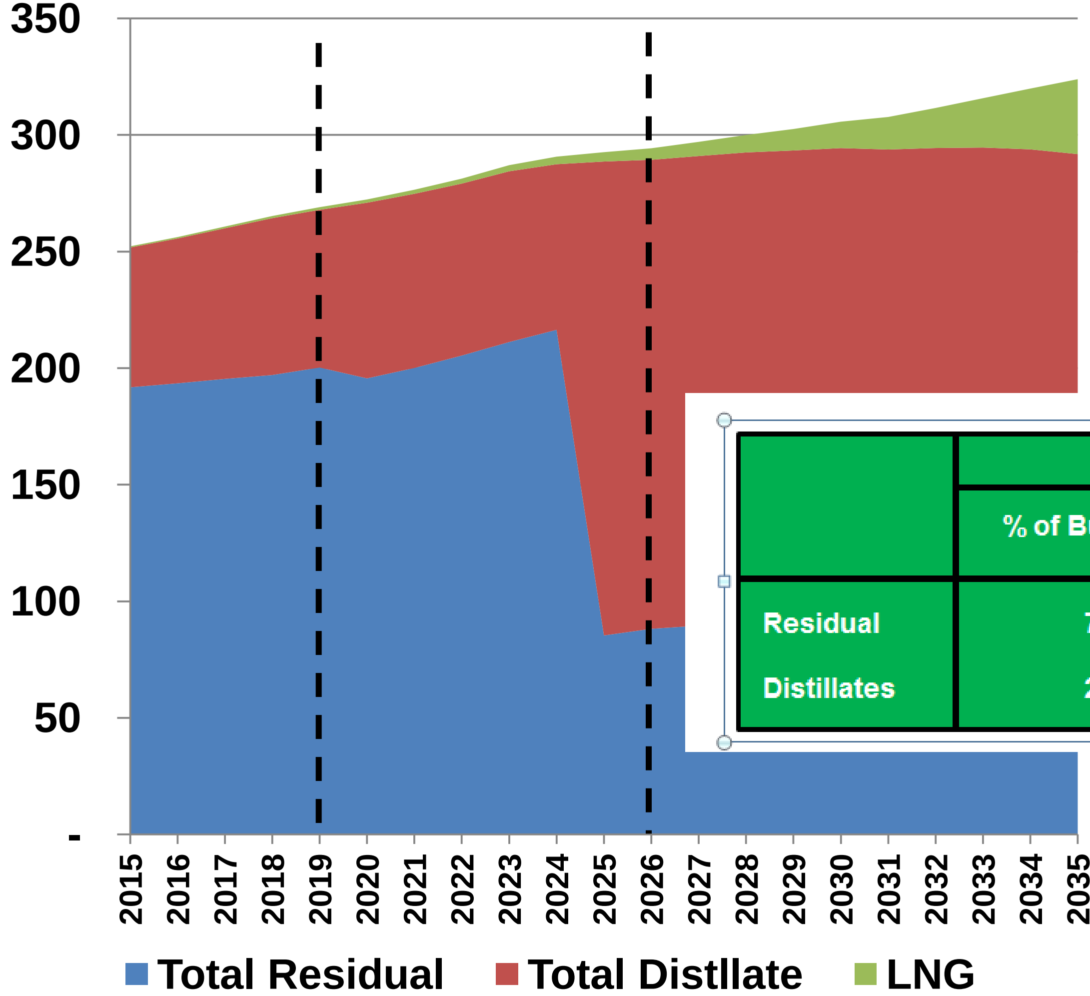
- Bunker prices remain above $200/t

- T/C rates for most types of vessels remain flat

Very little increase in average speeds this year

Minimal impact on global bunker demand

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



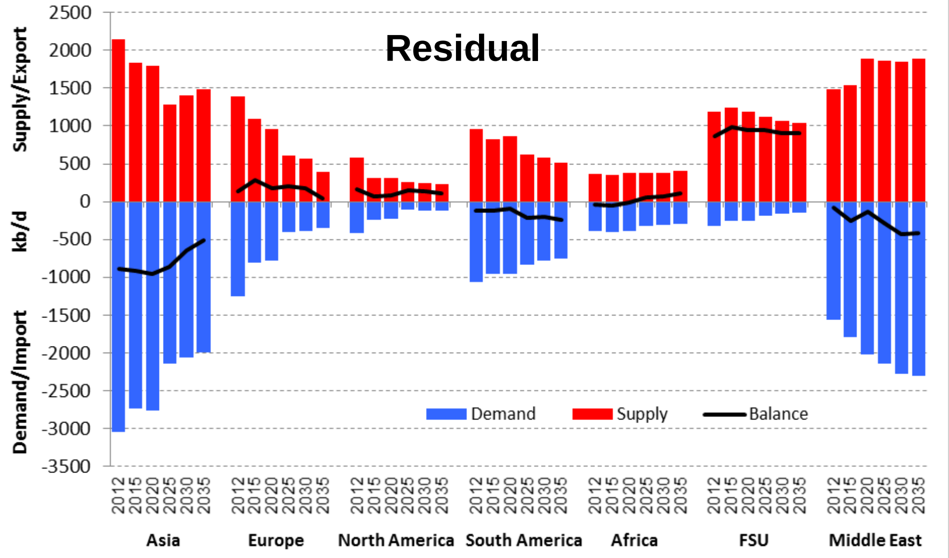
Demand growth suppressed by
- Slower economic growth in next decade
- Reduced trade per $1 of GDP
- Greater energy efficiency

Two key influences
- Global cap
- Use of alternatives

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

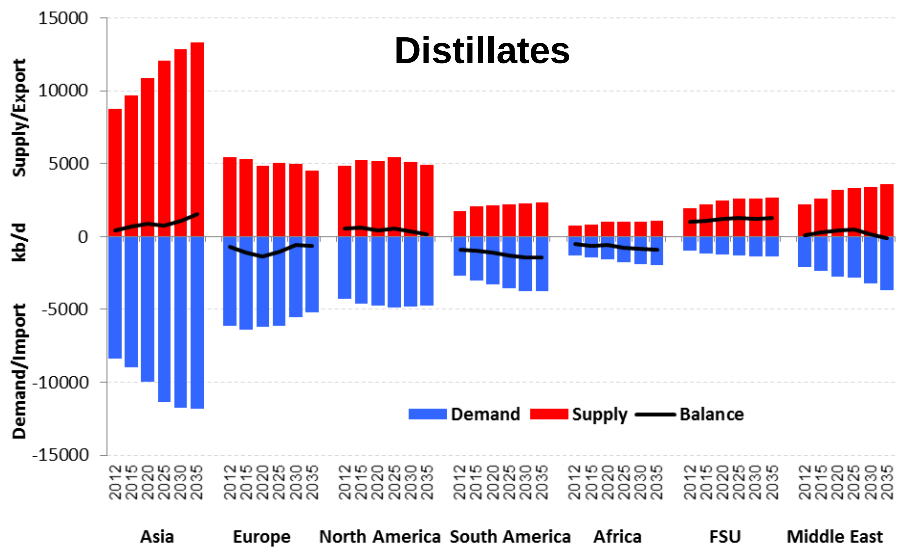
As a result future bunker costs will be much more influenced by inland markets

The product balances are changing with implications for the Mediterranean bunker business



Residual will continue to flow into the Middle East and Asia from western sources

Future price differentials between major markets will not change significantly

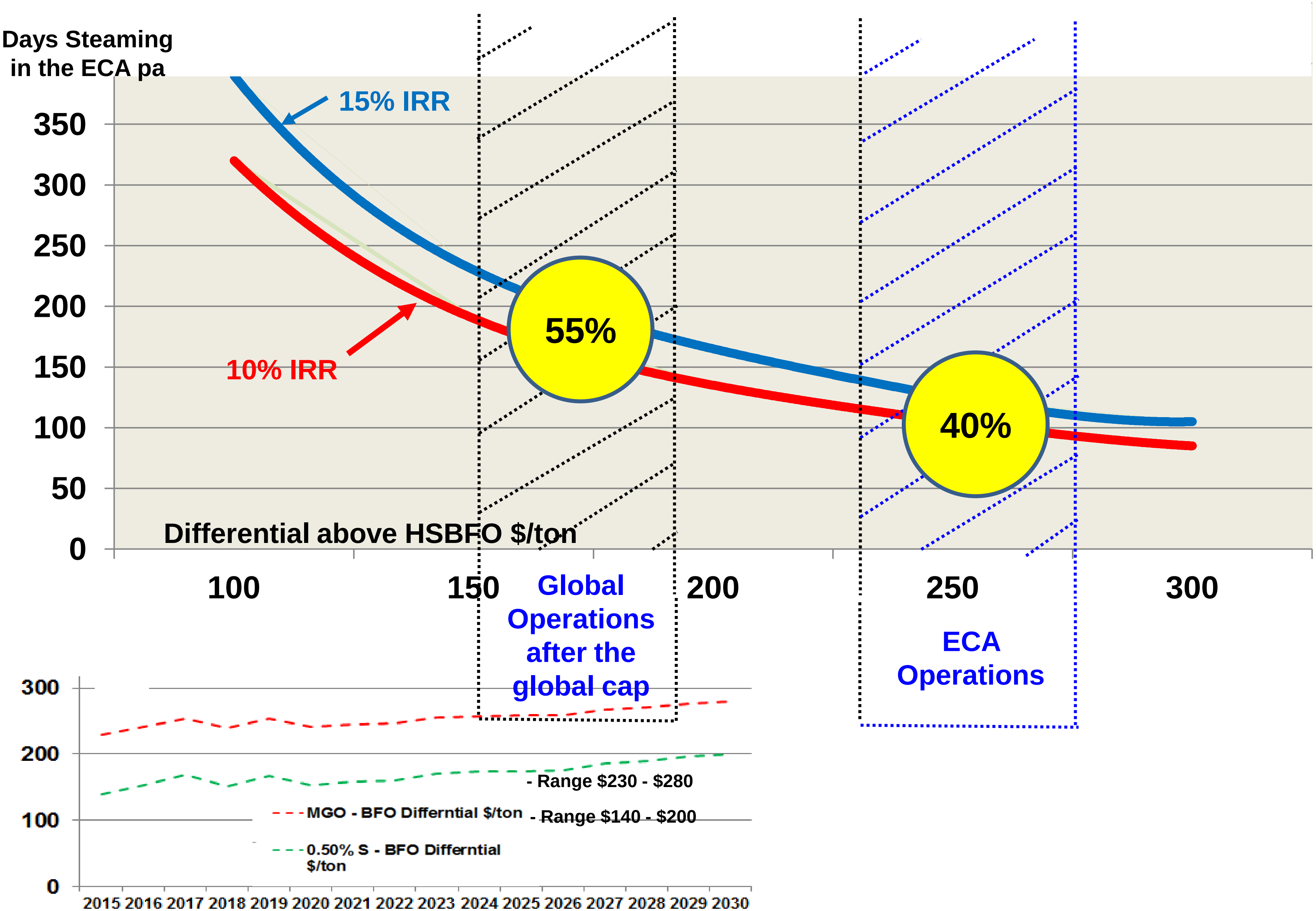


Distillate surpluses in Asia and the Middle East will see lower prices than in Europe

Once the global cap is instigated distillate bunker prices will be higher in the ARA than Singapore

The East Med may become more competitive than Gibraltar

Scrubbing remains financially viable even with lower prices

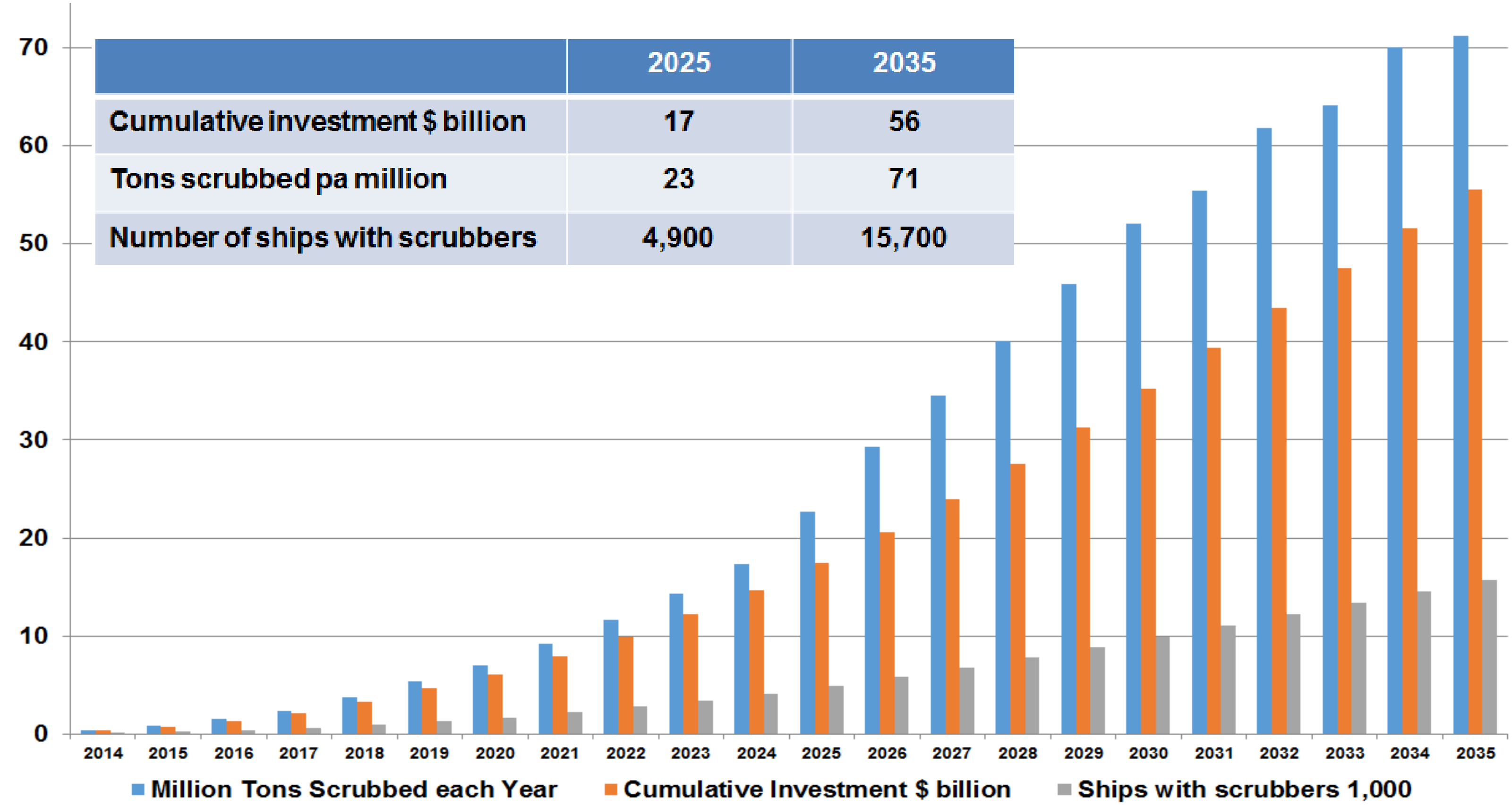


Scrubbing will really take off once the Global Cap is enforced even with lower prices

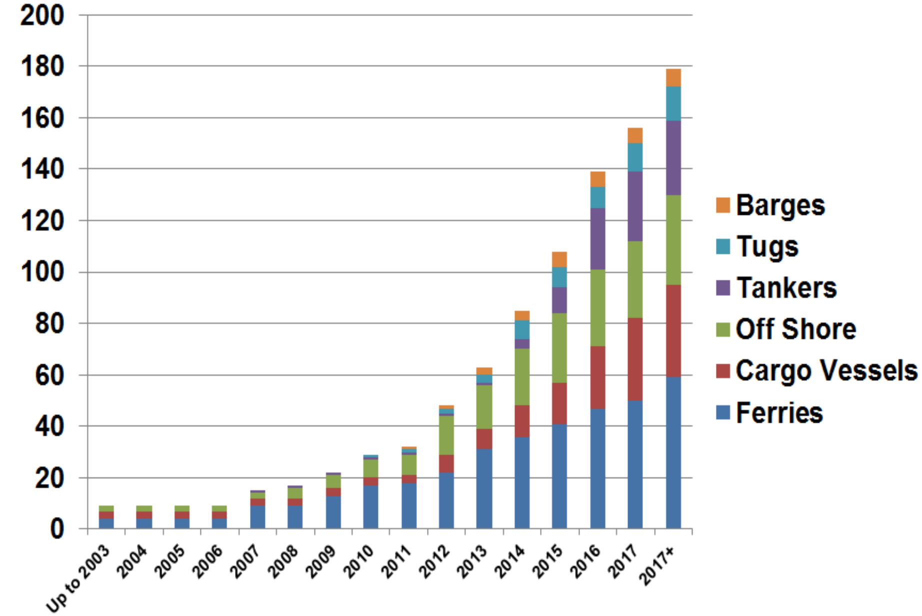
Take up is inhibited by a lack of

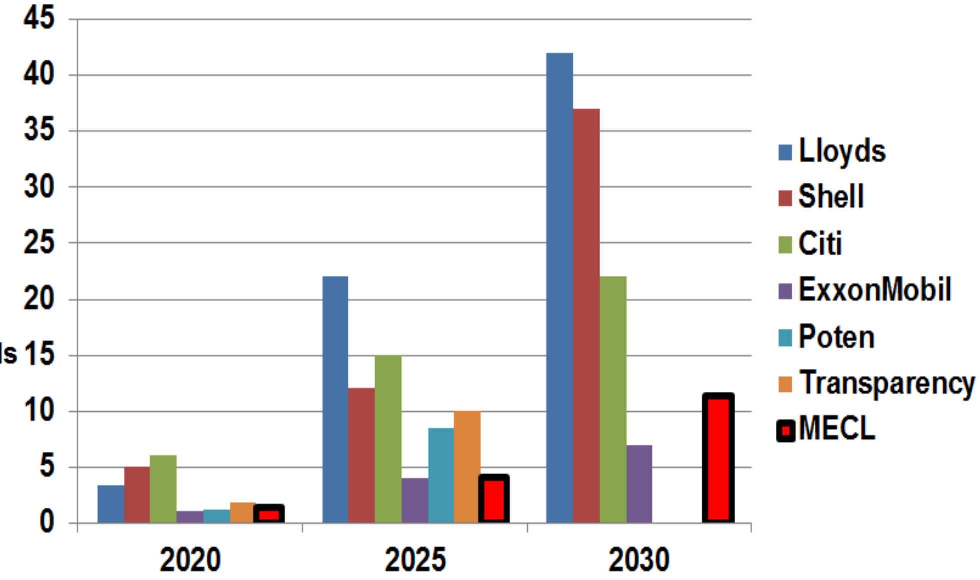
- **Ship owners' funds and obtaining a return**
- **Lack of confidence in future price differentials**
- **Technology confidence**
- **Certainty on future environmental regulations and enforcement**

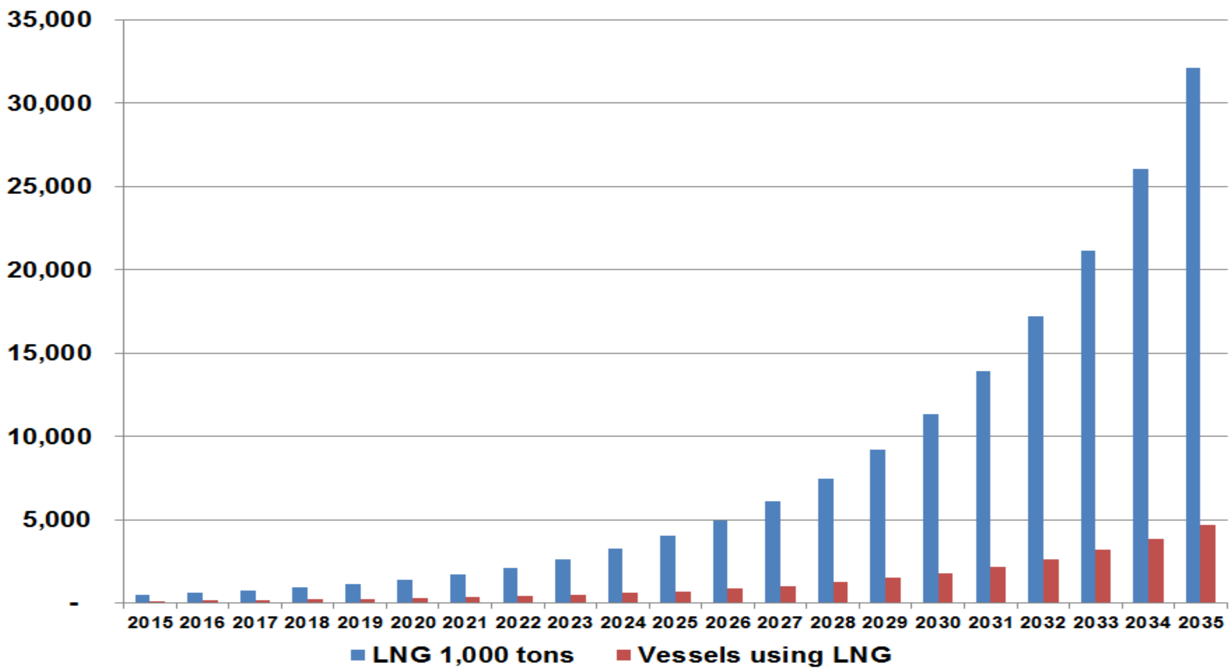
	2025	2035
Cumulative investment $ billion	17	56
Tons scrubbed pa million	23	71
Number of ships with scrubbers	4,900	15,700



The future role of LNG as a bunker fuel in non LNG tankers is not straight forward



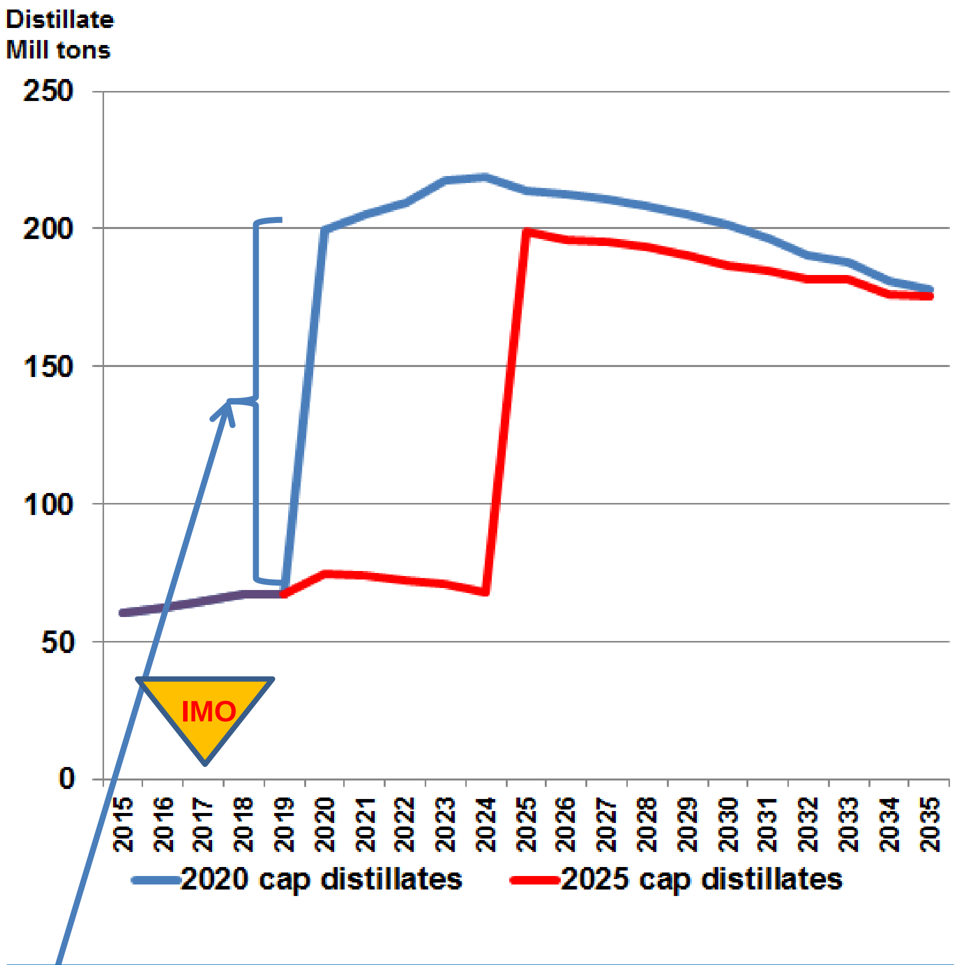




However by 2035

- **32 millions tons pa of LNG used as bunkers**
- **By 3,500 mainly smaller ships**
- **Accounting for 10% of bunkers consumed**
- **Accelerated growth there after**

Global Cap more likely in 2025



- Increase of 135 mill tons in distillate demand
- Corresponding decrease in residual
- Unlikely to be achieved with only 2 years notice

- Sufficient distillate avails to implement the
  - ECA 0.10%S during this year
  - EU EEZ 0.50%S in 2020

- Probably only sufficient avails to implement 0.50%S global cap in 2020 if
  - Annex VI avails analysis results are announced in 2015/6
  - Immediate very fast uptake of retrofitted scrubbers
  - Refiners commission sufficient hydro-treating and conversion capacity in short term running at high levels of utilisation
  - Inland demand for distillates grows at reasonable levels

- Take up of LNG will not have a significant impact on the decision to implement the Global Cap in 2020

- Global Cap implementation definitely feasible in 2025

- Possible between 2020 and 2025 but requires amendment to Annex VI

Delaying the Global Cap until 2025 decreases owners' costs by $162 billion equivalent to 4.6% but increase SOx emissions by 39 mill tons over the next 20 years

Demand	2020	2025	Impact of the 5 year delay
Distillates mill tons	3,560	2,743	Decrease of 817 mill tons
Residual mill tons	2,187	3,044	Increase of 858 mill tons
Total tons	5,747	5,787	Increase of 40 mill tons
Abetment			
LNG mill tons	320	292	Decrease 16 mill tons
Scrubbers installed	17,101	16,683	418 less
Scrubber investment $ billion	38.7	37.7	$1.0 billion less
Marine emissions			
SOx mill tons	125	164	39 mill tons more
PM's 1,000 tons	17.1	22.2	5,100 tons more
Global cost of bunkers $ billion	3,552	3,390	$162 bill decrease

Summary

- We are in a new mind set with respect to future prices

- Lower prices will not significantly accelerate demand for bunkers

- Distillates and LNG differentials above BFO prices will be lower marginally reducing the attractiveness of scrubbing and slowing the uptake of LNG

- The introduction of the global 0.50% S cap is likely to be delayed to 2025

- After the introduction of the global cap the Eastern Med will be more competitive than Gibraltar

- Over the next 20 years emission regulations increase owners' costs by some $600 billion

- As well as a myriad of over costs and management issues

- Delaying the global cap to 2025 will
  - Reduce bunker bills by $160 billion
  - Increase SOx emissions by 39 million tons
  - And PM's by 5,000 tons

- The past four months have increased fiscal uncertainty and reduced confidence in planning decisions

Most of us will wait and see for a few months but the increase in crude oil avails with relatively rapid start up suggest future oil prices will be lower

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