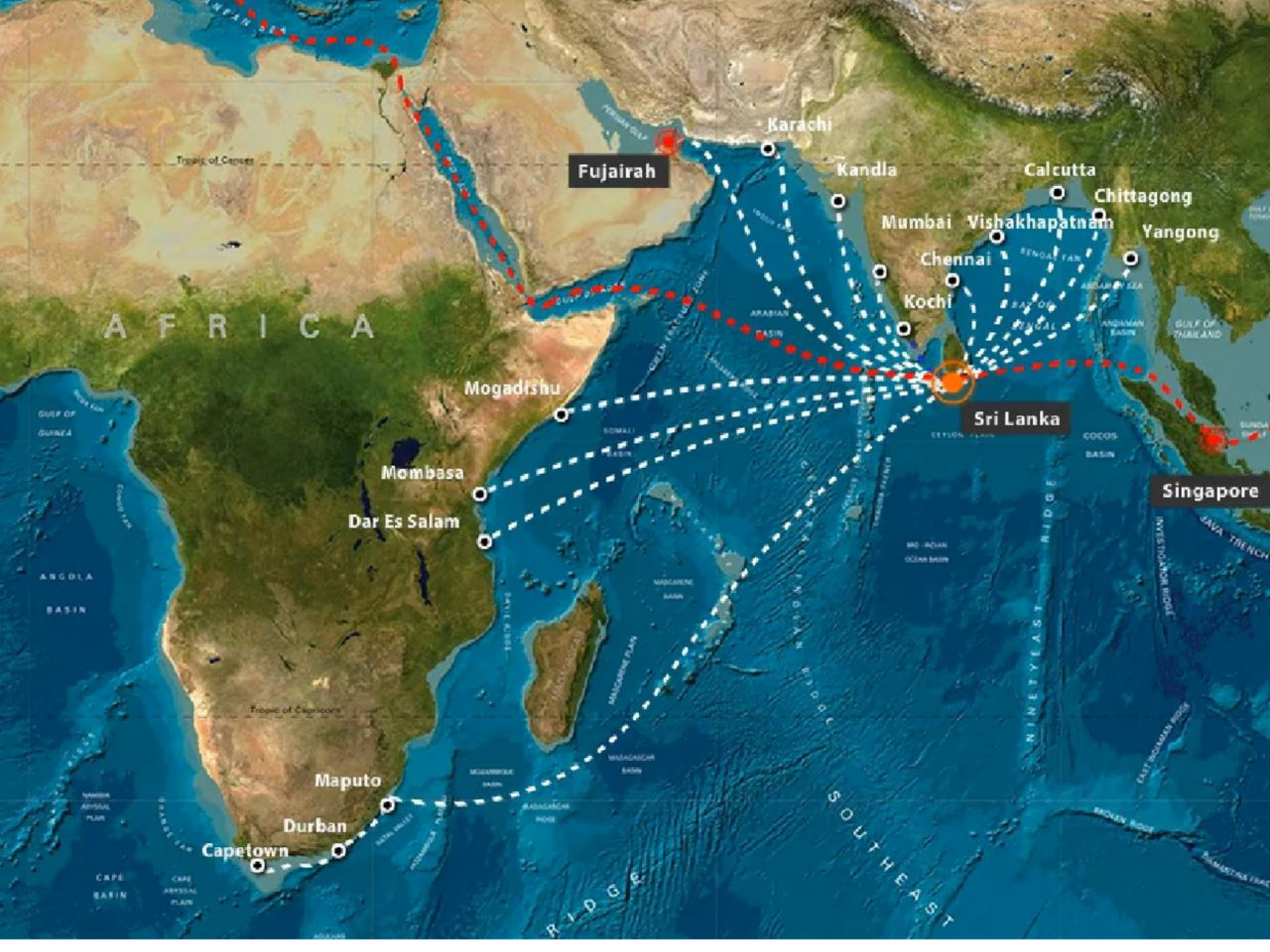


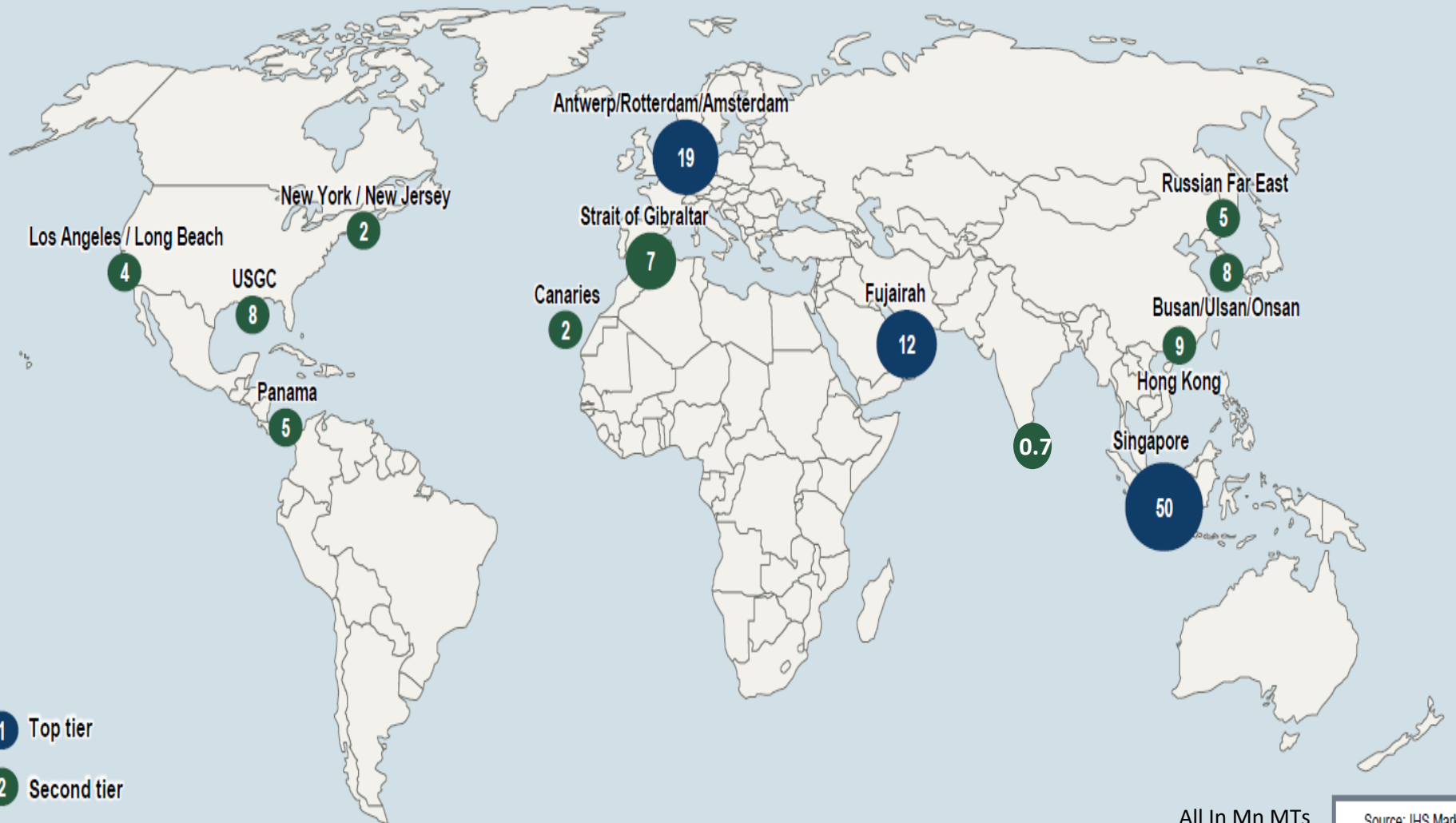
Sri Lanka's Bunker Industry - Opportunities and Challenges



Zafir Hashim
Executive Vice President - JKH
Sector Head – Transportation Sector



World's Main Bunkering Hubs



All In Mn MTs

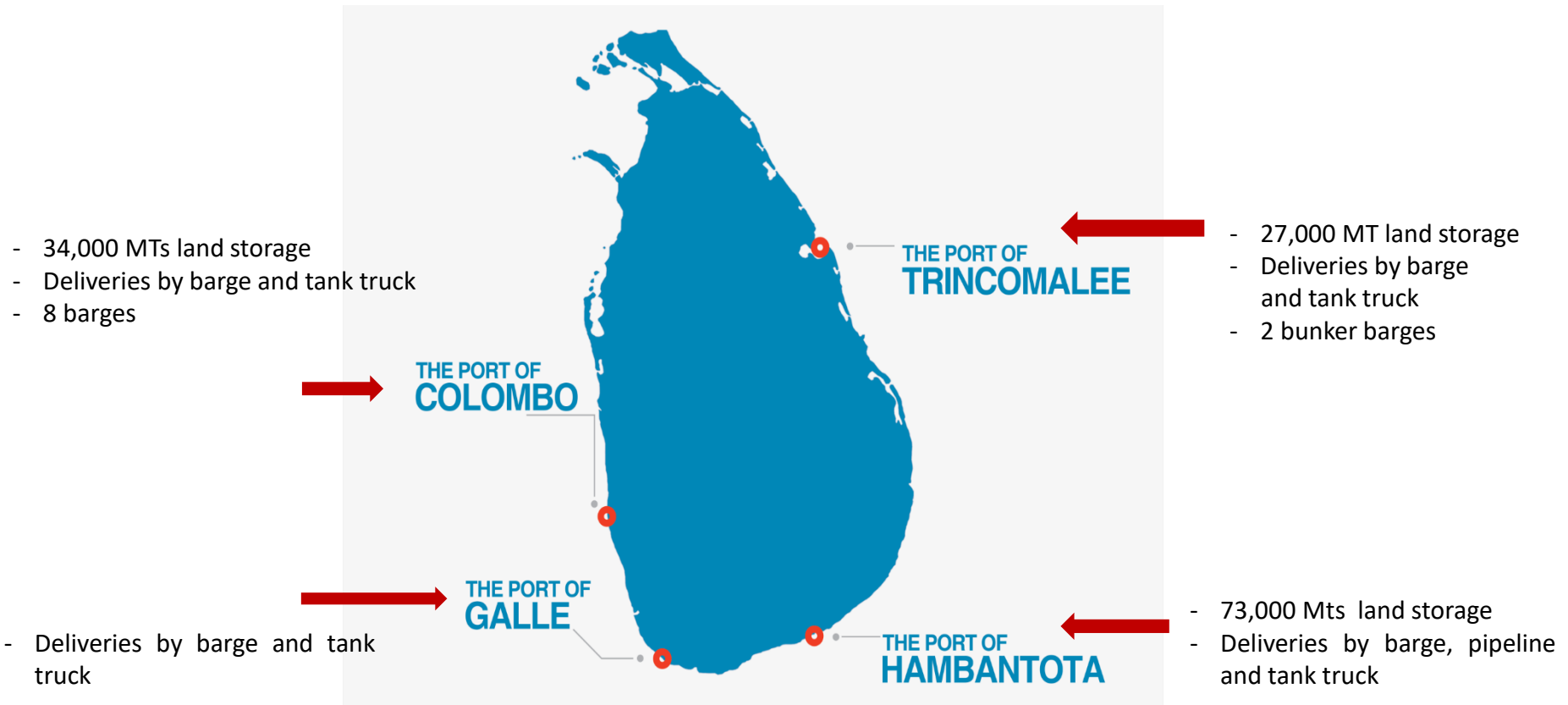
Source: IHS Markit

Key Factors Affecting the Sri Lankan Bunker Industry

- Lack of infrastructure
- Unavailability of ex-refined products
- Zero facilities for blending
- High tariffs



Bunkering Infrastructure at Sri Lankan Ports

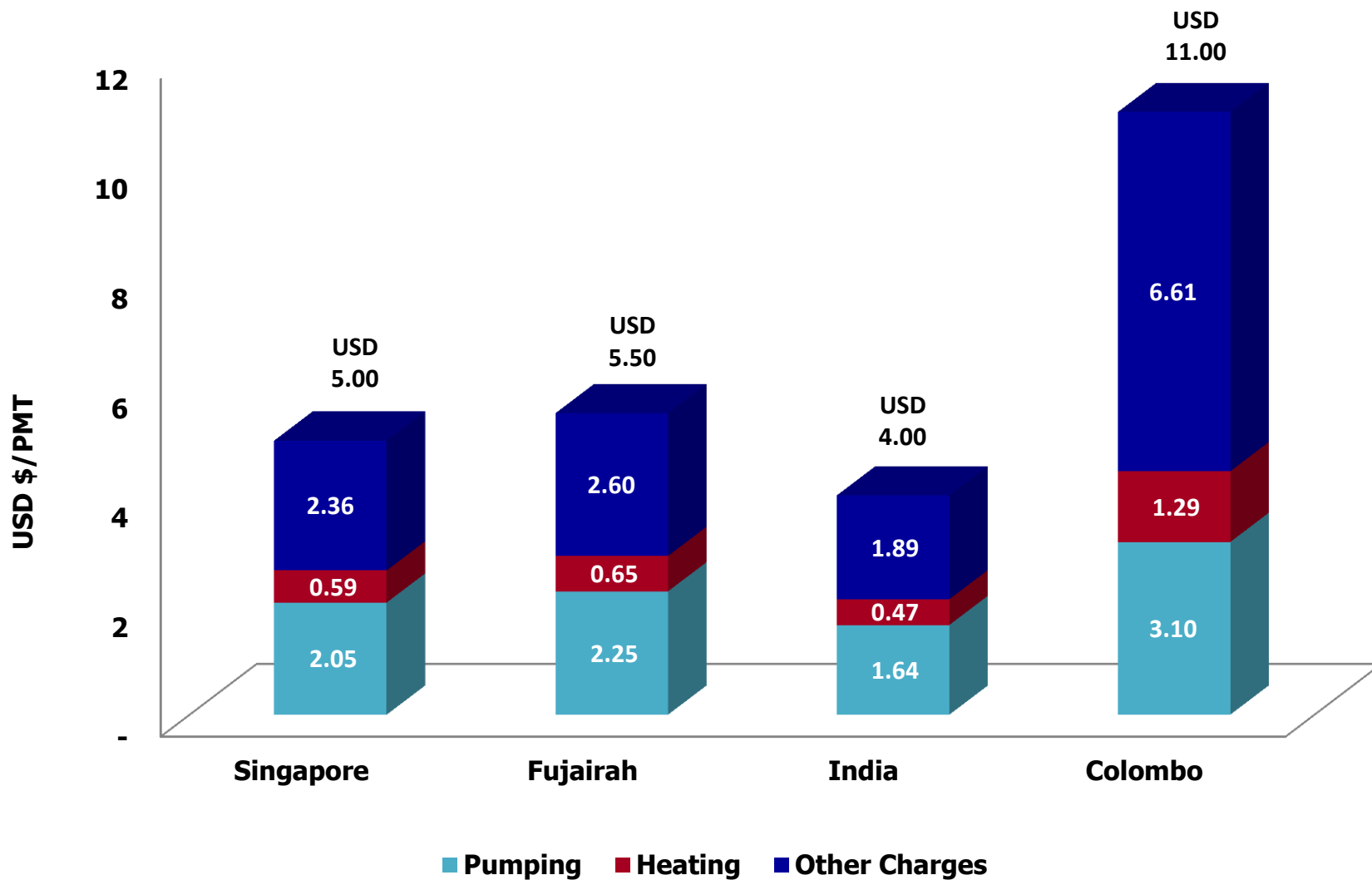


Singapore Est:

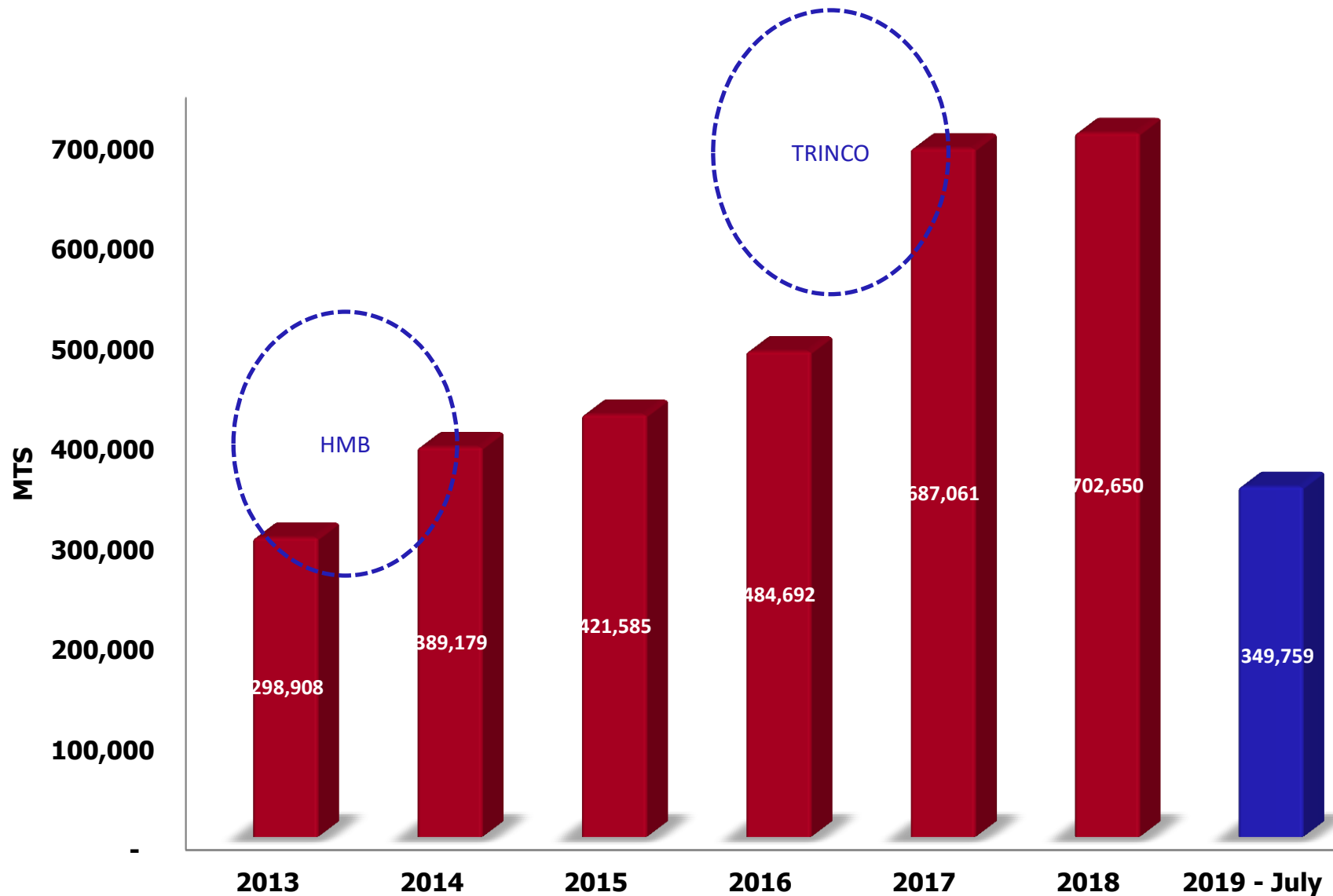
Land Storage
14.5 Mn M³

Floating Storage
14 VLCCs

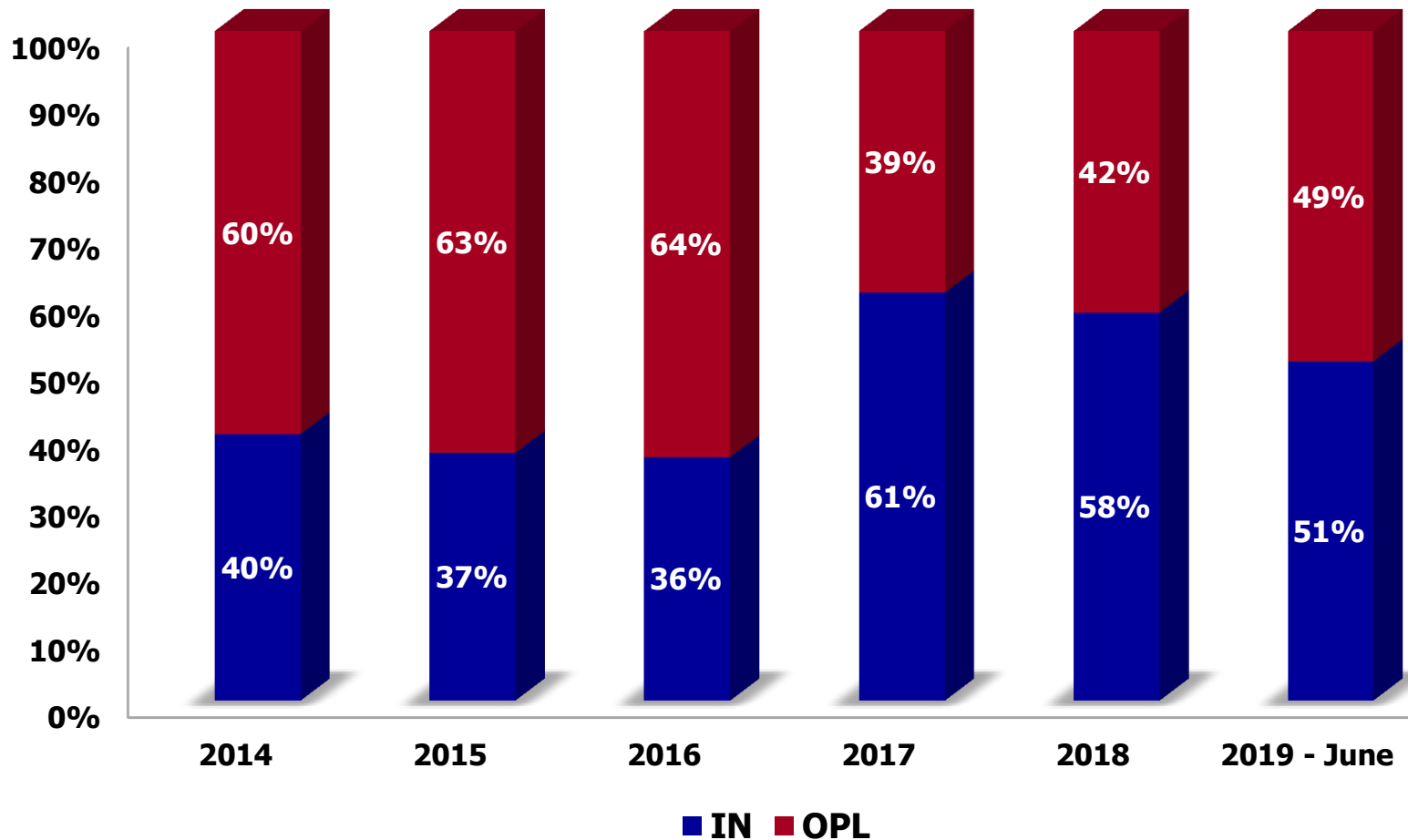
Regional Comparison of Bunker Storage Tariffs



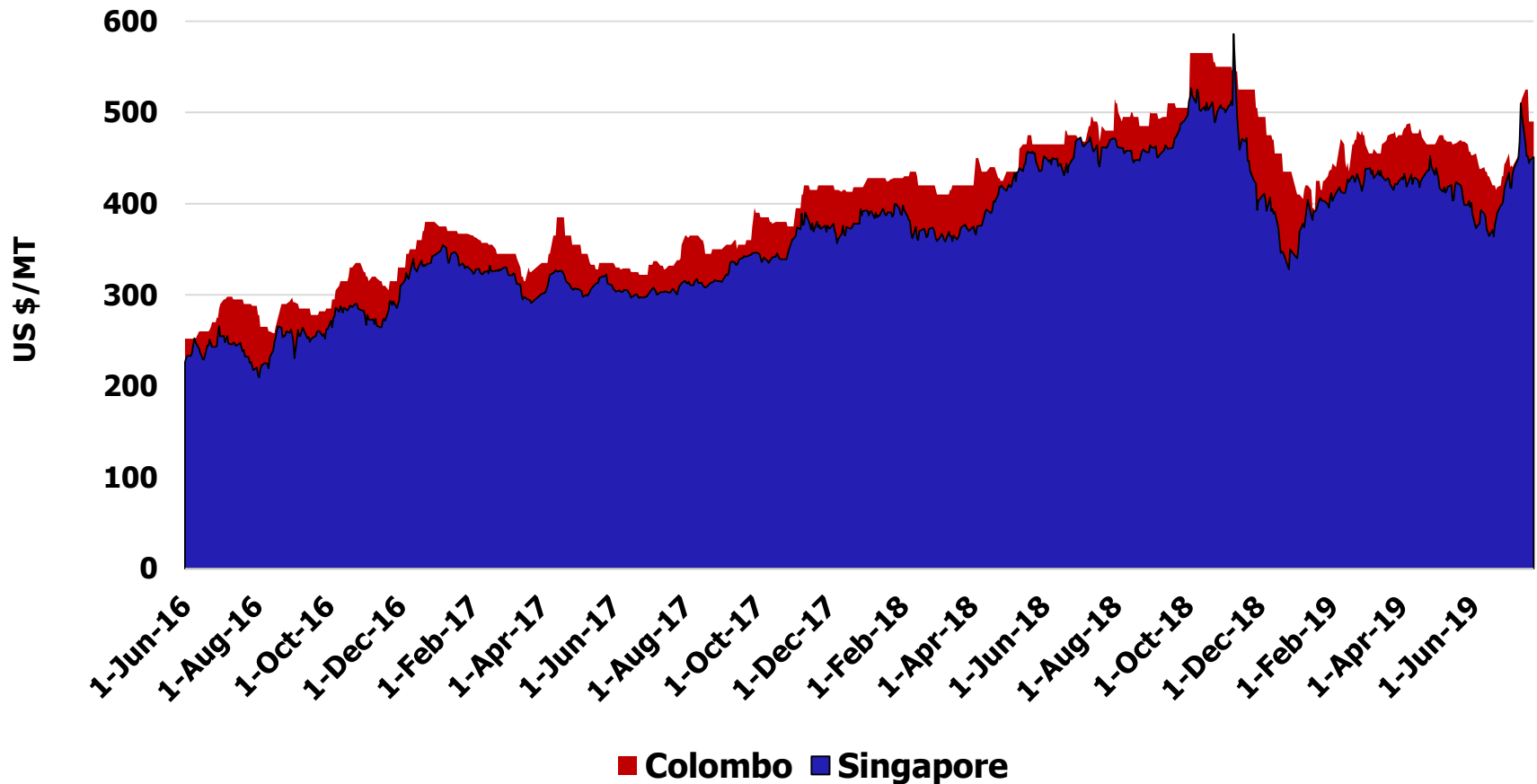
Sri Lanka Bunker Sales



Inside Port vs. OPL Volume (Colombo)



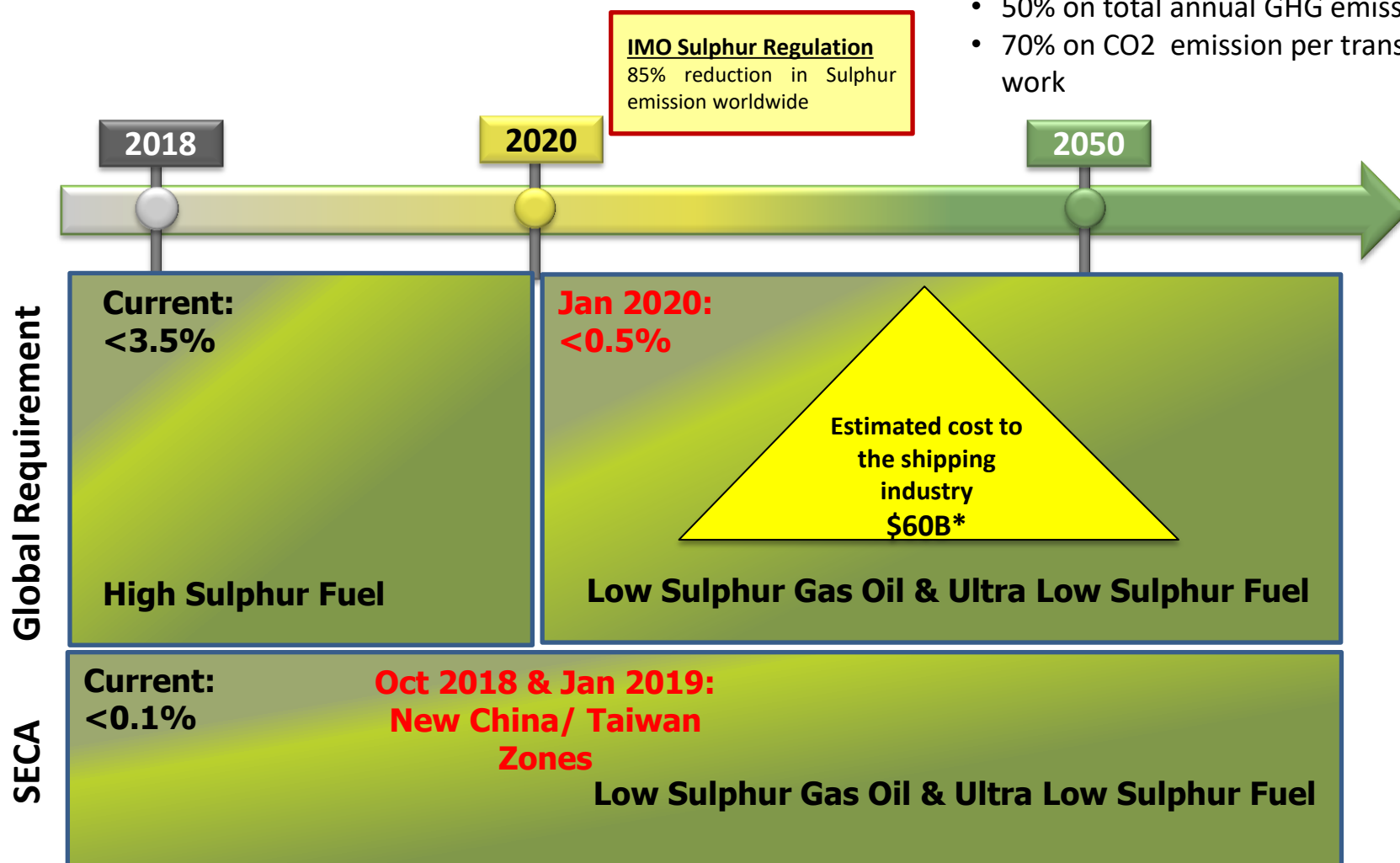
Colombo - Singapore Price Differential - IFO



What is 2020 Global Sulphur Cap Regulation

IMO CO2 Strategy (vs 2008)

- 50% on total annual GHG emission
- 70% on CO2 emission per transport work



Options for Ship Owners

Four Pathways

- Switch to compliant low-Sulphur bunker fuel (largest pathway in 2020)



- Switch to liquefied natural gas (minor impact in transition)

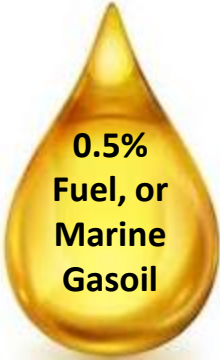




- Install exhaust gas cleaning systems, aka scrubbers (smaller pathway in 2020 but expected to grow rapidly after)

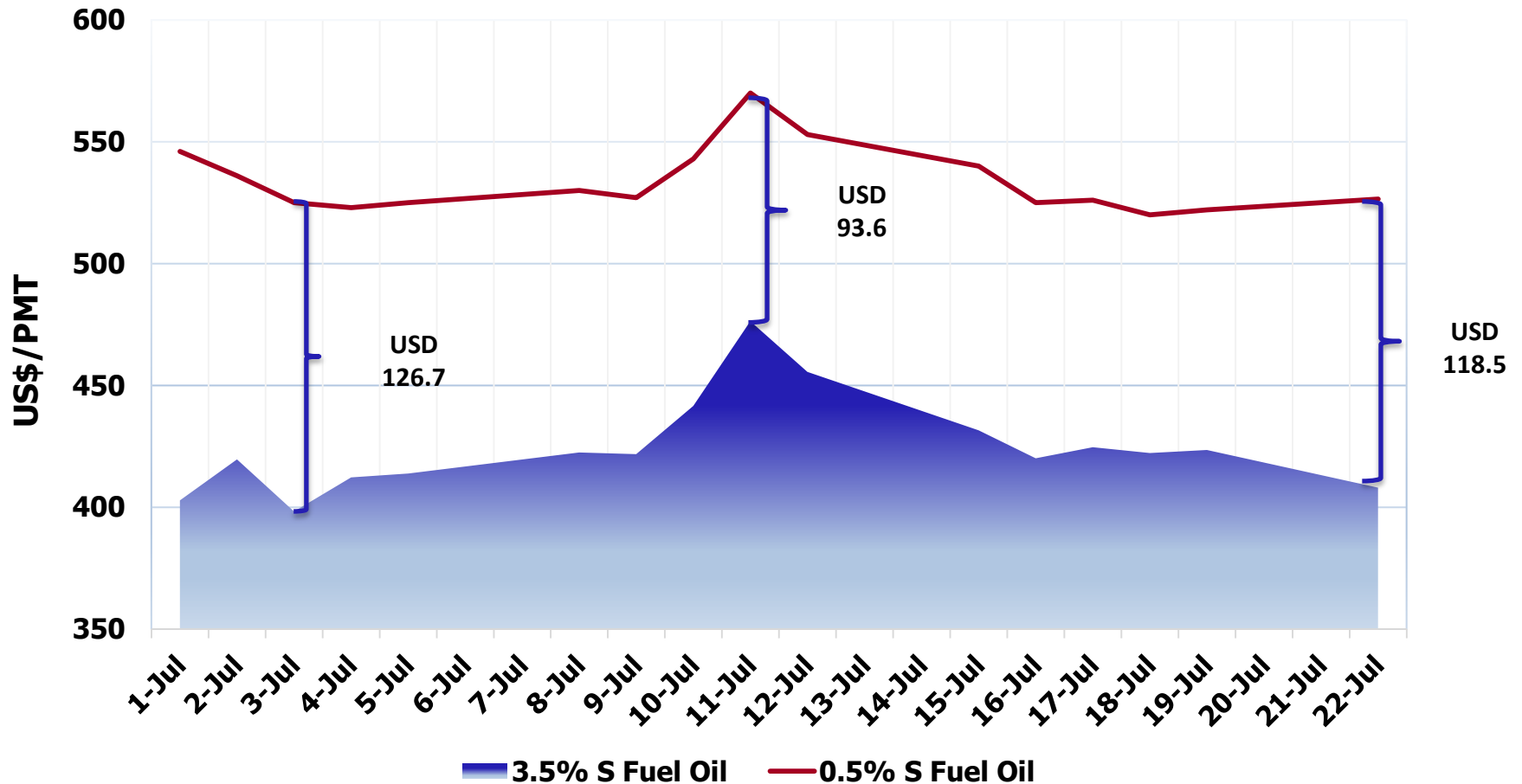


- Non-compliance, sanctioned or otherwise (not a true pathway – but cause of great uncertainty)

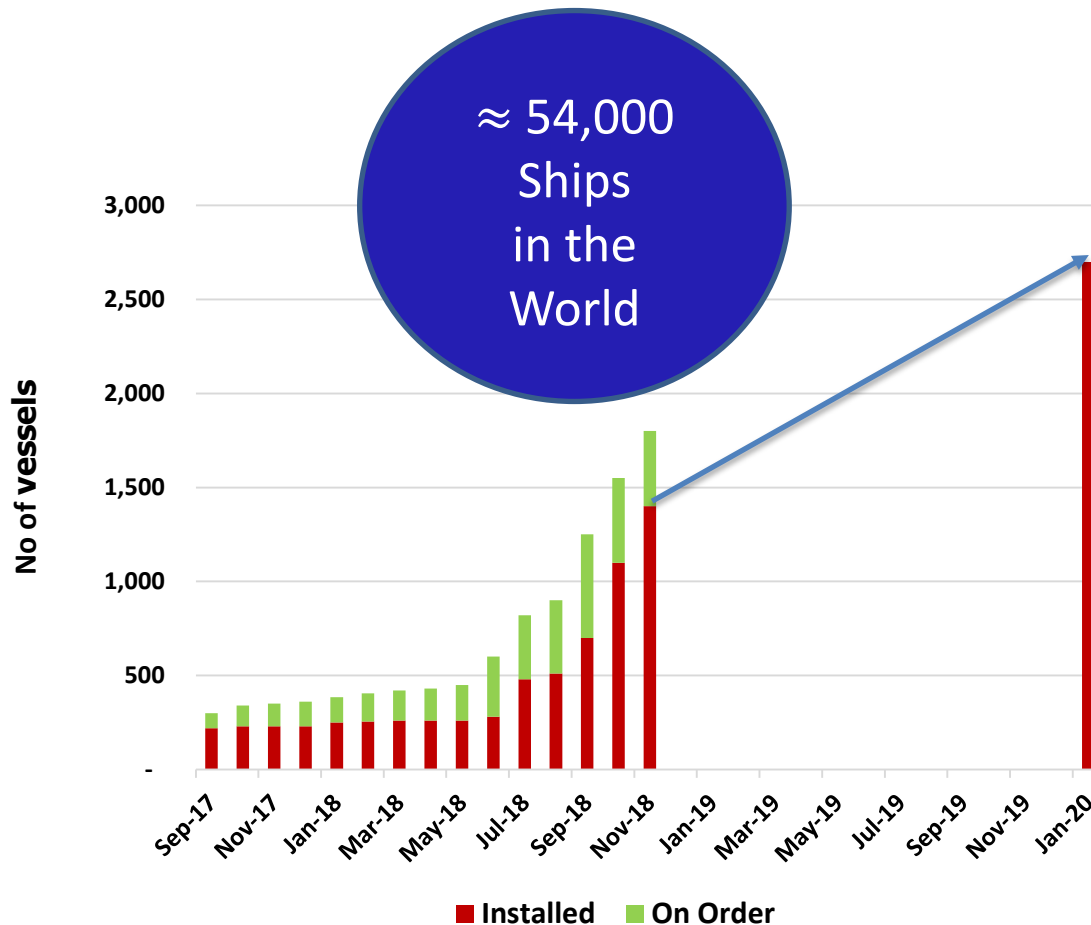
Compliant Fuel – Key Benefits and Risks

	Low Sulphur Fuel	Exhaust Gas Cleaning System (Scrubber)	Conversion to LNG
	 <p>0.5% Fuel, or Marine Gasoil</p>	 <p>The principle of scrubbers involves passing the exhaust gas flow of an engine (main engine and/or auxiliary engines) through a sea water “shower”. The water droplets atomized in a cloud capture the Sulphur molecules and fine particles present in the exhaust gases</p>	 <p>*Benefits of Liquefied Natural Gas</p> <ul style="list-style-type: none"> • Up to 25% less CO2 • -99% Sulphur emission • -99% particulate matters • -85% nitrogen oxides emission
Key Benefits	<p>Easy to implement No CAPEX</p>	<p>Availability and Compatibility Low OPEX</p>	<p>Proactive technology & innovation meets long term sustainable vision</p>
Major Risks	<ul style="list-style-type: none"> • High OPEX • Availability • Compatibility 	<ul style="list-style-type: none"> • High CAPEX • Elevated risk of operation control • Waste disposal 	<ul style="list-style-type: none"> • High CAPEX • Availability • Elevated risk of operation control

LSFO and HSFO Price Differential



Adoption Rate of Scrubbers



- Ships with scrubbers by 2020 – 2700est.
- July 18 – 490 Vessels with Scrubbers and $\frac{3}{4}$ of these are on existing vessels
- As per Hyundai Heavy Industries 50% of their new built will be with scrubbers
- March 19, Maersk committed to USD 263 Mn in installing scrubbers
- MSC indicated USD 439 Mn for retrofits on 86 box ships
- CMA CGM orders 10 ships ; 5 powered by LNG and 5 with scrubbers installed

Opportunities and Challenges of IMO 2020 Sulphur Cap Regulation

Challenges

- Uncertain demand projections (LSFO/HSFO/MGO)
- Availability of LSFO
- Origin of cargo
- Compatibility
- Limited storage and common user facility
- Operational readiness (land side/barges)
- Limited technical knowledge
- Credit risk due to increase in fuel prices

Opportunities

- First mover advantage
- Presence of global players such as IOC and Sinopec
- An interim increase in demand for Marine Gas Oil (MGO)
- Ability to cater to a different segment of vessels

Steps Taken to Mitigate Challenges Faced by New Regulations

- International Independent Technical team appointed to study and submit report on the operational way forward for JCT
- JCT increase storage
- Request made to the Sri Lanka Customs to approve floating storage
- Enhance potential supplier base to cater to LSFO
- Train and upskill local staff to handle LSFO

“The industry must come together, meet the challenge head on, and rise to the occasion”



Thank You