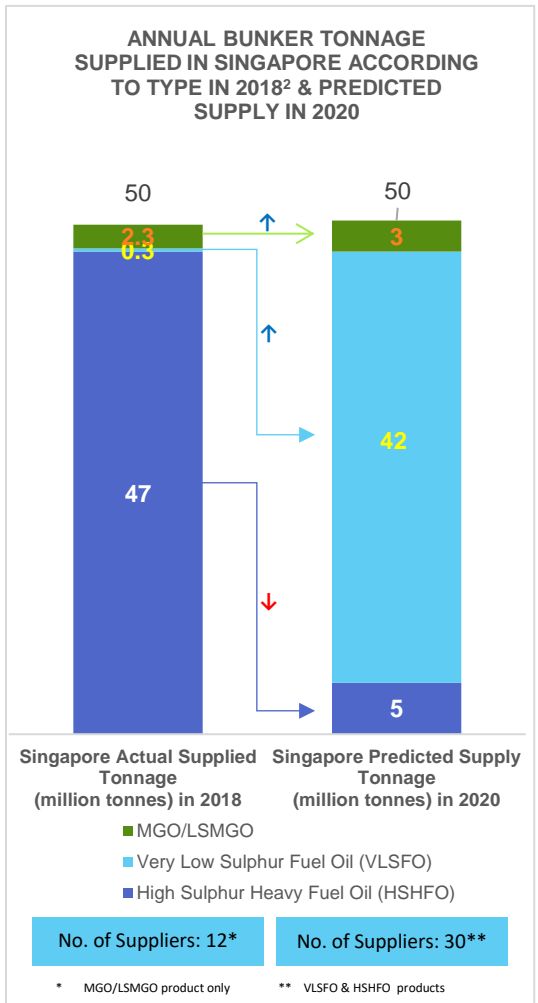
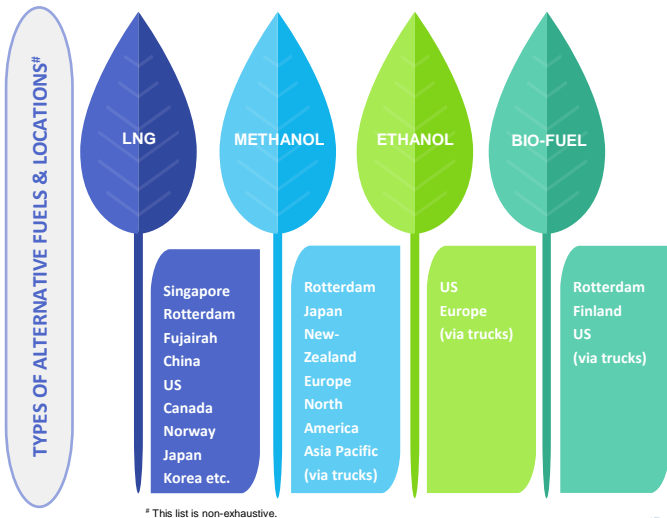
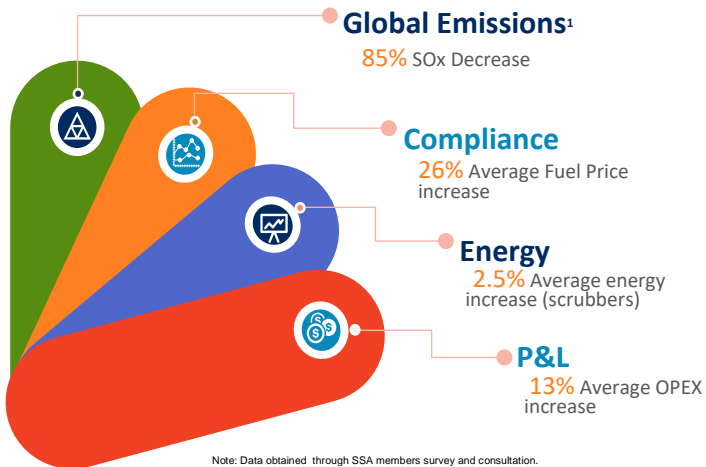

IMO SULPHUR LIMIT 2020 GUIDANCE

IMO SULPHUR LIMIT



- > Ship Management System updated
- > Ship Implementation Plan reviewed
- > Fuel Oil Changeover Plan prepared & reviewed
- > Crew Preparedness Training Plan executed
- > RA & Mitigation Plan for use of DM/RM onboard reviewed
- > Carriage Ban instructions prepared
- > Commingling instructions prepared



- > EIAPP New Certificate Received
- > Amended NOx Technical File (obtained only in case of changing component)
- > CEM documentation maintained both onboard and in cloud
- > IMO GSIS System familiarisation conducted
- > Fuel system plan approval received (needed in case of line modifications)
- > Onboard Monitoring Manual approved
- > SOX Emission Compliance Plan approved



- > SEEMP document updated
- > Tank & Sounding Sensors booklet configured with correct viscosities/temp
- > Maintenance Log incorporated with new equipment
- > Section H of Oil Record Book Part 1 new recording requirements incorporated
- > Procedures to verify machinery performance completed
- > Procedures for segregation of various grades of fuel oil carried out
- > ECGS Technical Manual for Scheme A/B received



- > 3-years Bunker Delivery Notes (BDN) Records indicating % of Sulphur content available on board
- > FONAR Form Instructions disseminated & contact list of FONAR recipients developed
- > Fuel change over instructions updated
- > EGC Record Book updating instructions incorporated



- > BDN to indicate less than 0.5% of Sulphur Content and does not exceed the maximum allowable limit if no scrubber is installed onboard vessel after Jan 2020
- > Certificate of Quality (COQ) from suppliers received

1 <https://safety4sea.com/imo-sets-2020-as-implementation-date-for-0-5-sulphur-cap/>

2 <http://www.mpa.gov.sg/web/portal/home/port-of-singapore/services/bunkering/bunkering-statistics>

6 Months (M) Planning



FUEL OIL SYSTEM READINESS

Segregation modifications for fuel oil tanks system completed, system lines tested, and crew familiarization training conducted, action plan agreed with manufacturers completed



SAMPLING READINESS

All sampling points identified and appropriate sampling valve installed, procedure for onboard and in-use samples completed and crew familiarization training conducted



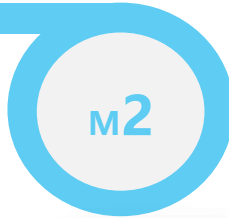
OIL TANKS READINESS

Tank cleaning for designated fuels storage arranged, lub oil spare tank arrangement for dual fuel carriage, additional containment system for the possible overflow of sludge volume due to tank cleaning requirements



PROCUREMENT READINESS

Procurement contracts and quality procedure/certification to purchase compliant fuels from bunker suppliers along vessel routes negotiated and agreed, disposal of non-compliant fuel with buyer(s) arranged and permit obtained



ON-BOARD READINESS

Fuel switch-over requirement arranged and full training on the utilization/ switch-over operation as well as handling unavailability of compliant fuel for crews completed, issuance of reminder that non-compliant fuel needs to be disposed



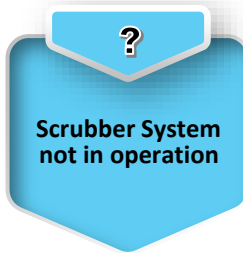
COMPLIANCE

Ship maintenance regime to include mitigating compatibility issues, carriage ban arrangement, emission monitoring, equipment inoperability, CEM malfunction etc.



Compliant Fuel not available at port

- Submit Fuel Oil Non-Availability Report (FONAR) to next port of call & inform Port State/Flag State
- Report to IMO MARPOL Annex VI GISIS module
- Submit evidence to support efforts to obtain compliant fuel
- Arrange to lift compliant fuel at the first available port of call



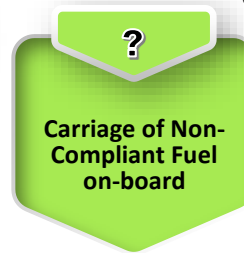
Scrubber System not in operation

- Inform Flag & Port State for non-functional scrubber
- Make arrangement to repair scrubber at nearest port of call
- Update SSEP Log Book
- Inform port state for non-availability and make arrangement for bunkering of compliant fuel
- If repair duration is uncertain, consult the administration



Analysed VLSFO results have uncertainties

- Raise Bunker Dispute Form
- Run additional purification/filtration with low throughput for fuel with high cat-fines
- Adjust heater or use chiller to improve fuel viscosity and to maintain viscosity within the Engine Maker's Recommendation limit
- Commingle with compatible fuel/or use appropriate additives to improve stability
- For high sulphur content exceeding limit, make preparation to debunker non-compliant fuel



Carriage of Non-Compliant Fuel on-board

- Make arrangement to dispose non-compliant fuel (HSHFO) by 1st March 2020 due to "Carriage Ban"
- Clean system & tanks to bunker compliant fuel
- Obtain a Carriage of Non-Compliant Fuel exemption letter from Flag State, to be produced to Port State Control from 1st Jan 2020 onwards



Ports & sea areas prohibit scrubber discharges

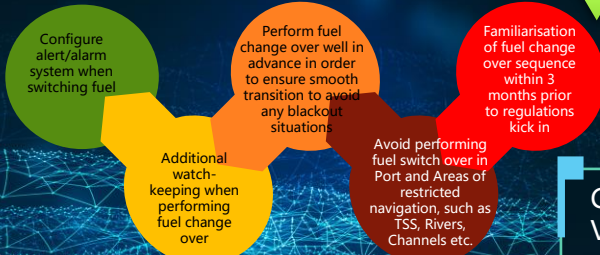
- Perform change-over to compliant fuel using the fuel change-over calculator prior to entering prohibited areas
- Switch to closed loop system, if available
- Make arrangement with reception facilities to collect scrubber effluent discharges for closed/hybrid scrubber

5 What-If Scenarios

Safety Risk: Vessel Collision

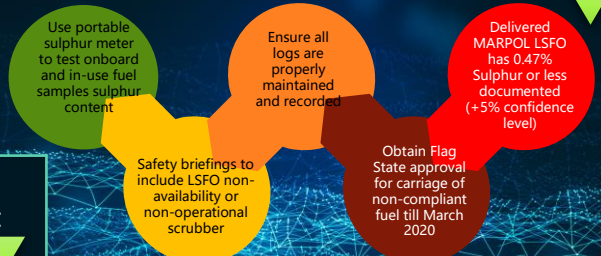
Recommended Mitigating Actions:

Recommendations & Best Practices compiled by SSA Members



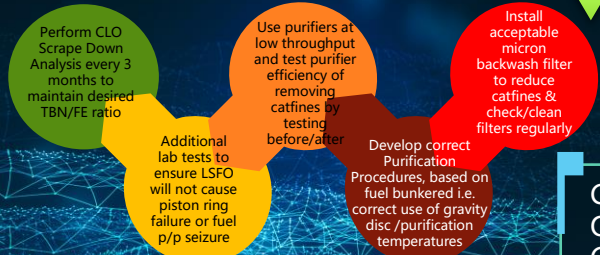
Compliance Risk: Vessel Detention

Recommended Mitigating Actions:



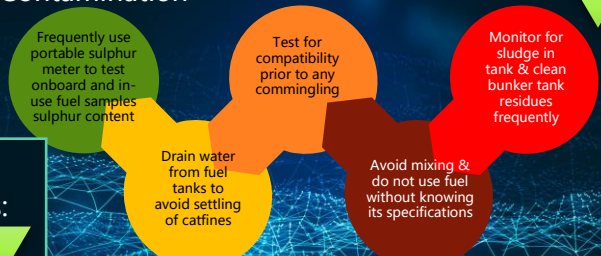
Operational Risk: Damage to Critical Assets

Recommended Mitigating Actions:



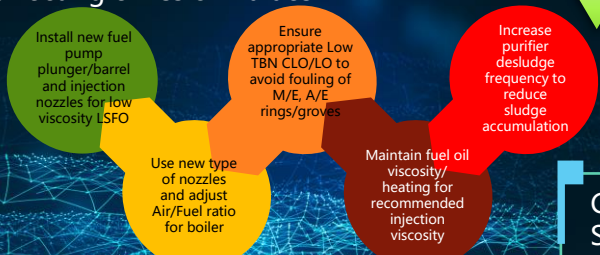
Commercial Risk: Onboard Fuel Contamination

Recommended Mitigating Actions:



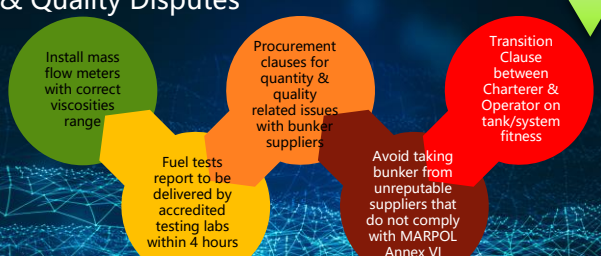
Operational Risk: Incorrect combustion affecting emission values

Recommended Mitigating Actions:



Commercial Risk: Supplied Fuel Quantity & Quality Disputes

Recommended Mitigating Actions:



6 Types of Risks Assessed