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# IMO 2020 Sailing Ahead

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## **With less than 3 months to go, the focus is now on consistent implementation of the IMO 2020 0.50% Sulphur limit.**

- Refining industry preparing for the transition
- Fuel suppliers preparing for new products and segregated logistics
- Shipowners and operator making fuel choices & preparing crews & vessels
- Preparations by Ports, Port States and authorities

# Shell's Preparation for IMO 2020

- Enhanced refineries crude flexibility and supply chain logistics
- Created Shell 0.50% VLSFO, an ISO 8217 stable fuel that complies with SOLAS
  - Tested over 100 different streams to develop our VLSFO
  - Partnered with and supported ship owners during trials
- Developed Shell fuel handling guidelines
  - Compatibility
  - Storage
  - Fuel handling
  - Fuel Changeover





**OPERATIONAL GUIDELINES FOR THE USE OF SHELL VLSFO<sup>1</sup>**

These Operational Guidelines are intended for Spot Sale Customers

THE GUIDELINES BELOW ARE NOT EXHAUSTIVE AND ARE INTENDED ONLY TO ASSIST IN THE RISK ASSESSMENT PROCESS AND IN HANDLING SHELL VLSFO ON BOARD SHIP. THE GUIDELINES ARE USED AT THE USER'S SOLE RISK AND RESPONSIBILITY AND SHELL DOES NOT ACCEPT ANY LIABILITY ARISING OUT OF OR IN CONNECTION WITH THE USAGE AND/OR THE IMPLEMENTATION OF THESE GUIDELINES.

**SHELL'S VERY LOW SULPHUR FUEL OIL (VLSFO) HAS BEEN TRIALLED EXTENSIVELY AND HAS BEEN PROVEN TO PERFORM SATISFACTORILY, WITH CAREFUL ATTENTION TO THESE OPERATIONAL GUIDELINES PROBLEM FREE CONSUMPTION IS ACHIEVABLE.**

It is the responsibility of the vessel to safely manage the changeover of fuels in order to meet the regulatory sulphur limit required. In the worst case scenario, a risk assessment should be carried out by the operator and crew. The guidelines below are to assist in the risk assessment process.

The risk assessment should include:

- Procedures to aggregate different types of fuels from different sources;
- Procedures for compatibility testing and aggregating fuels and compatibility can be confirmed;
- Plans to address operations when handling specific fuels; and
- Procedures to verify machinery performance.

Consideration should be given to segregation of storage tanks as well as the fuel transfer, processing and delivery systems. The fuel of return system should be confirmed as being arranged to ensure minimal cross contamination.

For detailed information on equipment, users are encouraged to refer to:

- CEMAC Recommendation 27: Recommendations Concerning the Design of Heavy Fuel Treatment Units for Clear Engines;
- International Chamber of Shipping: Procedures to Address Oil Spillage Companies and Crews on Preparing for Compliance with the 2020 Oil Fuel Sulphur Cap for Ships; [http://www.ics-shipping.org/Portals/0/Assets/2019/09/20190915%20Oil%20Fuel%20Cap%20for%20Ships%20Final%20Q1%20in%20accordance%20with%20IMO%20MEPC.70.12.pdf](#)
- The relevant Association of Classification Societies (ACS) Recommendations for particular fuel treatment systems for marine diesel engines.

**COMPATIBILITY**

- Proper segregation between oil fuels is highly recommended, as compatibility between fuels cannot be guaranteed.
- Compatibility between Shell's VLSFO and products from other suppliers will need to be assessed on a case to case basis.
- It is advisable to test for compatibility with the existing fuel onboard by the spot sale according to method ASTM D1329. A rating of above 2 indicates incompatibility.

Problems are reported for low sulphur petroleum fuels on oil vessel operations above 25% SUECAE.

- Receiving bunker storage tanks should be empty and free of sludge and free water. This will avoid a significant compatibility issue, reduce possible blending of fuel grades and prevent the use of wrong calculation differences.
- Storage tanks should be emptied to avoid the mixing of newly bunkered fuel with existing fuel on board.
- Shell's VLSFO grades may be heated during storage, except for Shell's VLSFO ex NDA<sup>2</sup> (supplied by low viscosity and low pour point grades, low ambient temperatures are experienced).
- Storage tanks should be filled with heating coils subject to maintain the fuel at a temperature 10°C above the pour point of the fuel when fuel is used for long term use or in cold climates. Fuel temperature can be raised to approximately 40°C in situ or on board use.

**FUEL PROCEEDS**

- Steam heating for oil pipelines should be turned off when using Shell's VLSFO ex NDA to prevent overheating and the risk of "sparging". Steam heating for other grades should be monitored during use to prevent overheating.
- The heating of fuel at bottom and during full rotation requires careful attention to avoid operational problems.

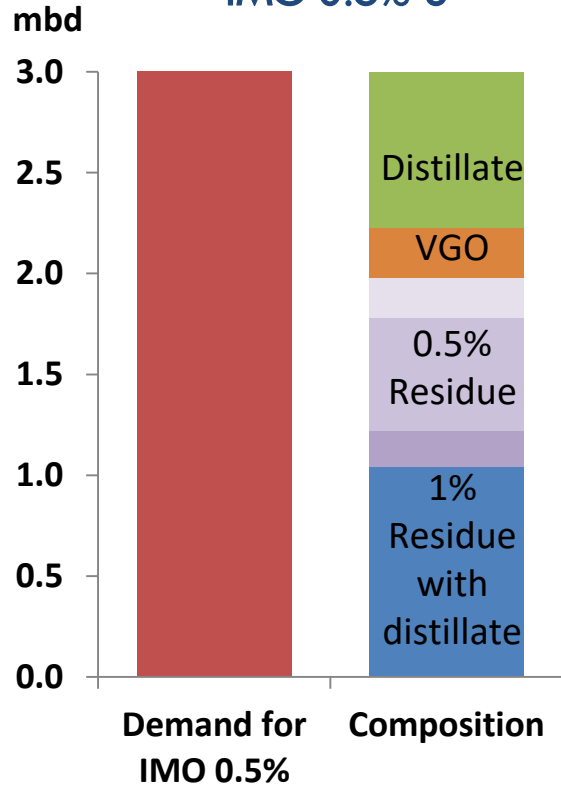
<sup>1</sup> Shell's VLSFO meets ISO 8217, complies with the minimum flash point specification required by SOLAS, and contains a maximum of 0.25 sulphur by ISO 8217. Operational guidelines are also available for VLSFO 0.1% sulphur mass.  
<sup>2</sup> Port of New Orleans

August 17, 2019



# Refineries deciding how to meet the demand from shipowners.

IMO 0.5% S



Source: STASCO Ltd,

## Crude



- Changing crude diet to meet new demand

## Residue destruction



- Investing in residue upgrading
- Investing in distillate capacity

## Segregation



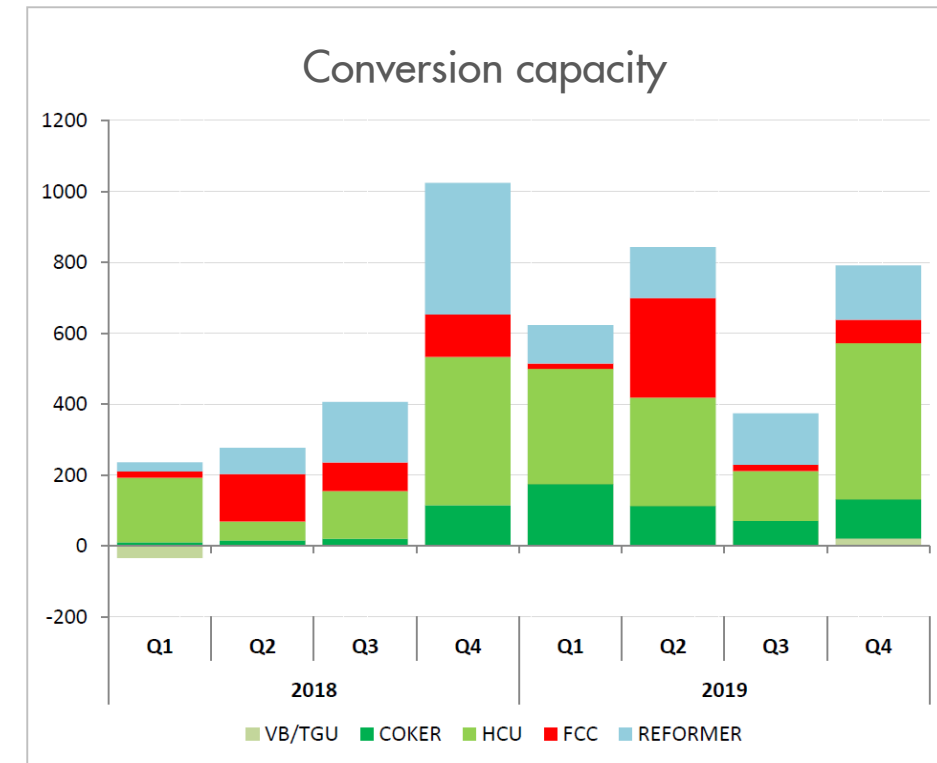
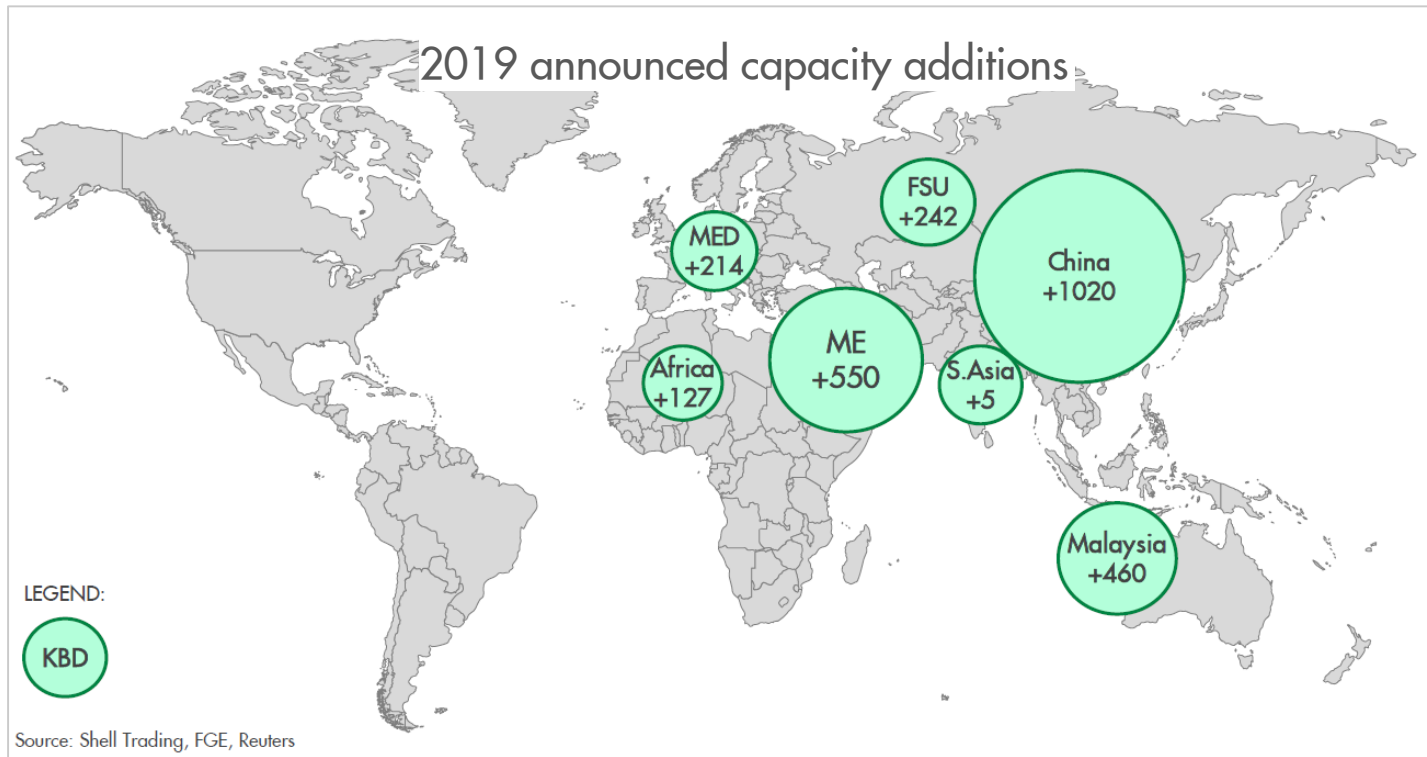
- Improving segregation between LS and HS Crude, feedstocks and blendstocks

## Blending



- Selecting blend components meeting 0.50% VLSFO
- Quality control

# Refining industry investing to meet new and changing demand driven in part by the IMO 2020 Sulphur specification.



# Ship owners have a number of choices of how to comply with the Sulphur specifications

## 0.50 % S VLSFO



- Minimize operational difficulty and cost
- Variability of quality of blends per supplier

Shell will supply 0.50% VLSFO

## Marine gasoil



- Convenient and widely available
- Operational experience in industry
- Higher cost

Marine Gasoil will remain key products for Shell

## HSFO & Scrubber



- Lower cost fuel vs investment and operating costs
- Open vs Closed loop design
- Port restrictions?

Shell can supply HSFO 3.5%

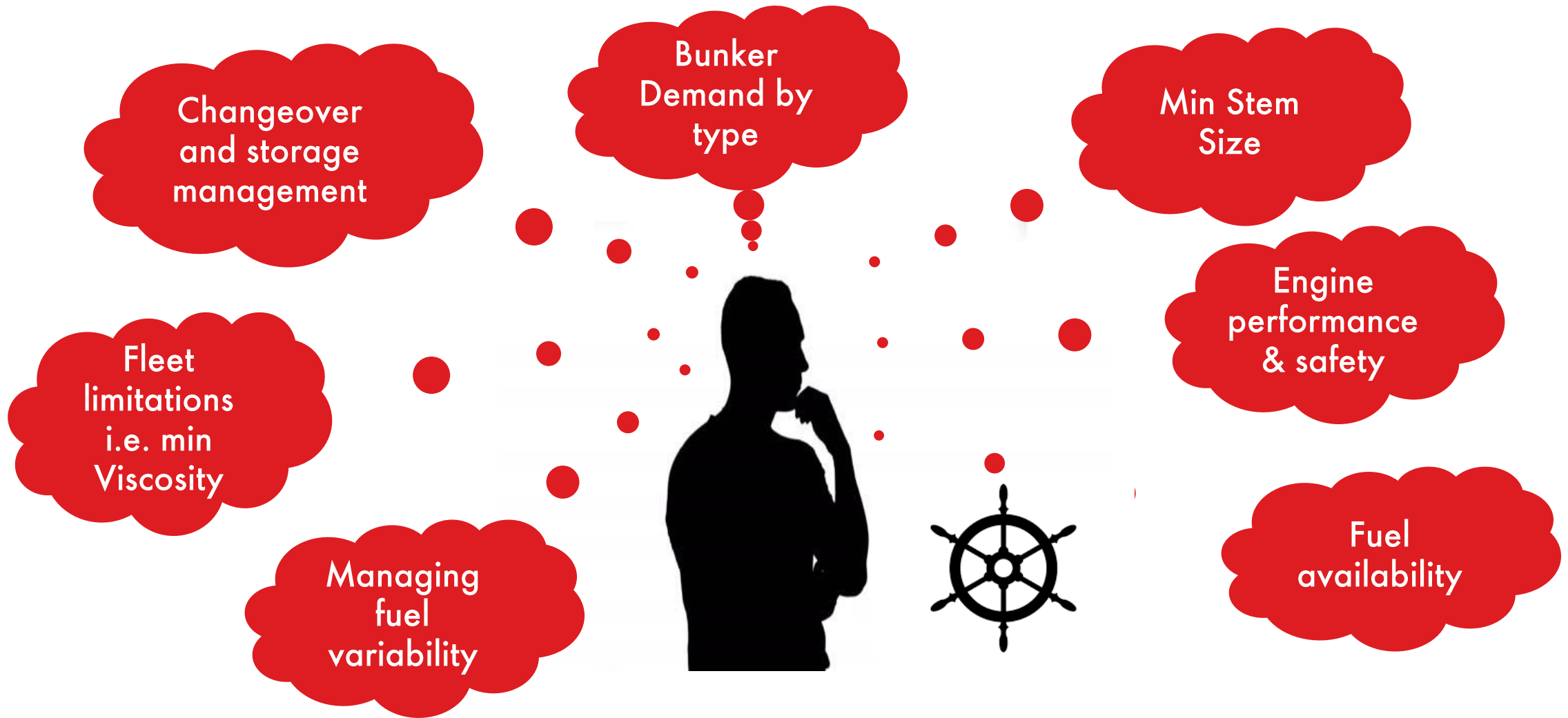
## LNG



- Proven technology and reduction Sox/Nox
- Lower CO2 emissions
- Growing availability

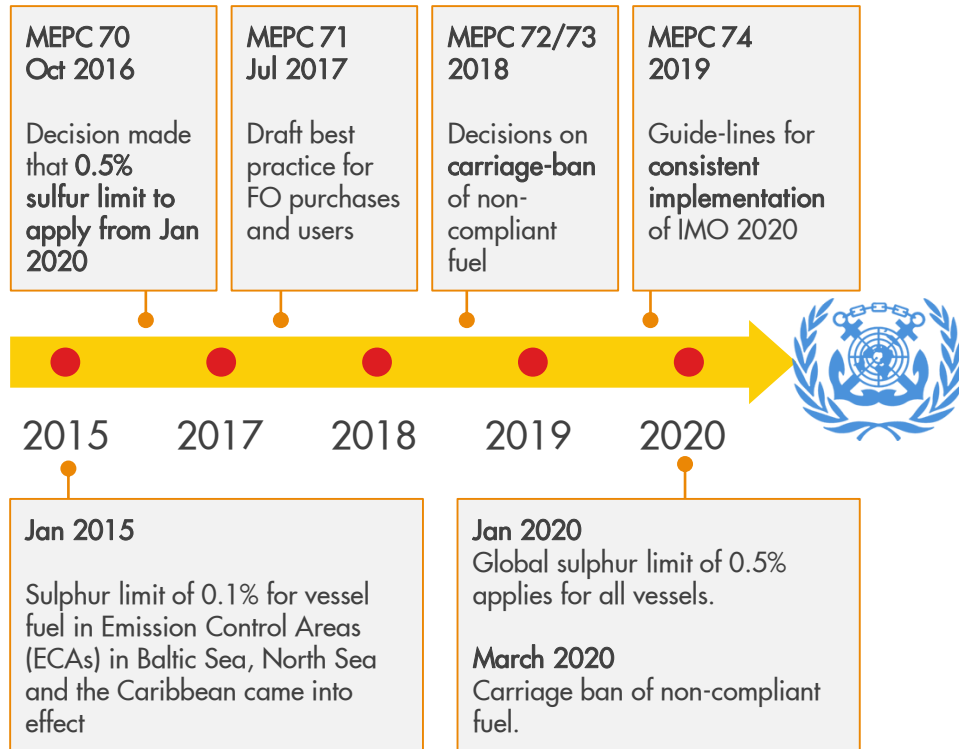
Shell is an innovation leader in LNG

# IMO 2020...Are ship owners ready for the delivery?





# Following the May 2019 MEPC 74 meeting the focus is now on Consistent Implementation of the 0.50% Sulphur limit.



IMO guidance documents:

- Consistent implementation including Fuel non-availability report FONAR
- Ship implementation plan
- Port state control guidelines covering inspections
- Port state guidance on addressing non-compliant fuel oil on ships
- Best practice for members states – fuel oil quality & fuel supply
- Actions in case of EGCS (scrubber) failure
- Fuel oil sampling

**Key role for Port States to enforce compliance in an effective and consistent manner**

# Beyond IMO 2020

- Shell is preparing to support meeting the IMO GHG targets.
  - Expanding LNG bunkering facilities
- Biofuels including first Bio HSFO trial in collaboration with Maersk and the Dutch government
- Future low carbon fuels including Hydrogen

