

Regulatory Implementation in Shipping

A brief overview

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Case study: Properly Implemented regulation



Backdrop fleet growth 3% p.a.

Ambitious objectives agreed, include:

- Average improvement in fuel efficiency 1.5% p.a. 2009-2020
- Carbon-neutral growth 2020-onwards
- Reduction of CO₂ by 50% by 2050, relative to 2005

Stakeholder cooperation

- Cooperative process between supranational regulators – national regulators & implementors – builders – operators

Multifaceted approach **4-pillar** strategy

- **Improved technology** including low-carbon fuels
- **Operation efficiency** improvements
- **Infrastructure improvements**
- **Single market-based measure** (to fill remaining emissions gap)

...Sounds too good to be true?

..Because it is-

This is how it's done in aviation!



- **Chaotic**
- **Speculative**
- **Problematic** coordination between the stakeholders

Why?

industry characteristics:

- highly competitive
- based on lowest marginal cost
- chaotically globalized
- Risk normalization

Shipping is not **proactive**, its **reactive**
= First mover **dis**advantage

...Even in shipping, it's not always this way



Historically: positive case for safety improvement in tankers

OPA 90 (double hull) implementation

- New oil tankers under OPA 90 included those built after 1990, excl. ordered vessels up to January 1, 1994.
- Older single-hulled tankers were phased out starting in 1995, final date for phase out of all single-hulled tankers was 2015.
- The phase out of any particular single-hulled tanker was based upon its year of build, its gross tonnage and whether it had been fitted with either double bottoms or double sides.

Continued pressure for safety by the industry

- Eliminating the financial incentives to cheat by:
 - SIRE vetting program
 - TMSA

Results:

Consistent enforcement yields big improvements in safety

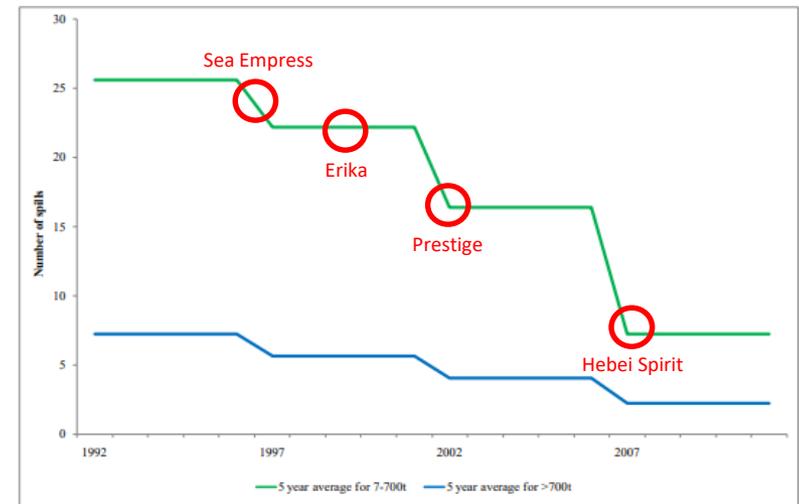


Figure 2: Five year average for frequency of spills 7 tonnes and over from tankers, 1992 to 2011

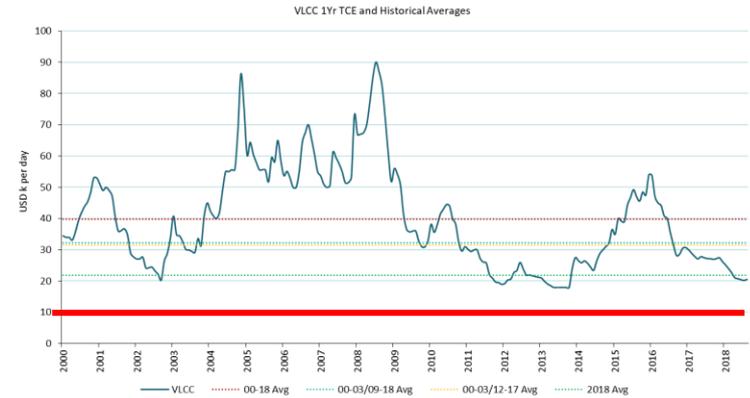
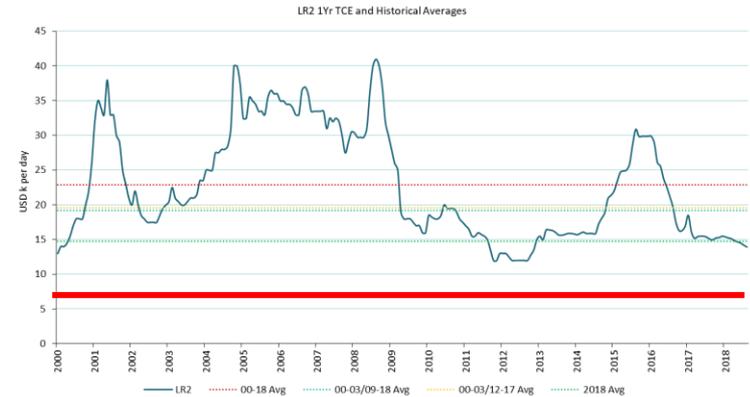
Source: ITOFF

Tanker 1YR TC never goes below OPEX



Living wage to protect safety!

Even in the worst markets, 1YR Time Charters remains above OPEX



Source: Affinity

IMO 2020: some history



IMO Sulphur regulation steps

- (May 2005), October 2008 implementation of 3.5% cap: easy to meet as 70% of residuals already complied
- (Oct 2016), Jan 2020 implementation of 0.5% cap (much harder!!)

According to MARPOL Annex.VI

- “subject to review to be completed by 2018, as to the availability of the required fuel. Depending on the outcome... **could be deferred to 1st Jan 2025**”

Date decision based on an IMO-commissioned availability study, led by CE Delft

- Increase in shipping energy use by 8% (300m-320m mt)
- Will be met by increase in refinery expansion incl. hydrocracking & desulphurization

Rival study Ensys submitted as “second opinion”

- BIMCO & IPIECA funded
- Refining capacity not sufficient
- 60-75% additional capacity required
- Predicts heavy demand for middle distillates (MGO)
- Predicts significant ripple effect across all fuels

Biggest differences: the availability of hybrids & view of fuel price elasticity

.. Also a third element: **enforcement**

- International Maritime Organization: UN agency with no enforcement authority except via PSC

Uncertainty = cost



Initial uncertainty about the 2020 regulation deadline

- Deferral of BWTP
- Request by EM oil producers for a “soft start”

Initial uncertainty about enforcement

- IMO does not have authority to implement, only PSC & Flag do = potential conflicts of interest?

Uncertainty about non-compliance

- **Not until Feb 2018 IMO proposes to ban carriage of non-compliant fuel, did fuel pricing start to react**
- *“HSFO forward cracks widen sufficiently to offer positive NPV for scrubber fitment”* (source: GS)

Shipowner resistance

- Shipowners bemoan limited lobbying power
- *‘What should be dealt with at the refinery level is being passed onto individual ships’*
- *‘emissions regulation in cars is targeted at the manufacturer, not retroactively implemented individually by car owners’* (Intercargo chairman)

The result?

What ought to be about environmental safety, has become a **speculative opportunity**

Uncertainty interferes with Refinery investment decisions

- Investing in Hydrocracking, desulphurization is very expensive
- Implementation date announced only 3 years prior – **very short timeframe for major capex!**
- Significant price spread between gasoil & fuel oil expected

Reuters survey of (33) refineries:

- 60% will continue producing HFO, of which 70% will reduce output
- 50%+ will lower HFO production via upgrades in their facilities
- (11) refineries said they would spend less than \$100m for upgrades, (5) said they would inject between \$500m and over \$1bn.

Substantial demand for HFO remains

- Land-based (power generation) demand equivalent to 55% of (current) HFO demand
- Price reduction will make it competitive with natural gas or coal esp. in EM markets
- Scrubber-fitted vessel demand

Bunker suppliers

- Operational difficulties to supply different grades (tank switchover issues)
- Likely increase in term business and suppliers & customers work to reduce volatility
- **Bigger credit lines + increased default risk = consolidation**

Compliance & Enforcement



- IMO rule ratified by 97% of global marine freight volume
- PSC of states ratifying Annex VI are responsible for compliance
- **Difficult to anticipate 100% compliance**
 - Base case 80% (2020) rising to 96% (2025)

- **Legal non-compliance: Fuel Oil Non-Availability Report (FONAR)**
 - Exist in USA, under discussion at IMO for 2020
 - IMO rules to permit a voyage to go ahead if no available LSHFO
 - Not price-related

- **Highest enforcement** can be expected from current ECA area
 - EM countries expected to be laxer
 - China ECA comes into force in 2019 – China is committed to reducing emissions

Carriage of HFO ban, implementation March 2020

- Regulation with teeth
- .. **However implies slow start compliance in Q1**

COMPLIANCE INDEX

DM-DM	5/5
DM-EM EM-DM	4/5
EM-EM	3/5
EM-EM (ex-China)*	2/5

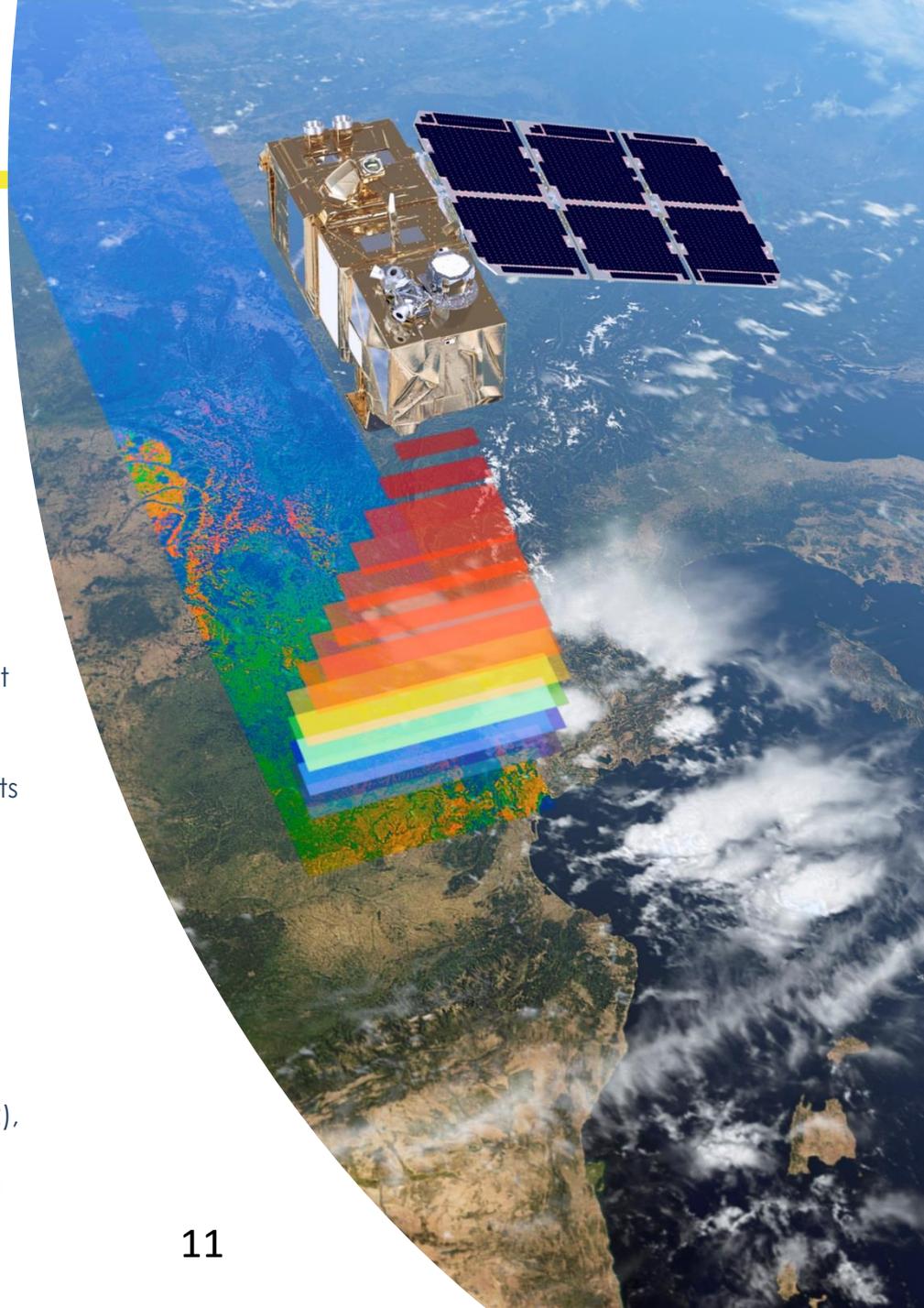
*(particularly EM states with low-sophistication, dominant NOC)

(Source: GS)

Implementation case study: Europe

- **European Maritime Safety Agency guidance:**
 - Bunker delivery notes
 - Oil Record Book
 - Fuel logs
 - Quantity & quality benchmarks for the tanks at the start of the verification period
 - Fuel changeover plan
 - Record of navigational activities & daily reports
 - Special consideration for fuel changeover
 - Fuel line diagrams plus updated tank content info (including records of transfers to settling/service tanks)

- **(Enforcement) EMSA's watchful eye**
 - Copernicus Maritime Surveillance
 - Satellite, Synthetic Aperture Radar (SAR), Optical (flight),
 - PLUS: Automated Behaviour Monitoring algorithms



Uneven distribution of compliance & related costs

High compliance

- Container industry – highly consolidated
- Public companies
- Large charterers
- Oil Majors (oil companies, major traders)
- Bulk majors (agriculture, mining)

Low compliance

- Whoever thinks they can get away with it!

"May you live in interesting times"

An English expression purported to be a translation of a traditional Chinese curse. While seemingly a blessing, the expression is normally used ironically, with the clear implication that "uninteresting times" of peace and tranquility are more life-enhancing than interesting ones, which, from a historical perspective, usually include disorder and conflict.

(source: Wikipedia)