

# IMO 2020



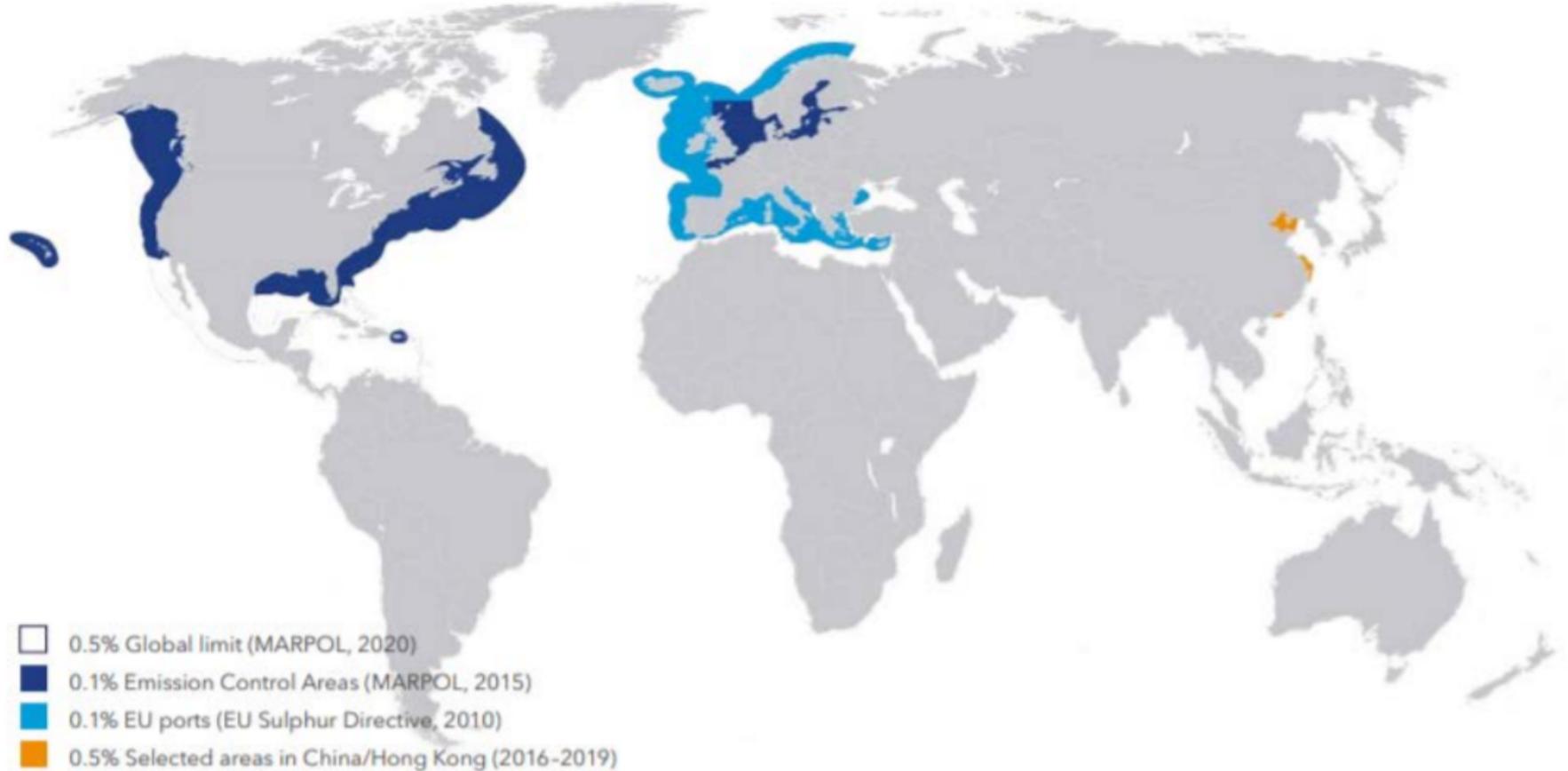
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# What is “IMO 2020”?

- United Nation’s International Maritime Organization (IMO)
- Goal: Limit Sulfur Oxide (SO<sub>x</sub>) Emissions for all Ocean Vessels
- 1997: Annex VI of the International Convention for Prevention of Pollution from Ships (aka MARPOL Convention) Addresses sulfur oxides, nitrogen oxides, ozone depleting substances, volatile organic compounds, and shipboard incineration.
- From **January 1, 2020: 0.5% Sulfur Limit (5,000ppm)** for ship bunker fuel outside of coastal emission control areas (ECAs).
- Based on the current sulfur limit of 3.5% or 35,000ppm, this is an 86% reduction in sulfur content.
- ECAs remain at 0.1% or 1,000ppm. This is down from 1.0% or 10,000ppm in 2015

# Map of Marine Sulfur Restrictions



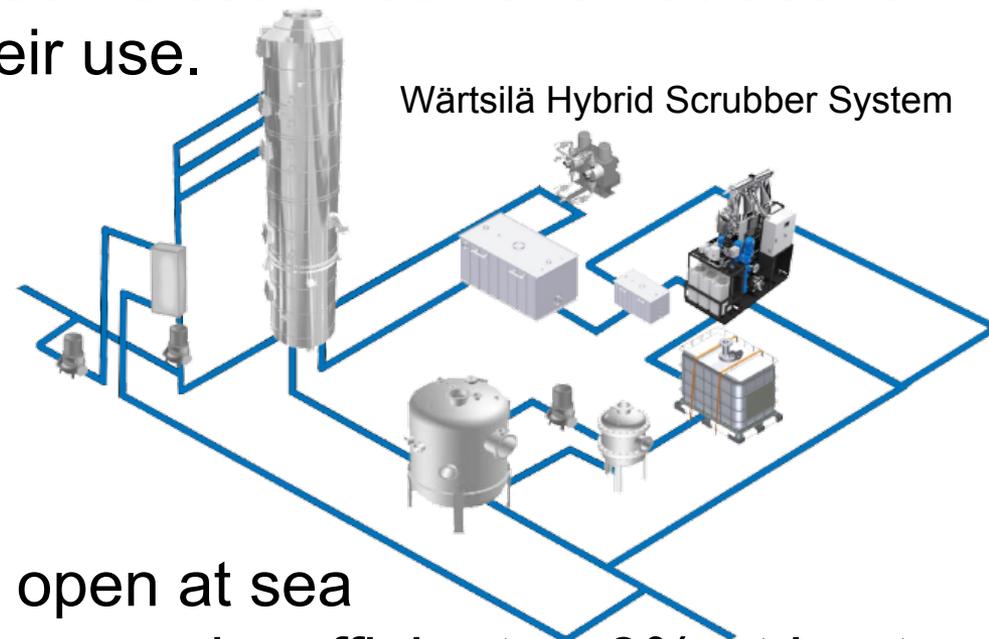
# Size of the Market

- Estimates are 3-3.5 mb/d of High Sulfur Fuel Oil for bunkers
  - McKinsey & Co. – 3.5mb/d (2018)
  - Goldman Sachs – 3.3mb/d (2017)
  - SEB Bank – 3.0mb/d (Current)
  - Ship & Bunker – 3.2mb/d (Current)
- Half of global fuel oil demand
- Similar to US distillate fuel market size:

U.S. Sales of Distillate Fuel Oil by End Use (mb/d, EIA)						
	2012	2013	2014	2015	2016	2017
Residential	0.23	0.23	0.25	0.26	0.21	0.21
Commercial	0.17	0.16	0.17	0.17	0.16	0.16
Industrial	0.15	0.15	0.16	0.13	0.13	0.13
Oil Company	0.11	0.11	0.14	0.08	0.06	0.09
Farm	0.20	0.20	0.21	0.21	0.23	0.22
Electric Power	0.03	0.03	0.05	0.04	0.03	0.03
Railroad	0.20	0.22	0.24	0.24	0.23	0.22
Vessel Bunkering	0.12	0.11	0.10	0.16	0.15	0.14
On-Highway	2.37	2.44	2.51	2.55	2.63	2.70
Military	0.01	0.01	0.01	0.01	0.01	0.01
Off-Highway	0.14	0.13	0.13	0.13	0.14	0.15
<b>Total</b>	<b>3.72</b>	<b>3.79</b>	<b>3.97</b>	<b>3.97</b>	<b>3.96</b>	<b>4.07</b>

# Compliance Possibilities: Scrubbers

- Onboard scrubbers to keep sulfur emissions out of the air
- 80%\* Open Loop
  - Cheaper (Still \$1m+)
  - Waste water into sea. Some countries have decided to ban, limit, or restrict their use.
- 2%\* Closed Loop:
  - Expensive
  - NaOH caustic soda, Effluent storage tank
- 15%\* Hybrid:
  - Expensive
  - Flexible: Close at port, open at sea
- Scrubber adoption rates seen as insufficient, 2-3% at best



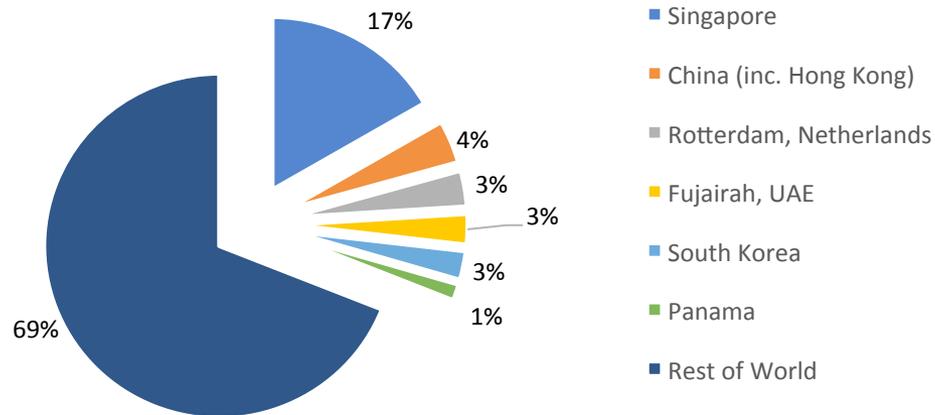
# Compliance Possibilities: Refinery Upgrades

- International Energy Agency (IEA)
  - “Global refiners will be put under enormous strain by the shifting product slate. If refiners ran at similar utilisation rates to today, they would be unlikely to be able to produce the required volumes of gas oil. If they increased throughputs to produce the required gas oil volumes, margins would be adversely affected by the law of diminishing returns. In order to increase gas oil output, less valuable products at the top and bottom of the barrel would be produced in tandem, which would likely see cracks for these products weaken and weigh margins down.”
- Many names, one problem
  - Residual bunker, heavy fuel oil, high sulfur gasoil, etc.
  - Marine gasoil, low sulfur MGO, DMA, ULSFO, etc.
  - Need to cut sulfur content
- Feedstock Shifts
  - Use sweeter (lower sulfur) crude grades
    - Tend to be lighter, more expensive
- Additional Processing (Coking, hydrocracking, etc.)
  - Units are very expensive, \$1bn+, take time to construct

# Compliance Possibilities: Non-Compliance

- a.k.a. Cheating, or otherwise avoiding compliance/enforcement
- Estimates range from 10% to 30%+
- IMO Pollution Prevention and Response (PPR) – Enforcement
- Enforcement authority lies with Flag States, not UN IMO
- Prohibit vessels w/o scrubbers from transporting 0.5%+
- Insurance loss: could deem non-compliant ships “unseaworthy”

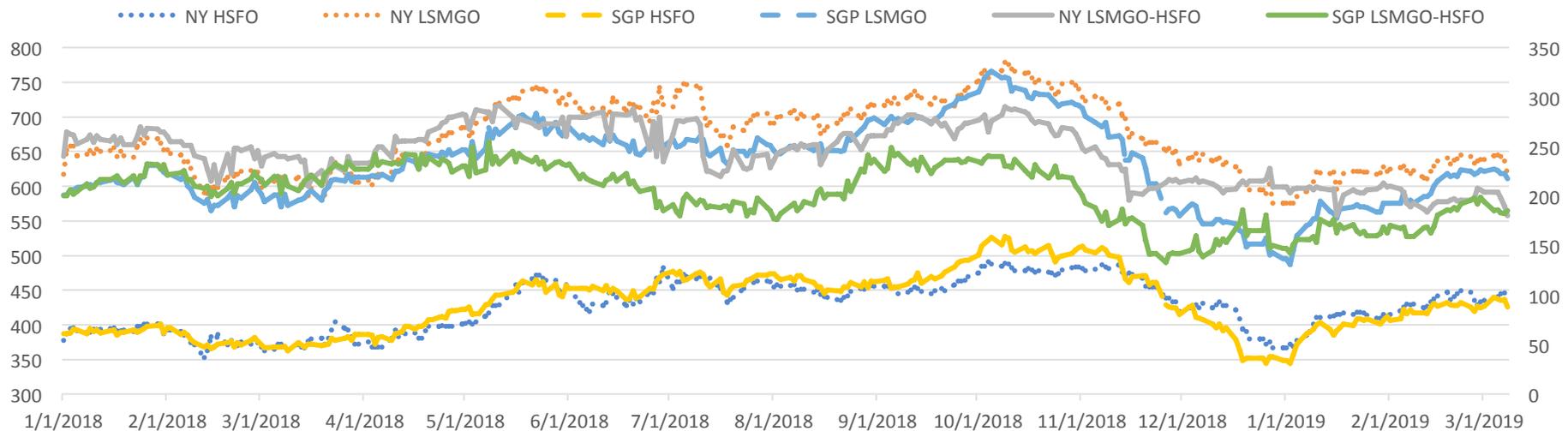
Vessel Refueling, Metric Tons Per Year



# Potential Pricing Impacts

- Spreads Likely to be Impacted
  - Light/Sweet vs Heavy/Sour Crude
  - Refinery Margins
  - Complex Refiners Benefit
  - HSFO vs Compliant Fuels
- Likely higher distillate pricing, ceteris paribus

New York and Singapore HSFO vs LSMGO



# IMO 2020: U.S. Policy Considerations

- EIA projects 28 cpg for U.S. diesel fuel and HO... this falls in the middle of various price projections by analysts, experts.
- Refiner profits expected but there may be cost implications for wholesalers, retailers, end-user industries and consumers.
- White House has political concerns:
  - Fuel price spike in 2020 could jeopardize Trump's reelection
  - Criticizing international (UN) regulations approved by Obama "plays to the base."
- Various stakeholder meetings held in the last six months.
- NEFI has participated in many of these discussions.
- White House asked the heating oil, trucking and airline industries – largest portion of distillate market – for input.

# May 2020 White House Letter

- Coalition letter to the Trump Admin. on May 13<sup>th</sup> signed by:
  - Airlines for America (A4A)
  - American Trucking Associations (ATA)
  - NEFI on behalf of the heating oil industry
- Recommendations:
  - **Hold regular stakeholder meetings** in the lead-up-to and throughout the IMO 2020 transition period.
  - **Restore Northeast Home Heating Oil Reserve** from one million barrels of ULSD to its statutory maximum of two million barrels (84 million gallons) for one year.
  - **Be prepared to release product** from the heating oil reserve and crude oil from the Strategic Petroleum Reserve.
  - **Closely monitor markets and OPEC actions.**
  - Other actions as necessary... **possible Jones Act waiver?**

# Conclusion

- IMO 2020 cannot be reversed. Its coming.
- Uncertainties remain regarding compliance, enforcement, etc.
- Price forecasts are all over the place.

**In light of these uncertainties...**

**...Hope for the best, but *be prepared for the worst.***

NEFI is certainly taking this approach:

- Regular communication with other stakeholder groups, the White House, Congress, refiners, and regional suppliers.
- Planned educational sessions at the 2019 HEAT Show this Fall.
- Monitor developments and communicate with membership.

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# Discussion

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