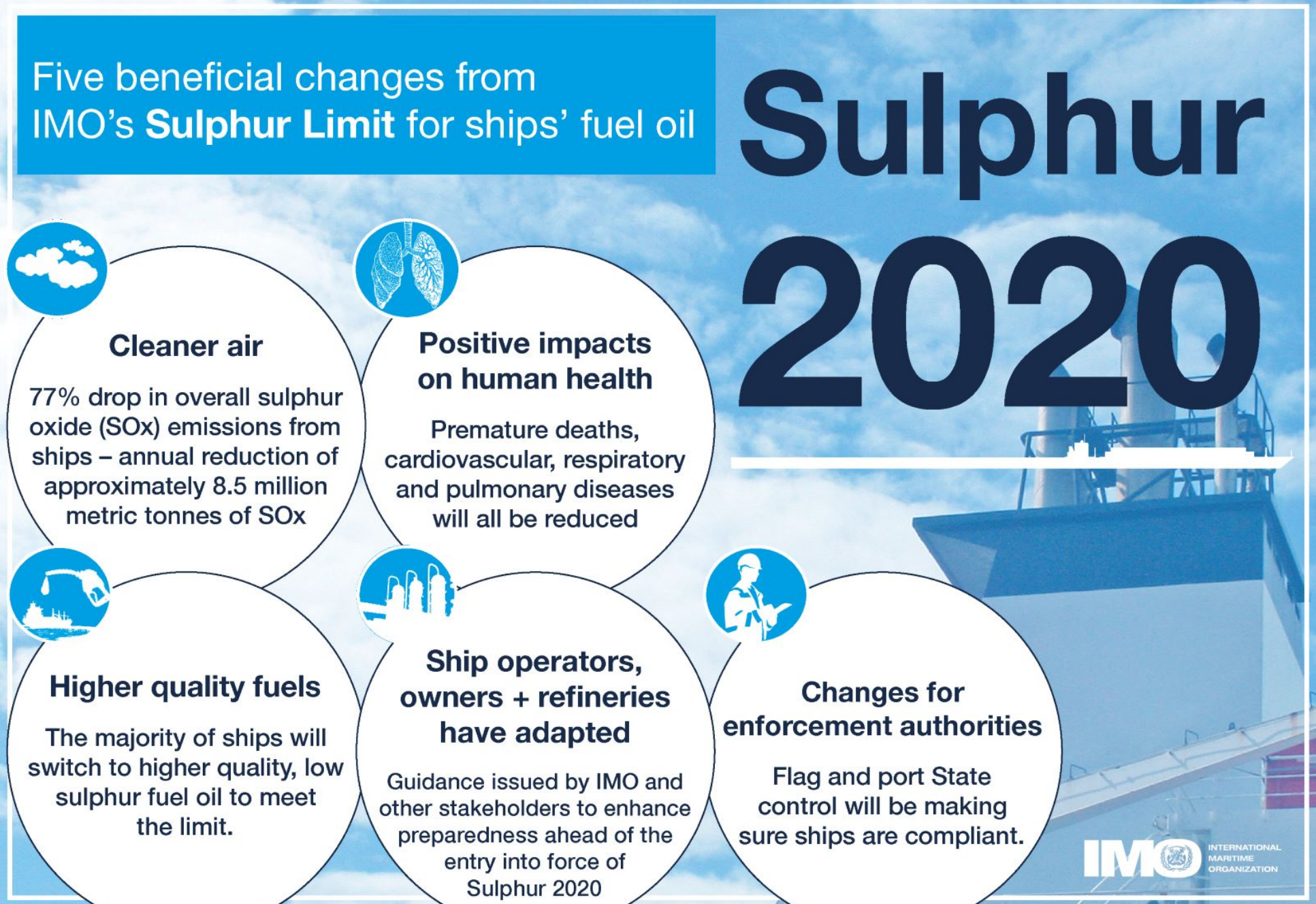
Addigreen Technology
Diesel Fuel Catalyst Solution for Maritime Emissions Compliance

SERVINDLIZ, S.A. DE C.V.

The Problem: Regulations Compliance

- International Maritime Organization “IMO 2020” limits sulphur to 0.50% m/m in the fuel oil utilized for all ships.
- Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL).
- Emission Control Areas (ECAS) limits to 0.10% m/m.



Cruise Lines Must Immediately Consider:

- Regulations
- Implementation
- Enforcement
- Violations
- Options
- Solution

Enforcement

Monitoring compliance and enforcing the new limit falls under the remit of Governments and national authorities of Member States that are Parties to MARPOL Annex VI.

Flag states and EPA (U.S. Waters) have full authority and rights to enforce compliance and levy fines and/or initiate litigation against violators.

MARPOL amendment went into force in March 2020 prohibiting the carriage of non-compliant fuel oil for combustion purposes for propulsion or operation on board a ship unless a system in place to “scrub” exhaust.

Violations

- Cruise lines have faced fines totaling over $80 million Between 2015 and 2019.
- The IMO and Member States continue to monitor and levy millions in fines against cruise line operators for not only air pollution, but for the “scrubber sludge” dumping created by exhaust scrubbers.

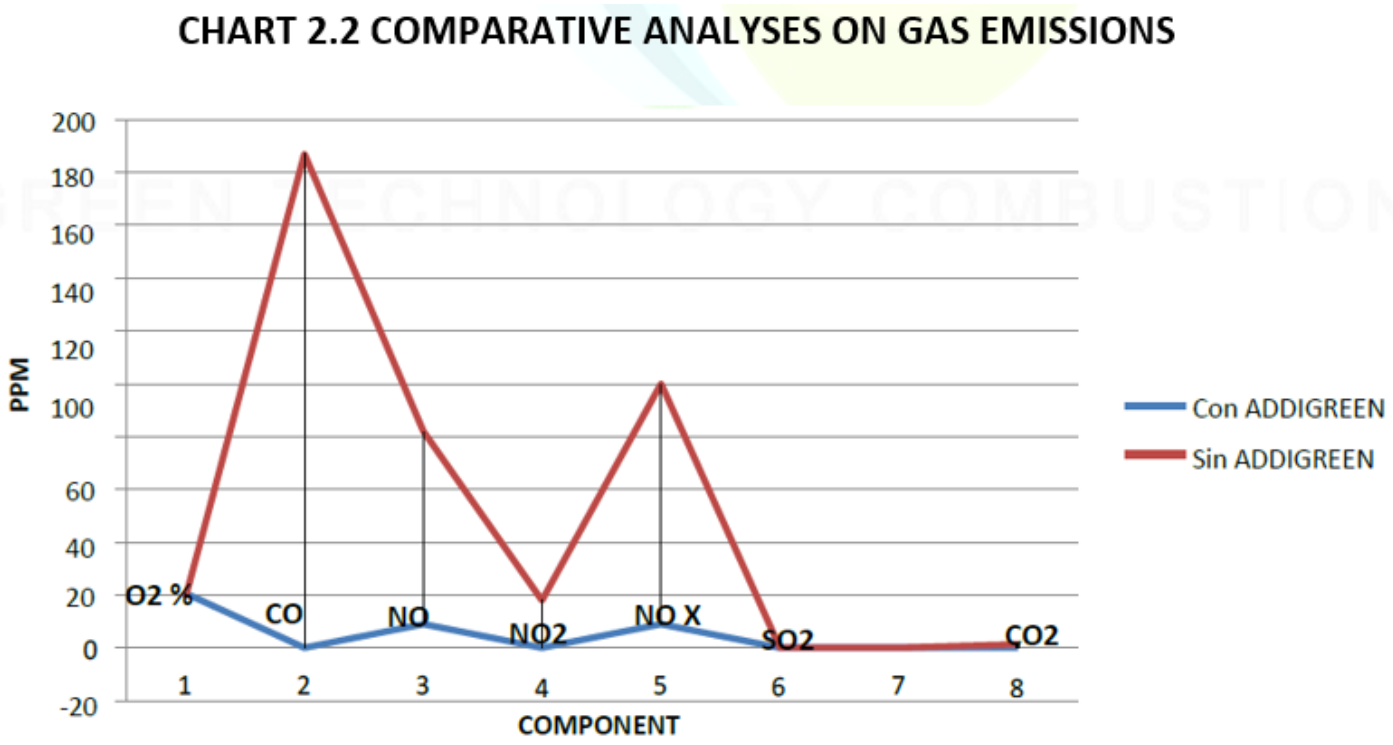
Compliance Options

- Biofuels – Expensive and damaging to engine components
- Low-Sulfur Fuels – Expensive and not readily available
- Distillate Fuels – Higher prices and insufficient supplies
- Emulsified Fuels – Chemicals cause corrosion of engine components and mechanical damage
- LNG Fuel – Require engine changeover and face lack of supply and storage facilities
- Scrubbing – Requires additional equipment and produces toxic sludge

The **Addi**green Technology Solution

Liquid catalyst added to existing diesel fuel	Dosage rate of 1.5 oz Addigreen to 10 gallons diesel fuel	Complete combustion reduces up to 85% of all toxic emissions	Reduces fuel consumption by more than 30% on average
Reduces engine wear and tear and lubricates components	Lowers exhaust temperatures	Requires no additional equipment	Return on investment on first use

Proven Results



POTENTIAL FUEL SAVINGS

FUEL TANK CAPACITY OF CRUISE SHIPS (GAL)	ADDIGREEN REQUIRED OZ PER FUEL TANK	ADDIGREEN 55 GALLON DRUMS	FUEL SAVINGS PER GAL.	FUEL SAVINGS PER GAL.	FUEL SAVINGS PER GAL.	FUEL SAVINGS PER GAL.
			10.0%	20.0%	30.0%	40.0%
500,000	75,000	10.65	50,000	100,000	150,000	200,000
1,000,000	150,000	21.31	100,000	200,000	300,000	400,000
1,500,000	225,000	31.96	150,000	300,000	450,000	600,000
2,000,000	300,000	42.61	200,000	400,000	600,000	800,000
2,500,000	375,000	53.27	250,000	500,000	750,000	1,000,000
3,000,000	450,000	63.92	300,000	600,000	900,000	1,200,000
3,500,000	525,000	74.57	350,000	700,000	1,050,000	1,400,000
4,000,000	600,000	85.23	400,000	800,000	1,200,000	1,600,000
OZ. OF ADDIGREEN PER DRUM	7,040					
1.5 oz OF ADDIGREEN PER 10 GAL FUEL	1.5					
DOSES OF ADDIGREEN PER DRUM	4,693.33					

Presented By:

Addigreen Technology and Servindliz, S.A. DE C.V.