



Bunkering

Convenio Marpol ANEXO 6

IMO 2020

- Agenda
- Breve evolución del bunkering
- IMO 2020 : comentarios y reflexiones
- Conclusiones

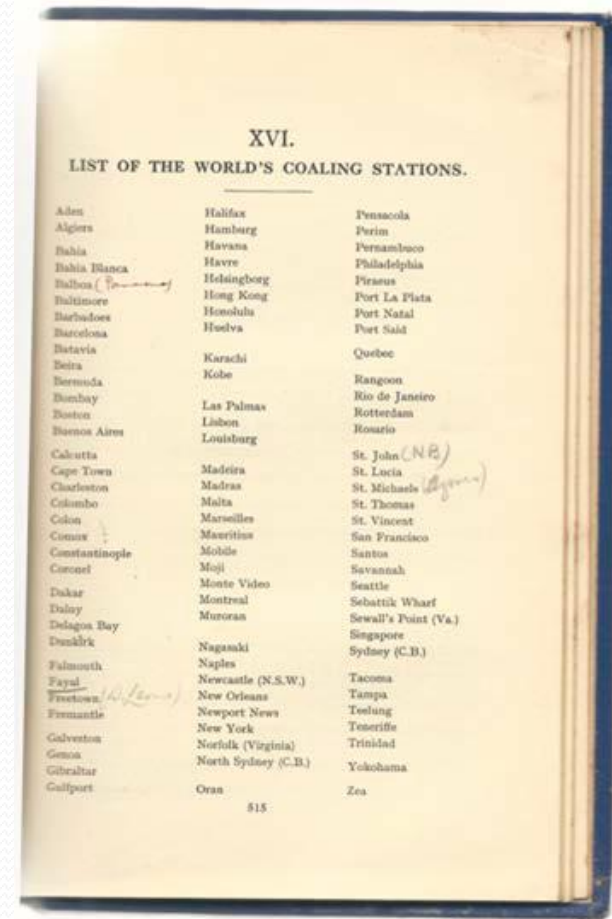




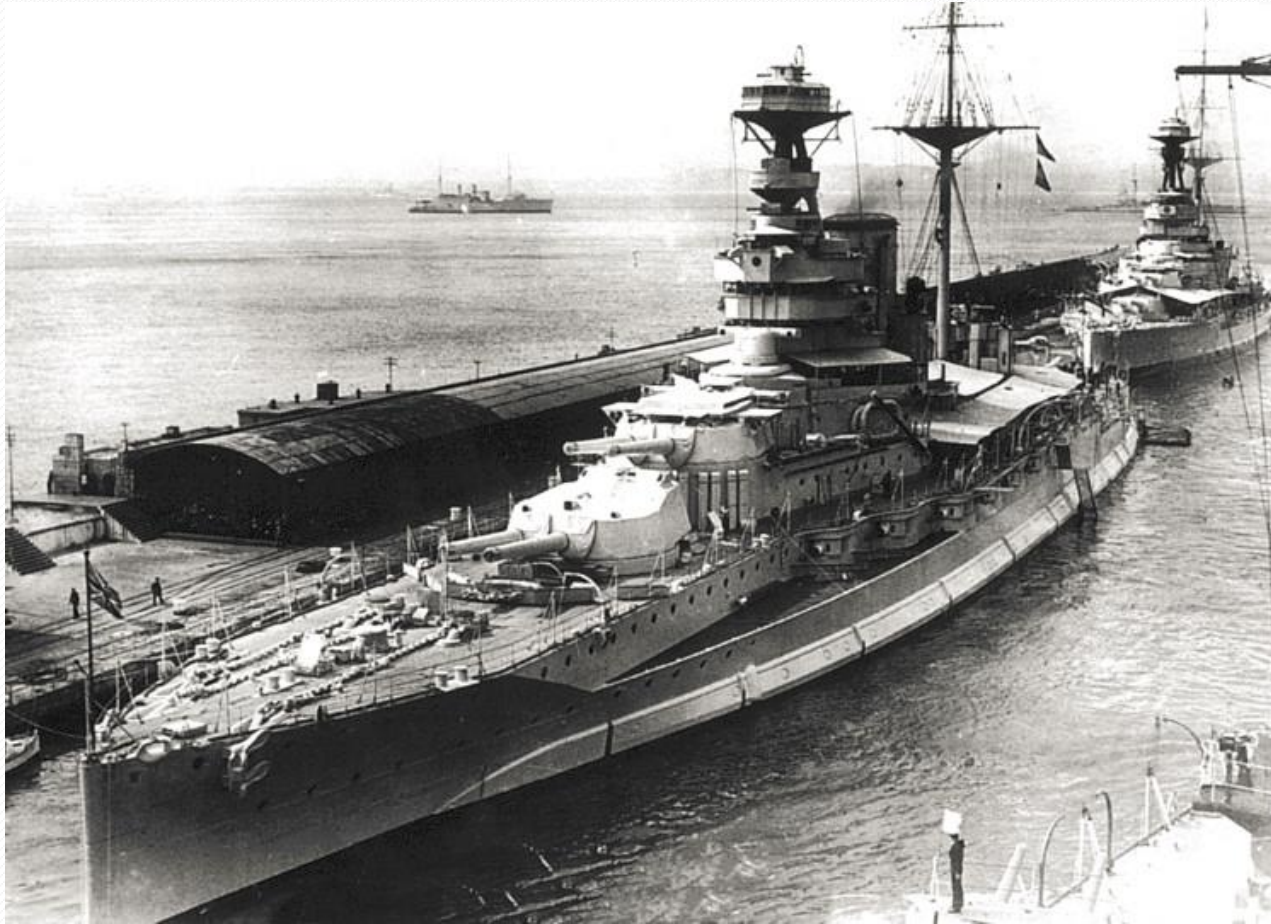


Lista de los principales puntos mundiales de suministro (1925)

- Fuente : “Shipping and Shipbroking” by Charles D. Mac Murray and Malcom M.Cree



Queen Elizabeth Class – 1915 – “The Switch” to Oil



Number of vessels using wind, coal, and oil for propulsion from 1885 to 1985

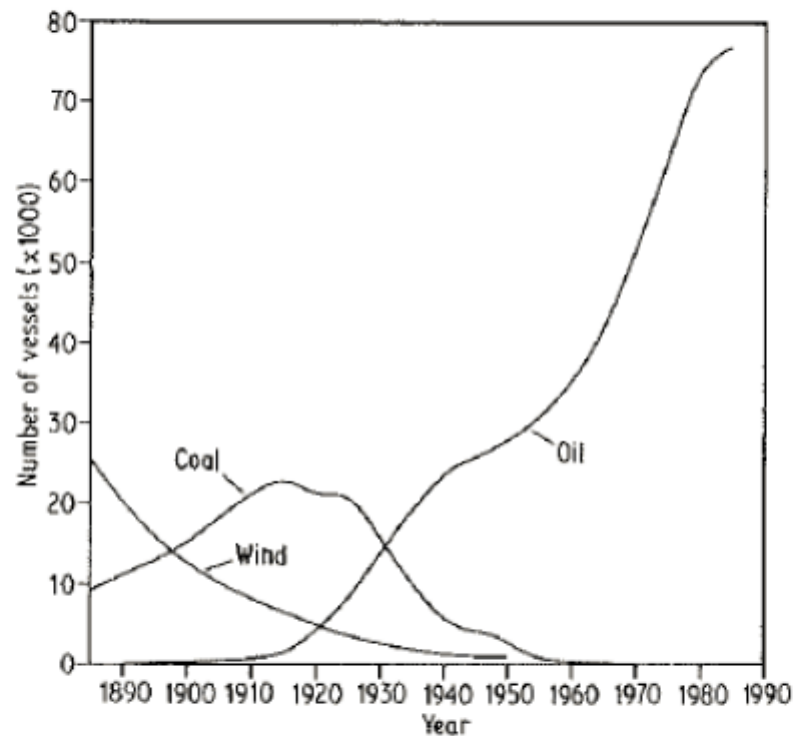


FIG. 6: Number of vessels using wind, coal and oil for propulsion from 1885 to 1985

Source: "Marine Fuels History of Liquid Fuels in Main Propulsion Machinery" - 1986

Consumption of Fuel Oil and MDO from 1910 to 1985

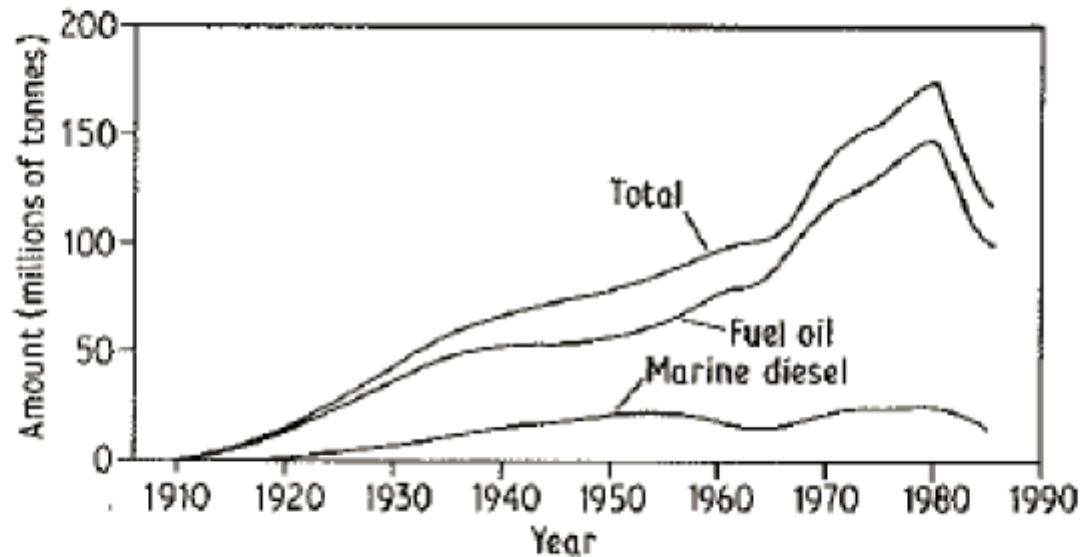


FIG. 5: Consumption of fuel oil and marine diesel from 1910 to 1985

Source: "Marine Fuels – History of Liquid Fuels in Main Propulsion Machinery" - 1986

U.S. Lines – Slow Speed / Fuel Efficient – Chpt. 11

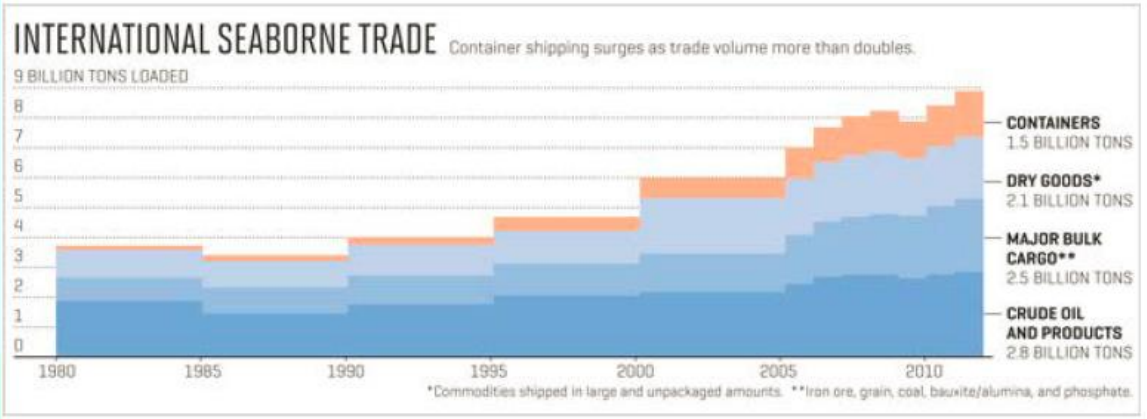


Source: Ships Nostalgia website

World Fuel Services Proprietary & Confidential

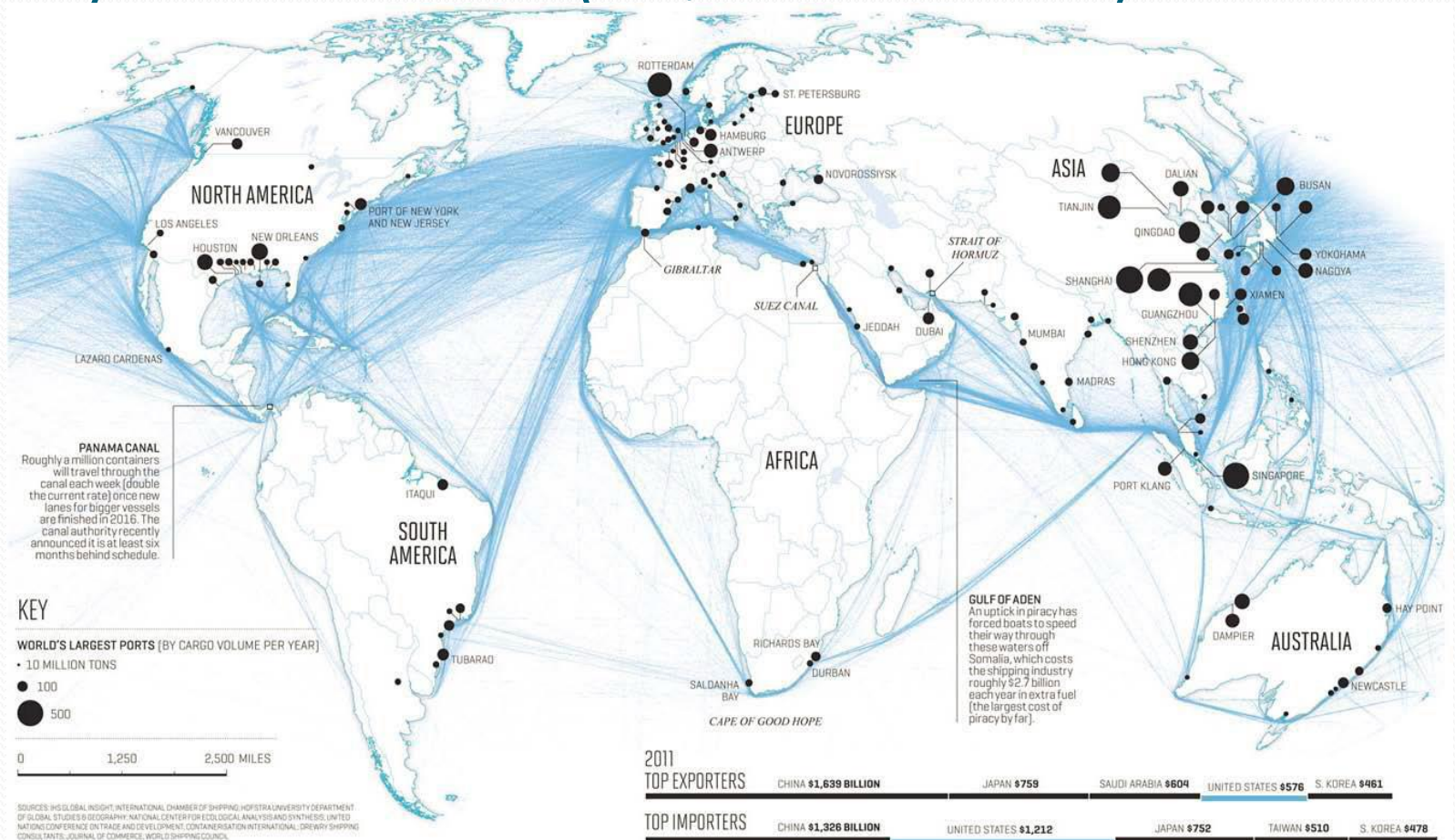
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International Seabourne Trade



Source: Fortune Magazine (<http://nicolasrapp.com/wp-content/uploads/2012/04/F21CHAv2-1.jpg>)

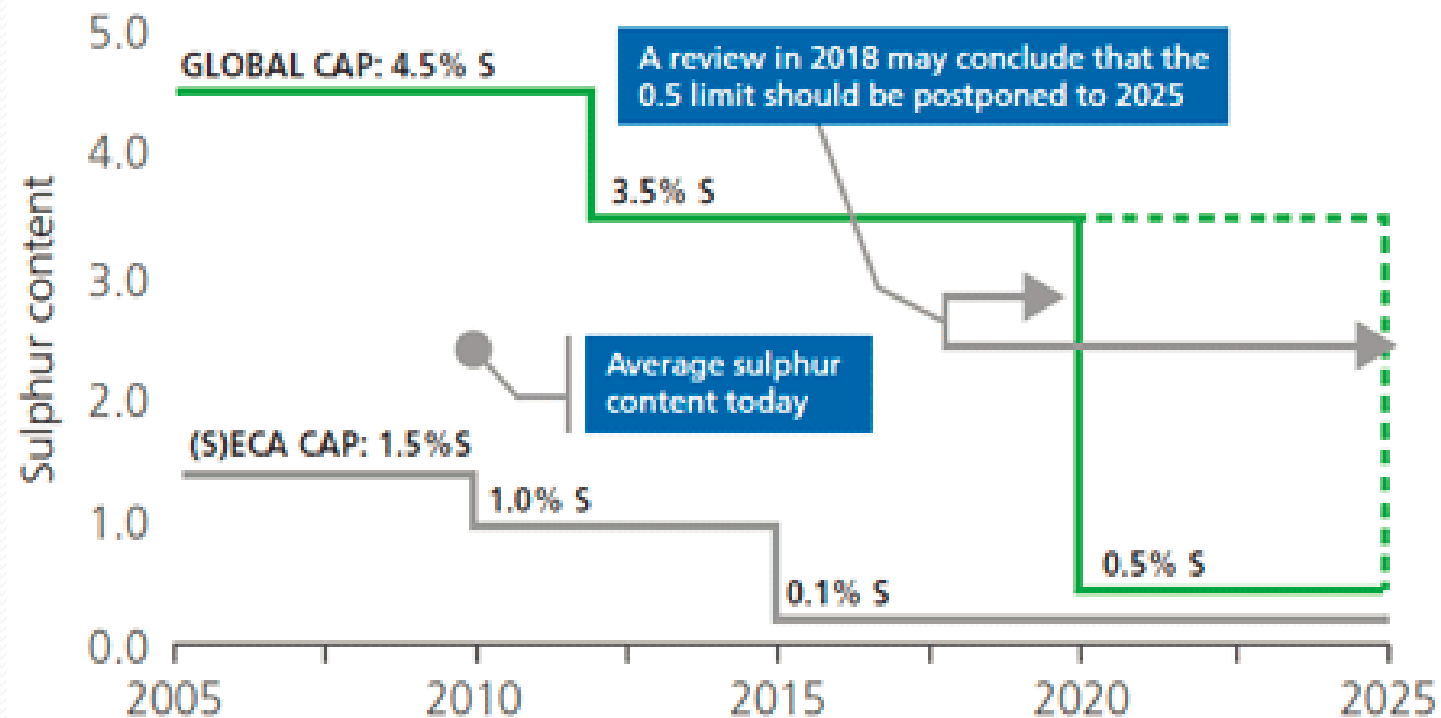
Tráfico y rutas marítimas (80% flete mundial)



Reglamentacion IMO relacionada con el contenido de azufre en combustibles maritimos

- La Organizacion Maritima Internacional (MO) ha implementado un limite màximo de contenido de azufre a nivel global.
- El limite maximo es 0,5% contenido de azufre
 - Hoy tenemos en el àrea màximo 3,5%
 - otras àreas (SECA) maximo actual 1%
 - Esta decision conlleva a impactos y consecuencias a nivel global

RESTRICTIONS FOR SULPHUR CONTENT IN MARINE FUELS:





How shore power protects California from fatal pollutants

Wärtsilä has carried out more than 100 installations of its container solution SamCon for 'cold ironing' to connect cargo ships to local power sources at California's ports.

2 August 2017

TEXT: DAVID W. SMITH **PHOTO:** WÄRTSILÄ

It's rare that the muscular Hollywood movie star **Arnold Schwarzenegger** has a direct influence on Wärtsilä's business. But in 2006 'The Terminator' took the decision as Governor of California to promote shore power, known as 'cold ironing', to reduce air pollution and greenhouse gases from the state's ports. As a result, California became a global centre of shore power, producing a boom in business for the cold iron specialist Wärtsilä SAM Electronics.

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Related articles

22 October 2018



Next big thing in shipping:
Passenger transportation

Maritime Reporter Magazine (Nov.2005)

California

The Incredible Green Hulk

By Dennis Bryant, Senior Counsel,
Holland & Knight LLP

California politicians have once again shown that they are masters at playing up to the vocal minority. Governor Schwarzenegger signed into law a bill adopted by the state legislature that will impose severe discharge restrictions on virtually all large vessels calling at California ports. Any improvement of the California environment as a result of this legislation will be marginal at best. One is reminded of the 1960's television show where the 700-pound Incredible Hulk plodded around beating up smaller individuals and saving the world.

owner or operator must, within 24 hours, notify the State Water Resources Control Board. Upon the departure of an oceangoing ship from its first port or place of call in California for 2006 and the future, the master, owner, or operator must maintain on board selected information regarding the ship, its graywater and blackwater systems, and California port of call information. This same information must be communicated to the State Lands Commission. The term "oceangoing ship" means a private, commercial, government, or military vessel of 300 gross registered tons or more calling on California ports or

go far beyond the international provisions found in the MARPOL Convention.

Practical problems regarding the prevention of such discharges will present themselves on many ships, particularly with regard to graywater. The statute defines "graywater" as drainage from dishwasher, shower, laundry, bath, and washbasin drains, but does not include drainage from toilets, urinals, hospitals, or cargo spaces. While drainage from toilets and urinals on ships feed into the sewage system, the same is not generally true for graywater discharges. On many ships, particularly older ones, con-



Dennis L. Bryant, Senior Maritime Counsel at the law firm of Holland & Knight, Washington, D.C., is a contributing editor of MR/EN.



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STT



California Governor Arnold Schwarzenegger signed into law a bill that will impose severe discharge restrictions on virtually all large vessels calling at California ports.

The Clean Coast Act, which comes into effect on January 1, 2006, will prohibit oceangoing ships from conducting onboard incineration while operating within three miles of the California coast. The law will also prohibit oceangoing ships from releasing hazardous waste, graywater, sewage, sewage sludge, and oily bilgewater into marine waters of the state, the

places.

Large cruise ships operating out of California ports have been subject to similar restrictions for several years, but this is the first time any jurisdiction has attempted to impose such sweeping conditions on all classes of vessels. Inclusion of government and military vessels is particularly interesting, given the exemption or waiver generally accorded federal activities by state governments. These restrictions obviously

November 2005

California low sulphur fuel changes 1 January 2014

Phase II of the California Ocean-going Vessel (OGV) Fuel Regulation entered into force on 1 January 2014 and stipulates that only marine gas oil (DMA) and marine diesel oil (DMB) with sulphur levels at or below 0.1% can be used. The Phase II requirements are enforced within California's OGV Regulatory Zone which extends 24 nm from the California Baseline (shoreline), including 24 nm from the shoreline of the offshore islands.¹

Although the regulation does provide a 'Noncompliance Fee Provision' designed to accommodate operators unable to find compliant fuel, Members and clients with ships calling at U.S. West Coast ports are urged to make their best efforts to obtain compliant fuel oil. More details are provided in California Air Resources Board's Marine Notice 2013-1 which can be obtained by using the following link: <http://www.arb.ca.gov/ports/marinevess/ogv.htm>.

It should be noted that ships must comply with both the California OGV Fuel Regulation and the MARPOL Annex VI North American Emission Control Area (ECA) fuel sulphur

requirements. The ECA sulphur limit will drop to 0.1% from the start of 2015.

In addition, Members and clients should be aware that there are also 2014 requirements for some vessels under California's At-Berth Regulation. More information on this regulation can be found by using the following link: <http://www.arb.ca.gov/ports/shorepower/shorepower.htm>

Gard would also like to take the opportunity to remind Members and Clients of the importance of having detailed changeover procedures for ships that trade between areas with different sulphur limitations.² The need for frequent changeovers between different types of fuels clearly increases the opportunity for errors to occur and it is very important that the crew is familiar with the properties of the fuel supplied and the limitations of the particular ship's fuel treatment plant. Insufficient knowledge of the actions required in a given situation may result in engine failure, so changeover procedures should be practised before entering restricted waters, especially on ships that do not regularly perform fuel changeovers.

Gard Alert, 2 January 2014

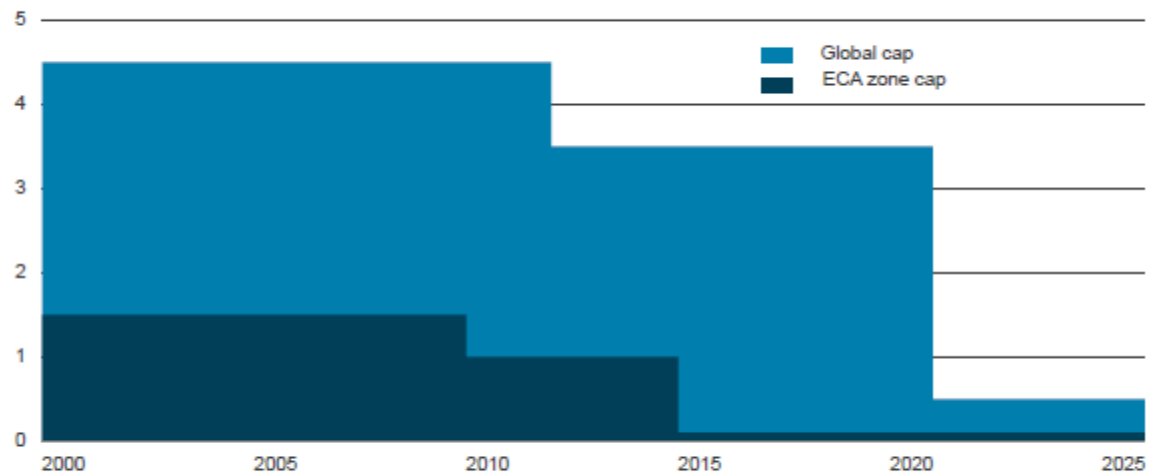


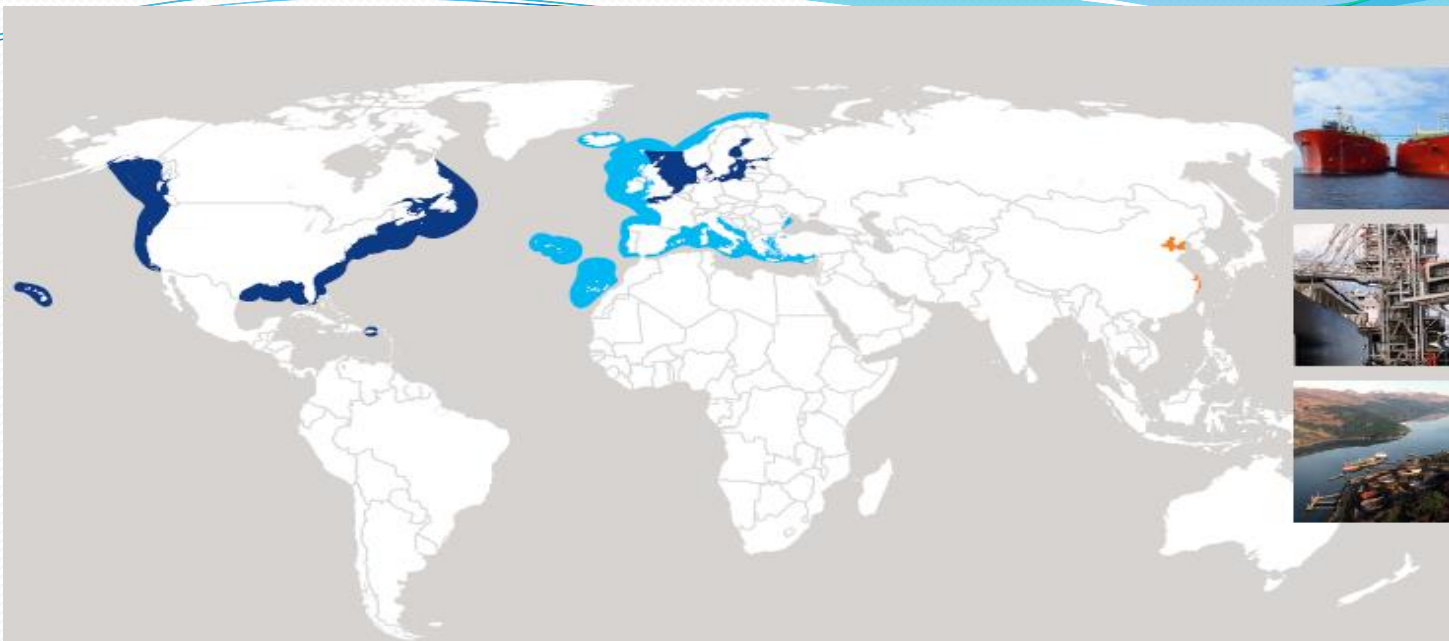
Footnotes

1 See also Gard Alert from October 2011 concerning amendments to the California Fuel Regulations.

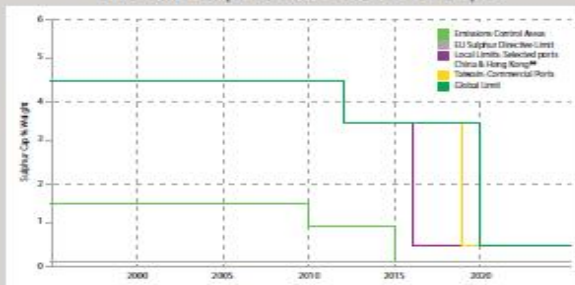
2 It is a MARPOL Annex VI requirement to have a written procedure on board the ship showing how the fuel oil change-over is to be done when entering or leaving an Emission Control Area (ECA).

Recortes de nivel de azufre sobre los años





Global sulphur emissions caps



1997 MARPOL
Convention
emissions
modification

2010 ECA zone
1.0% sulphur cap
implemented

2015 ECA zone
0.1% sulphur cap
implemented

2020 Global
0.5% Sulphur cap

MARPOL regions

- 0.5% global limit (MARPOL 2020)
- 0.5% EU sulphur directive limit in all ports
- 0.1% Emissions Control Areas (ECA)
- 0.5% local limit*

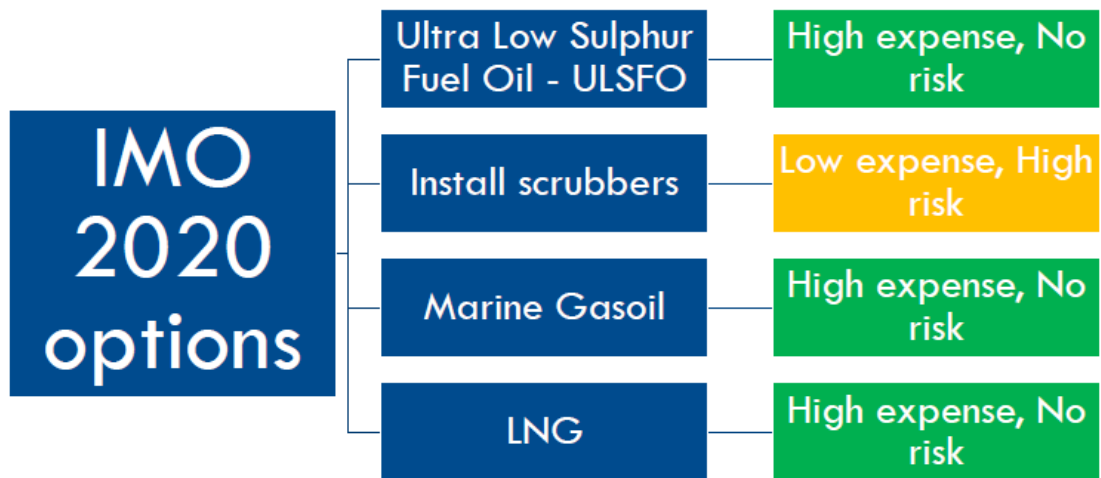
*Note that China and Hong Kong may further reduce the sulphur limit in these zones before 2020.

Armadores /shipowner /ship operators

Opciones e impactos IMO 2020

- El uso mandatorio el consumo de combustibles IFOS con menor contenido de azufre (menor a 0,5%)
 - Implica una opción simple desde el punto de vista operativo
 - implica mayores costos por precios del nuevo producto
 - Implicaciones riesgo de abastecimiento dado que no hay una definición por parte de los suministradores en los diferentes puertos y regiones
- El uso de depuradores en la emisión de gases (scrubbers)
 - Impacto económico alto dada la inversión a efectuar y el retorno en un mercado de fletes competitivo Inversión 5 a 10 millones de u\$s
 - Impacto neutro en la operatividad de consumo del buque al utilizarse el mismo fuel oil
 - Eventualidad de conseguir combustibles IFOS más económicos
- El uso de GNL (Liquefied Natural Gas) como bunkers
 - Impacto más económico que IFOS y con menores emisiones contaminantes
 - Es la tendencia futura con lo cual se estaría menos expuesto ante nuevas regulaciones
 - Como actividad nueva tiene altos costos de desarrollo en infraestructura hasta su maduración
 - Costo de conversión de buques es alto.
- El uso de gas oil marino y otros combustibles (GLP, alcohol, otros)
 - Debido a la falta de claridad en los sistemas de inspección y regímenes de control aplicables.

SHIP OWNER OPTIONS



What are the options for compliance?

BP will continue to work with our customers to supply safe, compliant and quality fuels globally.



VLSFO

VLSFO will be a new fuel option available in 2020

- As most VLSFO available will be blended, stability and compatibility will be key considerations.
- Economic incentives are expected to drive increased use of VLSFO over time.

MGO

The most familiar fuel option, MGO is widely available and operationally tested.

- No fuel switching will be required. MGO can be used globally both inside and outside ports.
- As a distillate component, MGO is likely to be the most expensive option, with additional lubricant requirements.

LNG

LNG fuel systems require specialist crew and we expect their use to be limited to new build vessels due to the expense of retrofitting

- Infrastructure for LNG bunkering will be less established than for other fuel types in 2020.
- LNG has low NOx and SOx emissions.

HSFO

Scrubbers can be fitted to remove sulphur from exhaust gases and enable vessels to burn cheaper high sulphur fuels.

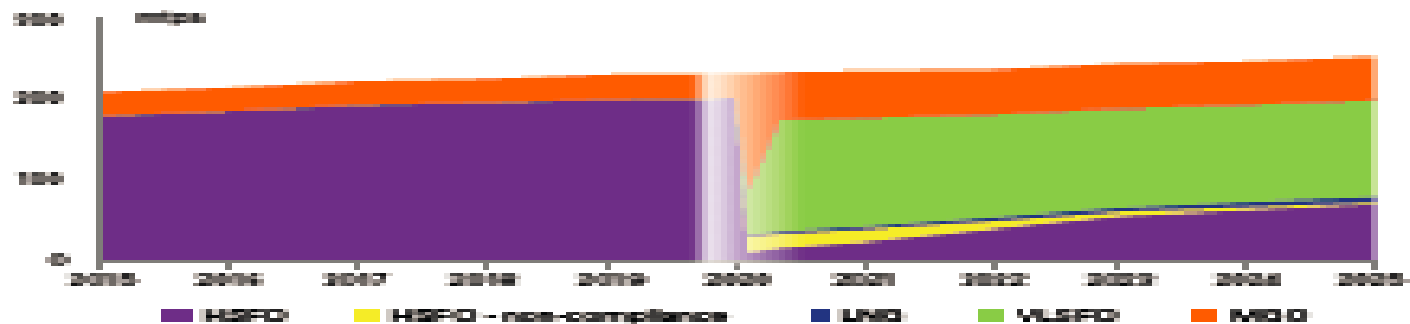
- Scrubber installation time and cost has resulted in limited adoption so far.
- Advances in technology are expected to make scrubbers an increasingly attractive solution.

The marine fuels market transition

The implementation of MARPOL 2020 will see the marine fuels landscape change significantly. Over 95% of the current market will be displaced.

Vessel-owners will have several options when selecting compliant marine fuels under MARPOL 2020.

The white band represents the period in which bunker use will shift. It is impossible to say exactly when these changes will occur.



Source: IEP, 2017

Marine fuels used without IEP projection

MGO

MGO will account for the majority of marine fuel use as MARPOL 2020 comes into effect. It requires no investment and no new operating procedures.

HFO

HFO use declines significantly around the turn of 2020, with only limited use on vessels fitted with scrubbers.

Scrubber installations are forecast to grow steadily from a low base in 2020. Although retrofit is, where possible, included on scrubbers at the new build design stage is more economically efficient.

LNG

Uptake of LNG as bunker is likely to be confined to specialist sectors and geographies as LNG fuel systems are high in cost, can reduce vessel cargo capacity and require particular operating skills.

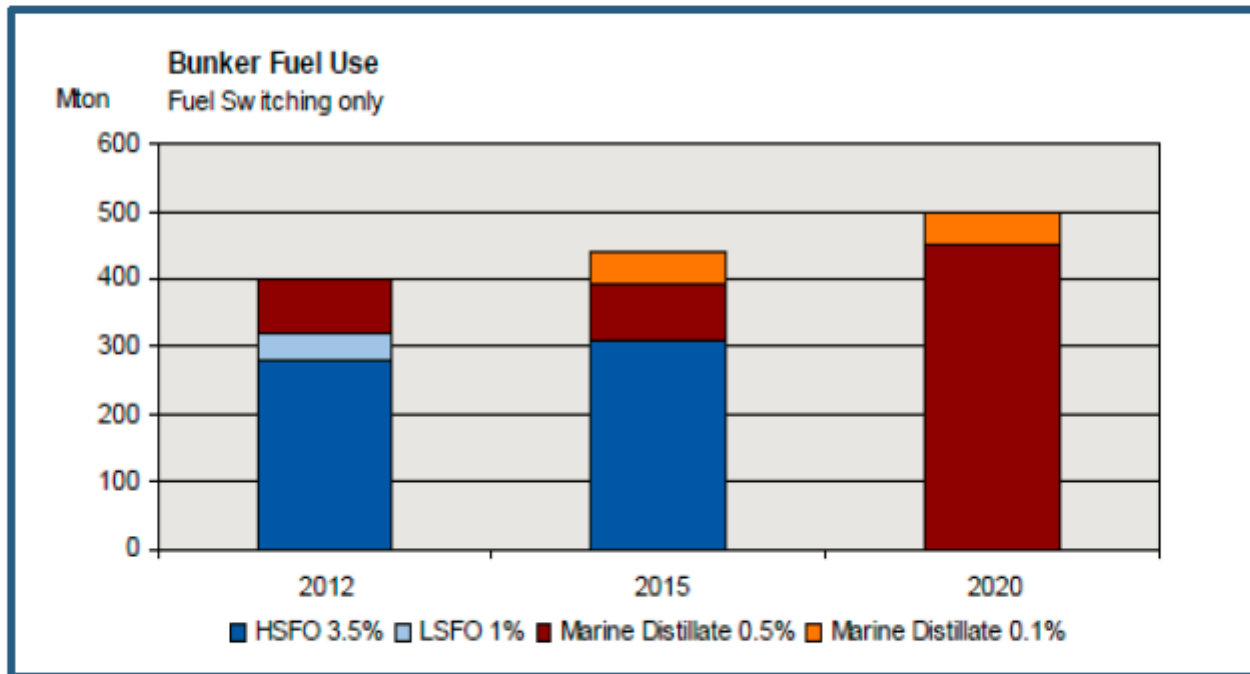
VLSFO

The price differential between MGO and VLSFO will incentivise a shift towards VLSFO products. The market is forecast to use over 50% VLSFO fuels after January 2020.

HFO:	High sulphur fuel oil
VLSFO:	Very low sulphur fuel oil
MGO:	Marine gas oil
LNG:	Liquefied natural gas
NOx:	Nitrogen oxides
SOx:	Sulphur oxides

Bunker Fuel Use

Changes to total bunker fuel demand per type if all vessels switch to distillate to comply with the ECAs & global sulphur regulations.

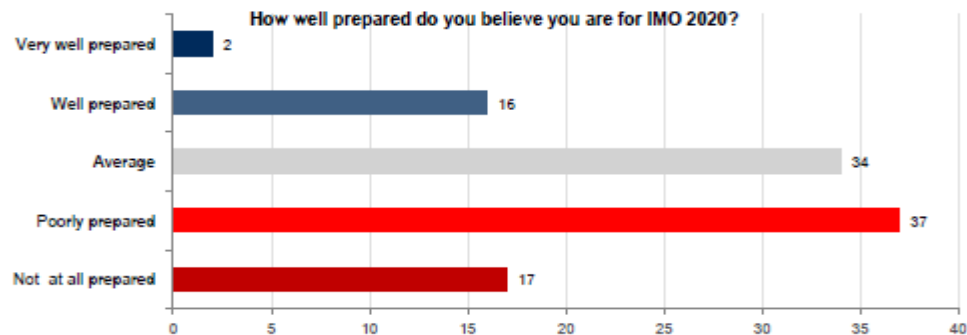


Source: Norwegian Energy Ltd., "Sulphur Regulations in Shipping" (May 17, 2012)

Preparing for 2020: IMO low-sulphur rule change

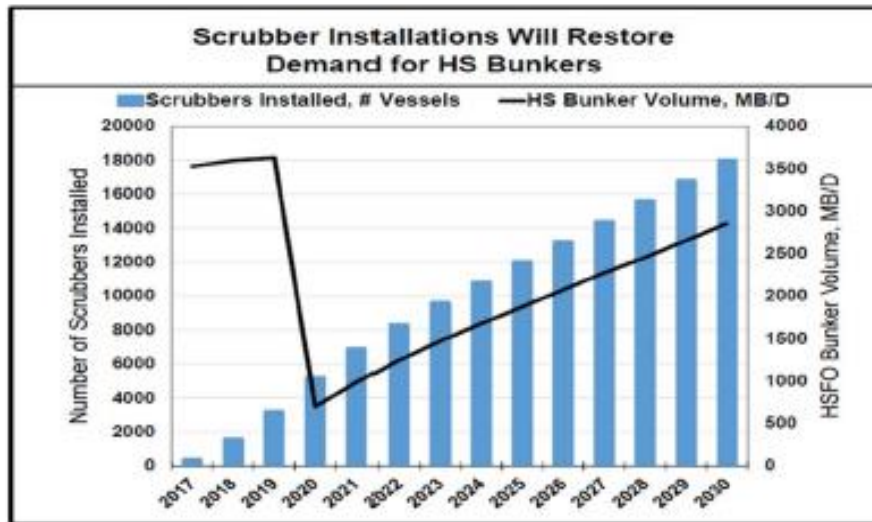
Drewry survey findings

- IMO 2020 low-sulphur rule change global survey of shippers and forwarders conducted by Drewry, 3Q18. Respondent summary findings:
 - **33%** admitted poor awareness/understanding of the new regulations
 - **56%** expressed concern over lack of transparency in carriers' fuel cost recovery methods
 - **4** out of **5** respondents hadn't received clarity from their carriers as to how additional fuel costs will be covered



- Download the full report: [Drewry Survey - IMO 2020 global emissions regulation](#)

Instalación de scrubbers sigue lenta



Fuente: Platts Analytics

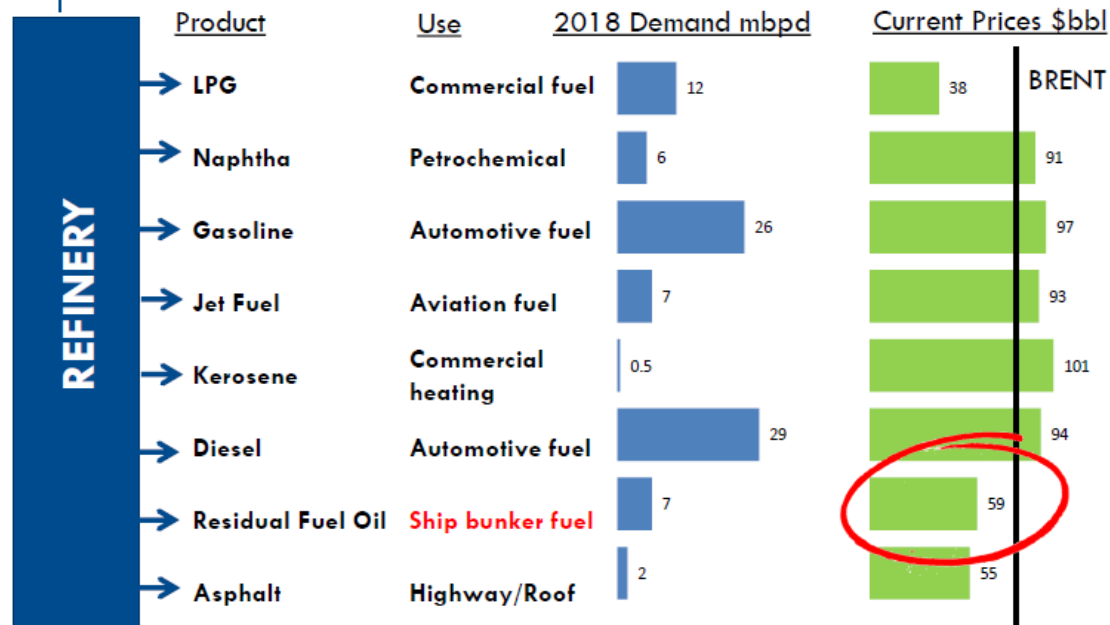
S&P Global
Platts

Refinadores/traders /bunkers traders/bunkers supplier/delivery supplier

Opciones e impactos IMO 2020

- El uso mandatorio el consumo de combustibles IFOS con menor contenido de azufre (menor a 0,5%)
 - Modificación en las dietas de crudos procesadas en Refinerías
 - Cambios en los balances de productos para cumplir con las nuevas especificaciones
 - Posiciones que tomarán cada Refinería/Sello para atender o no el mercado
 - los “spreads “ o diferenciales de precios de crudos livianos /pesados tendrán modificaciones
 - La creación (y desaparición) de grandes centros de demanda que harán variar los indicadores de precios internacionales
 - Los productores de fuel oil con alto contenido de azufre: ¿ qué mercado los demandará?
 - Y en la región, ¿como estamos hoy ?

IMO 2020: LIMITED IMPACT ON REFINERS



Source: Bernstein, Citi

#1 NEW TRADING ROUTES



WHAT IMO 2020 COULD MEAN FOR TANKERS



#1 INCREASED FUEL COSTS = NEW TRADING ROUTES



#2 INCREASED FUEL COSTS = STORAGE OPPORTUNITIES



#3 INCREASED FUEL COSTS = MORE OIL PRODUCED = MORE SHIPPING



#4 INCREASED FUEL COST = MORE RECYCLING



#5 INCREASED FUEL COSTS = SLOW STEAMING



Fuel oil sulphur content

Country	IFO typical sulphur content (%)
Panama	no production, varies with imports
Colombia	1.2-1.5
Venezuela	2-2.1
Mexico	3.4 - 4
Ecuador	1.5-1.8
Chile	1-1.15
Peru	1.32
Brazil	0.6-0.8 – able to meet the marine fuel regulation
Argentina	0.2-0.3 – able to meet the marine fuel regulation
Uruguay	1.5



IMO 2020: El futuro Ilego

S&P Global
Platts



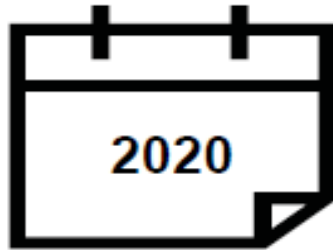
Methodology and specifications guide

Global bunker fuels

Latest update: March 2018

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El año clave



Fines del 2019: El ISO publica la especificación disponible públicamente (PAS) de 0.5% a el IMO

Enero 2020: 0.5% límite de Fuel Oil empieza

Marzo 2020: La fecha tentativa para la prohibición del transporte de combustible que no cumple

Enero 2023: El IMO puede adoptar una revision sobre GHG, tomando en cuenta los datos coleccionados a partir de 2019

BIMCO BUNKER TERMS 2018

1. Definitions

Throughout these General Terms and Conditions, except where the context otherwise requires, the following definitions shall be applied:

“Actual Readiness” means the Vessel's readiness in all respects to receive Marine Fuels at the agreed delivery location within the Delivery Period.

“Banking Day” shall mean a day on which banks are open in the places of business of the Sellers and the Buyers and, where a remittance is in US dollars, in New York or, if other than US dollars, in the country of the price currency.

“BDN” means Bunker Delivery Note or Bunker Delivery Receipt.

“Bunker Tanker” means bunker barge or tanker or tank truck supplying Marine Fuels to the Vessel.

“Buyers” means the party stated in the Confirmation Note contracting to purchase, take delivery and pay for the Marine Fuels.

“Confirmation Note” means the Sellers’ written confirmation.

“Contract” means these General Terms and Conditions, as amended and supplemented by the Confirmation Note, and the Election Sheet (if applicable).

“Day/days” means a calendar day(s), unless otherwise stated.

“Delivery Period” means the Vessel’s ETA/delivery window as stated in the Confirmation Note.

“Election Sheet” means an election sheet in the format provided in the Annex A (Election Sheet) to these General Terms and Conditions, as agreed between the Parties.

BUNKERWORLD DAILY NEWSLETTER

Tuesday 23rd of October 2018



Crude retreats to late-summer levels as Saudis promise to pump more oil

Crude futures fell back to August levels on Tuesday after bearish supply comments from Saudi Arabia added fuel to a broad market selloff. [In Full »](#)

ExxonMobil launches new cylinder oil ahead of IMO 2020 rule

The new cylinder oil complements low sulfur bunker fuels ahead of IMO 2020 rule. [In Full »](#)

Wartsila sees strong Q3 growth in marine solutions sector on IMO 2020 rule



Trump administration may struggle to obstruct IMO 2020

The International Maritime Organization is much like the large commercial ships it regulates in one respect: while slow to get moving in the first place, it can be difficult to stop once its inertia has been overcome.

This is the problem the US delegation at the UN body may face at a key meeting being held October 22-26, if it seeks to put obstacles in the way of tighter marine fuel sulfur emission limits.

The IMO's global sulfur cap is due to drop from 3.5% to 0.5% at the start of 2020, with wide-ranging consequences for the shipping and oil industries, and late on Thursday the Wall Street Journal quoted a White House source as saying the US would seek to "mitigate the impact of precipitous fuel-cost increases on consumers."

The tighter sulfur cap is being forecast to add several dollars to the oil price from 2020 as refiners increase crude runs to maximize middle distillate output and meet the new marine demand for cleaner fuels. The US may be baulking at the prospect of that crude increase, particularly as it could come in the middle of its next presidential election campaign.

The oil market appears to be reacting as if the Trump administration were opposing the lower sulfur cap outright: the 2020 hi-low fuel oil swap narrowed significantly on Friday morning, showing reduced expectations of a large-scale shift in marine demand that year. This would seem to be an overreaction, given the reality of the situation at the IMO.

For a start, it's not clear that the US is putting up that kind of opposition, and the WSJ's White House source denied it was trying to delay the implementation.

todos los actores tendremos algo para considerar

- Armadores /shipowners : cumplimiento de las regulaciones .
- Operatividad del buque : costos operativos y temas relacionados con los motores de sus naves
- Sobrevivencia en el mercado (fusiones, desapariciones)

- Refinadores/traders/suministradores/proveedores:
- Sustitucion (o desaparicion) de 50 al 80% demanda del fuel oil marino de alto contenido de azufre con fuerte disminuciòn de precios
- Desarrollo de una nueva demanda para el gas oil marino
- Impactos en las dietas de crudos y operatividad de refineries
- Desaparición de algunas empresas y consolidación globales de otras.

- Autoridades Maritimas : acciones de contralor de cumplimiento de esta nueva reglamentación

Ley Nº 19.204

PROTOCOLO DE 1997 AL CONVENIO INTERNACIONAL PARA PREVENIR LA CONTAMINACIÓN POR LOS BUQUES DE 1973, ENMENDADO POR EL PROTOCOLO DE 1978 (MARPOL 73/78), AÑADIENDO AL MISMO EL ANEXO VI, TITULADO "REGLAS PARA PREVENIR LA CONTAMINACIÓN ATMOSFÉRICA OCASIONADA POR LOS BUQUES"

APROBACIÓN

El Senado y la Cámara de Representantes de la República Oriental del Uruguay, reunidos en Asamblea General,

DECRETAN:

Artículo 1º.- Apruébanse el **Protocolo** de 1997 al **Convenio** Internacional para Prevenir la Contaminación por los Buques de 1973, enmendado por el **Protocolo** de 1978 (MARPOL 73/78), por el que se adiciona al mismo el Anexo VI, titulado "para prevenir la contaminación atmosférica ocasionada por los buques", suscripto en la ciudad de Londres, el 26 de setiembre de 1997, en el ámbito de la Organización Marítima Internacional.

Artículo 2º.- La aplicación y contralor del Protocolo y su reglamentación dentro de la jurisdicción de la República será de competencia de la Autoridad Marítima Nacional, a través de la Armada Nacional y de la Prefectura Nacional Naval, sin perjuicio de las competencias del Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente en la materia.

La Autoridad Marítima Nacional, a través de la Armada Nacional y de la Prefectura Nacional Naval y del Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente por intermedio de la Dirección Nacional de Medio Ambiente, elaborarán y emitirán en forma coordinada las normas necesarias para la definición de aquellos aspectos técnicos de relevancia para la aplicación del Anexo del Protocolo, que no se encontraran expresamente previstos en el mismo.

En Sesiones de la Cámara de Senadores, en Montevideo, a 2 de abril de 2014.

DANILO ASTORI,
Presidente.
Hugo Rodríguez Filippini,
Secretario.

www.gub.uy.

MINISTERIO DE DEFENSA NACIONAL
MINISTERIO DE RELACIONES EXTERIORES
MINISTERIO DE TRANSPORTE Y OBRAS PÚBLICAS
MINISTERIO DE VIVIENDA, ORDENAMIENTO TERRITORIAL Y MEDIO AMBIENTE

Montevideo, 11 de abril de 2014.

Cumplase, acúcese recibo, comuníquese, publíquese e insértese en el Registro Nacional de Leyes y Decretos, la Ley por la que se aprueba el Protocolo de 1997 al Convenio Internacional para Prevenir la Contaminación por los Buques de 1973, enmendado por el Protocolo de 1978, añadiendo al mismo el Anexo VI, titulado "Reglas para prevenir la contaminación atmosférica ocasionada por los buques", suscrito en la ciudad de Londres, el 26 de setiembre de 1997.

JOSÉ MUJICA.
ELEUTERIO FERNÁNDEZ HUIDOBRO.
LUIS PORTO.
ENRIQUE PINTADO.
FRANCISCO BELTRAME.

Conclusiones

- La nueva reglamentación IMO 2020 cambian profundamente la industria petrolera
- El año 2019 es el año clave de transición donde comenzarán a perfilarse los nuevos escenarios
- Algunos países están más preparados que otros para cumplir con estas reglas
- El mercado de precios de fuel oil con el 0,5% de azufre no ha logrado al momento posicionarse en un rango de valores que permita a todos los actores ejecutar proyecciones futuras confiables

Muchas gracias!

