



EU Sulphur Directive – short review of Implementation in some EU countries and market reaction



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New sulphur limits already in force

1. How ship-owners are meeting new requirements? – review from the market
2. Development of bunker fuels prices
3. Price adjustments by shipping lines





How ship-owners are meeting new requirements?

Review from the market

Three solutions to meet new requirements:

- Use MGO with sulphur content not higher than 0.1% per mass instead of IFO – currently most common option
- Install scrubbers on board the ship
- Use alternative fuels, e.g. LNG



SCRUBBERS

**Selected Baltic and North Sea ro-pax and ro-ro ship operators that invest in scrubbers
(as of March 2015)**

Ship operator	Already installed or during installation	Planned in 2015 and 2016	Planned and installed (% of total fleet)
DFDS	11	10	46%
Finnlines	10	4	63%
Transfenica	6		40%
TT-Line	1		16%
Color Line	4		66%
Stena Line	2		6%
TransAtlantic	1		25%
Brittany Ferries	3	3	85%
Scandlines	4	2	54%
Total	42	19	40%



SCRUBBERS

- The largest, in terms of number of ships, investment in scrubbers have been announced so far by DFDS seaways. DFDS decided to invest EUR 100 million in scrubbers on 21 vessels out of around 45 of its ships.
- The large investment in scrubbers is also being carried out by Finnlines. 14 out of 21 of its vessels are going to use scrubbers. The total investment is estimated at 50 mln EUR, 20.3 mln EUR comes from Finland's initiative to support solutions aimed at combating negative consequences of the 2015 Sulphur Directive.
- By 2015, Scandlines invested 14 million EUR in hybrid propulsion system combined with scrubbers on four of its ships.
- North Sea operator –Brittany Ferries will invest £ 70 million in fitting six vessels with scrubbers



57 LNG fuelled ships in operation worldwide (as of January 2015)

Ships in operation

Year	Type of vessel	Owner	Class
2000	Car/passenger ferry	Fjord1	DNV
2003	PSV	Simon Møkster	DNV
2003	PSV	Eidesvik	DNV
2006	Car/passenger ferry	Fjord1	DNV
2007	Car/passenger ferry	Fjord1	DNV
2007	Car/passenger ferry	Fjord1	DNV
2007	Car/passenger ferry	Fjord1	DNV
2007	Car/passenger ferry	Fjord1	DNV
2008	PSV	Eidesvik Shipping	DNV
2009	PSV	Eidesvik Shipping	DNV
2009	Car/passenger ferry	Tide Sjø	DNV
2009	Car/passenger ferry	Tide Sjø	DNV
2009	Car/passenger ferry	Tide Sjø	DNV
2009	Patrol vessel	Remøy Management	DNV
2009	Car/passenger ferry	Fjord1	DNV
2010	Patrol vessel	Remøy Management	DNV
2010	Car/passenger ferry	Fjord1	DNV
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2010	Car/passenger ferry	Fjord1	DNV
2010	Car/passenger ferry	Fjord1	DNV
2010	Car/passenger ferry	Fosen Namsos Sjø	DNV
2011	PSV	DOF	DNV
2011*	Oil/chemical tanker	Tarbit Shipping	GL
2011	Car/passenger ferry	Fjord1	DNV
2011	PSV	Solstad Rederi	DNV
2012*	Car/passenger ferry	Fjord1	DNV

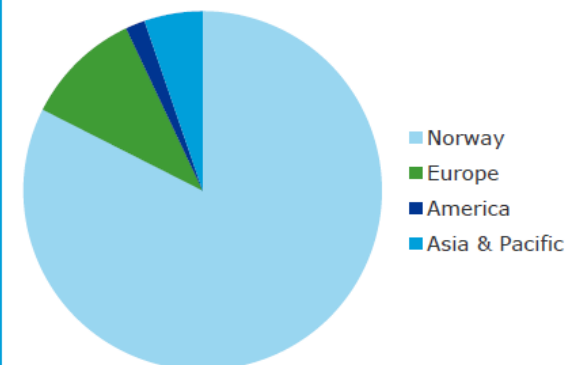
* Conversion project

Updated 16.01.2015
Excluding LNG carriers and inland waterway vessels

Ships in operation

Year	Type of vessel	Owner	Class
2014	Gas carrier	SABIC	BV
2014	Gas carrier	SABIC	BV
2014	PSV	Remøy Shipping	DNV
2014	General Cargo	Egil Ulvan Rederi	DNV
2014	General Cargo	Egil Ulvan Rederi	DNV

Global development - ships in operation



Updated 16.01.2015
Excluding LNG carriers and inland waterway vessels

Source:DNV



LNG fuelled ships in operation



m/s Viking Grace



m/s Stavangerfjord



Confirmed orderbook

Year	Type of vessel	Owner	Class	Year	Type of vessel	Owner	Class
2015	Ro-Ro	Norlines	DNV	2015	PSV	Siem Offshore	DNV GL
2015	Ro-Ro	Norlines	DNV	2015	PSV	Siem Offshore	DNV GL
2015	Car/passenger ferry	Society of Quebec	LR	2015	Container Ship	TOTE Shipholdings	ABS
2015	Car/passenger ferry	Society of Quebec	LR	2016	Container Ship	TOTE Shipholdings	ABS
2015	Car/passenger ferry	Society of Quebec	LR	2016	PSV	Harvey Gulf Int.	ABS
2015	PSV	Harvey Gulf Int.	ABS	2016	Icebreaker	Finnish Transport A.	LR
2015	PSV	Harvey Gulf Int.	ABS	2016	PSV	Siem Offshore	DNV GL
2015*	Oil/chemical tanker	Bergen Tankers	LR	2016	PSV	Siem Offshore	DNV GL
2015	Car/passenger ferry	AG Ems	GL	2016	Oil/chemical tanker	Termtank	BV
2015*	Car/passenger ferry	AG Ems	GL	2016	Oil/chemical tanker	Termtank	BV
2015	Car/passenger ferry	Samsoe Municipality	DNV	2016	Oil/chemical tanker	Termtank	BV
2015	Tug	CNOOC	CCS	2016*	Ro-Ro	TOTE Shipholdings	ABS
2015	Tug	CNOOC	CCS	2016*	Ro-Ro	TOTE Shipholdings	ABS
2015	PSV	Siem Offshore	DNV	2016	Car carrier	UECC	LR
2015	PSV	Siem Offshore	DNV	2016	Car carrier	UECC	LR
2015	PSV	Simon Møkster	DNV	2016	Car/passenger ferry	Boreal Transport	DNV GL
2015	PSV	Harvey Gulf Int.	ABS	2016	Car/passenger ferry	Boreal Transport	DNV GL
2015	PSV	Harvey Gulf Int.	ABS	2016	Container Ship	GNS/Nordic Hamburg	ABS
2015	PSV	Harvey Gulf Int.	ABS	2016	Container Ship	GNS/Nordic Hamburg	ABS
2015	Tug	NYK	NK	2016	Ro-Ro	SeaRoad Holdings	DNV GL
2015	Gas carrier	Evergas	BV	2016	Car/passenger ferry	BC Ferries	LR
2015	Gas carrier	Evergas	BV	2016	Car/passenger ferry	BC Ferries	LR
2015	Gas carrier	Evergas	BV	2016	Gas carrier	Ocean Yield	DNV GL
2015	Bulk ship	Erik Thun	LR	2016	Gas carrier	Ocean Yield	DNV GL
2015	Container Ship	Brodosplit	DNV GL	2016	Gas carrier	Ocean Yield	DNV GL
2015	Container Ship	Brodosplit	DNV GL				

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Excluding LNG carriers and inland waterway vessels

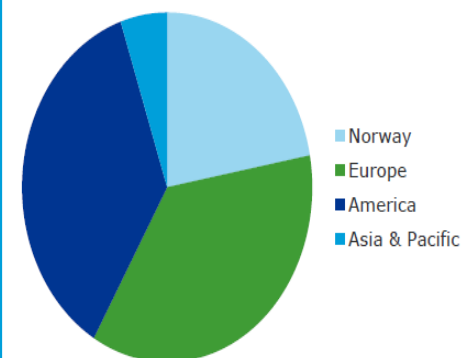
* Conversion project

77 LNG fuelled ships ordered (as of January 2015)

Confirmed orderbook

Year	Type of vessel	Owner	Class
2016	Car/passenger ferry	Seaspan Ferries Corp.	LR
2016	Car/passenger ferry	Seaspan Ferries Corp.	LR
2016	Gas carrier	Navigator Gas	ABS
2016	Gas carrier	Navigator Gas	ABS
2016	Gas carrier	Navigator Gas	ABS
2016	Gas carrier	Navigator Gas	ABS
2016	Gas carrier	Navigator Gas	ABS
2016	Container Ship	Universal Marine	DNV GL
2016	Container Ship	Universal Marine	DNV GL
2017	Container Ship	Universal Marine	DNV GL
2017	Container Ship	Universal Marine	DNV GL
2017	Container Ship	GNS Shipping	ABS
2017	Container Ship	GNS Shipping	ABS
2017	RoPax	Rederi AB Gotland	
2017	Oil/chemical tanker	Groupe Desgagnés	BV
2017	Oil/chemical tanker	Groupe Desgagnés	BV
2017	Tug	Østensjø Rederi	
2017	Tug	Østensjø Rederi	
2017	Tug	Østensjø Rederi	
2017	Car/passenger ferry	BC Ferries	LR
2017	Oil/chemical tanker	Termtank	BV
2017	Container Ship	Crowley Maritime	DNV GL
2017	Container Ship	Crowley Maritime	DNV GL
2018	Container Ship	Matson Navigation	DNV GL
2018	Container Ship	Matson Navigation	DNV GL

Global development - confirmed orderbook



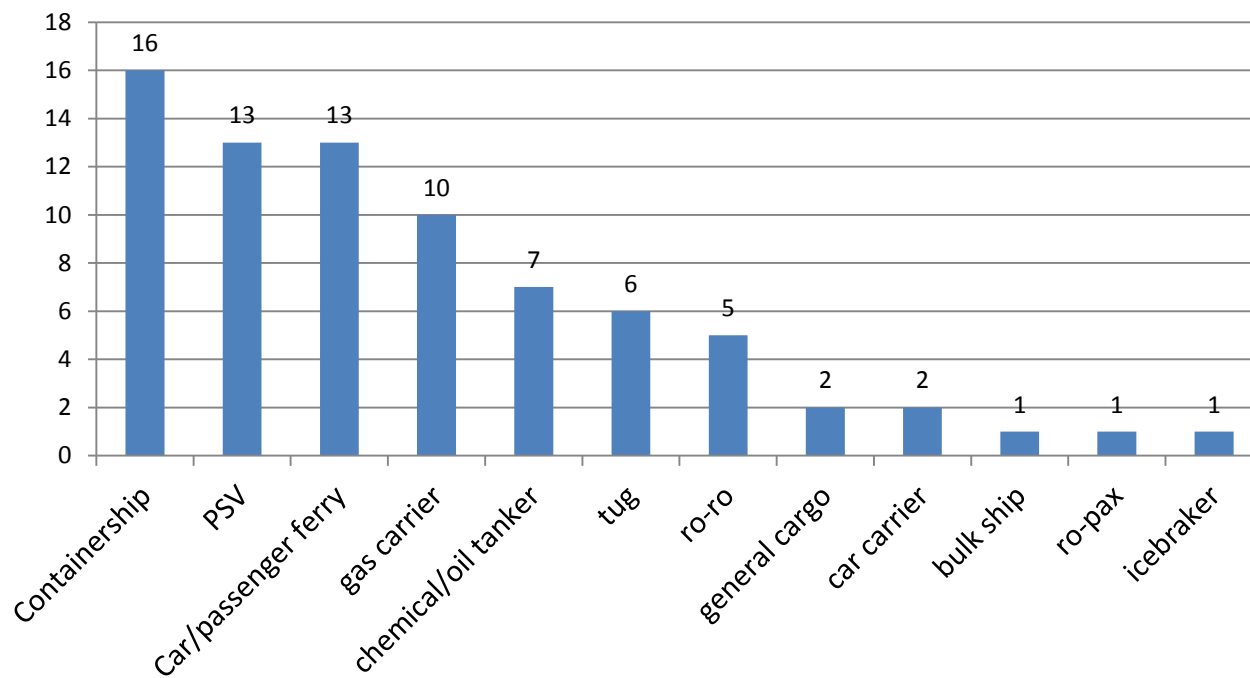
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Excluding LNG carriers and inland waterway vessels

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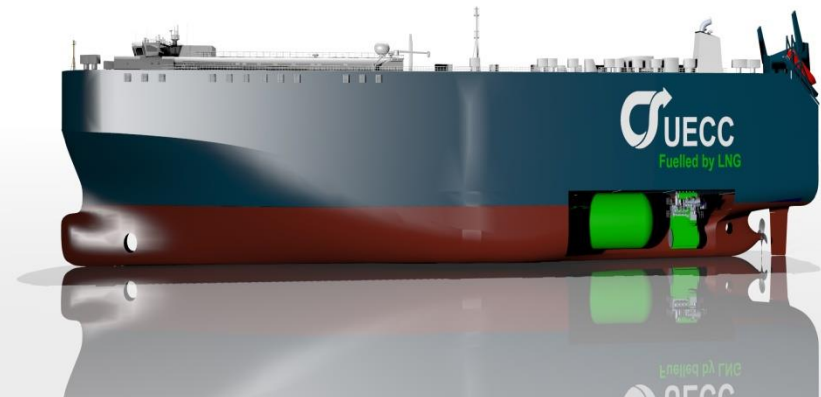


Number of vessels on order per vessel segment (as of January 2015)





LNG fuelled ships on order

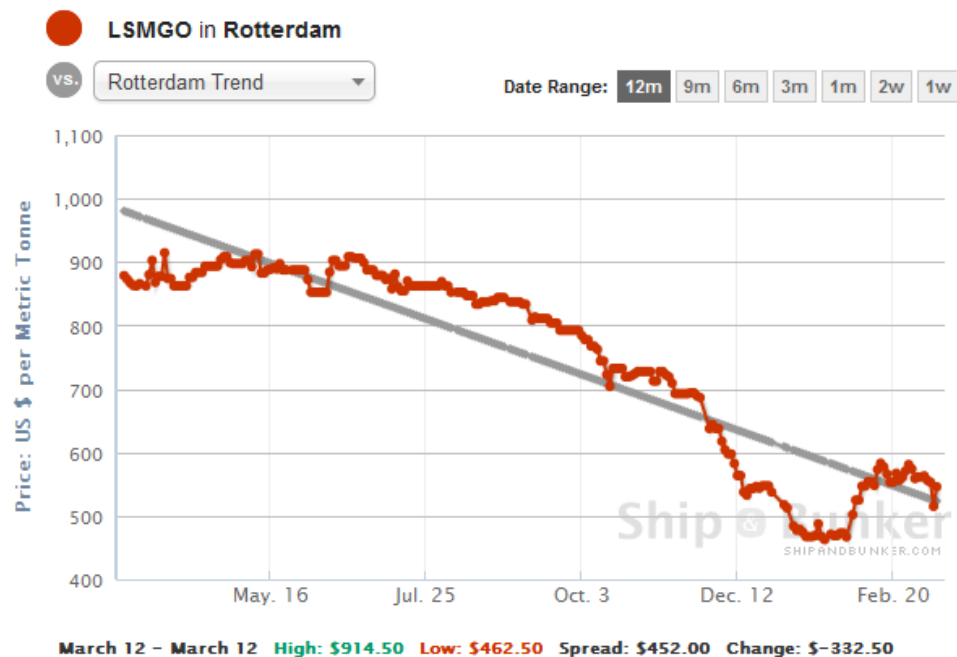




Development of bunker fuels prices

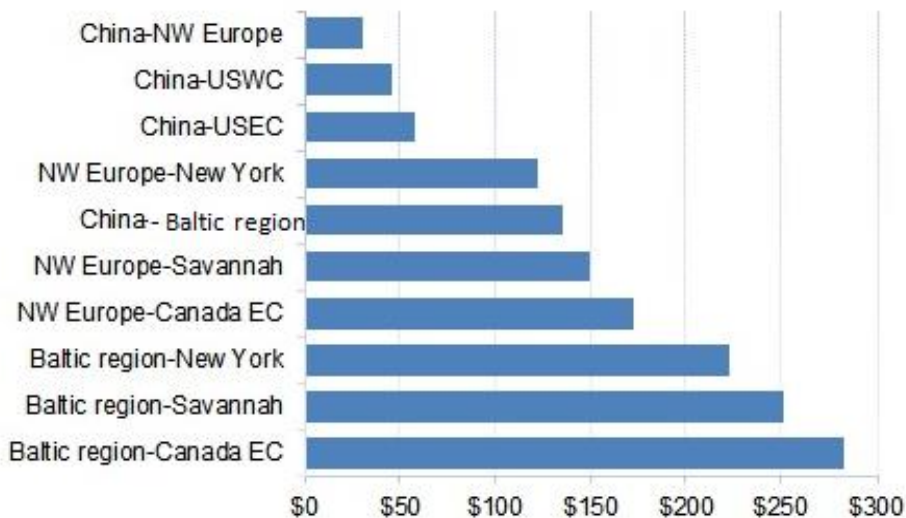


Source: Shipandbunker





Price adjustments by shipping lines due to new regulation



Low sulphur fuel surcharges in the case of ocean container operators

Route	Maersk	MSC	CMA CGM	OOCL	TSA	Average
NW Europe-New York	130	150	50-110	130	N/A	123
Baltic region-New York	230	260	150-210	??	N/A	223
NW Europe-Savannah	130	190	100-200	130	N/A	150
Baltic region-Savannah	230	300	150-300	??	N/A	252
NW Europe-Canada East Coast	160	260	80-160	150	N/A	173
Baltic region-Canada East Coast	260	370	180-260	??	N/A	283
China-NW Europe	30	30	50	TBA	N/A	30
China-Baltic region	130	140	150	TBA	N/A	135
China-US West Coast	TBA	50	36-48	TBA	53	48
China-US East Coast	TBA	60	51-60	TBA	67	61



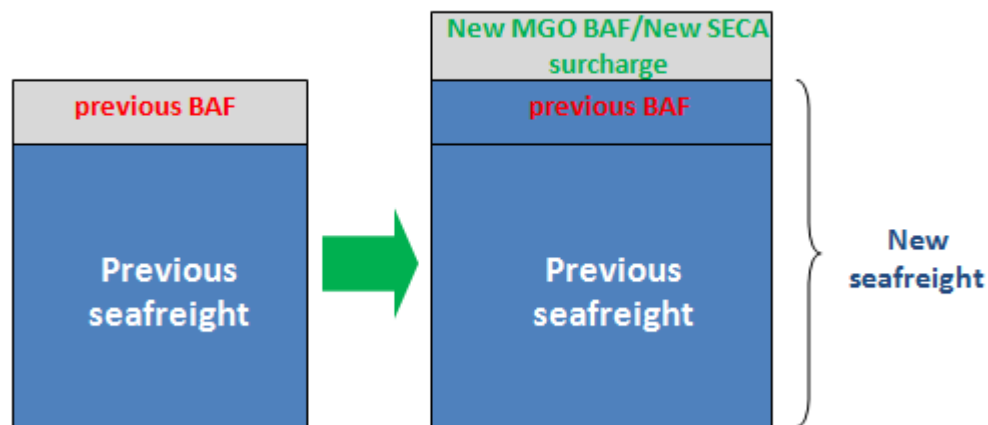
Price adjustments by shipping lines due to new regulation

Low sulphur fuel surcharges in the case of feeder/short-sea container operators

Feeder/short-sea operator	EUR/TEU
Unifeeder	65 EUR/TEU
Containerships	35 -100 EUR/TEU
Seago Line	30-90 EUR/TEU



Price adjustments by shipping lines due to new regulation



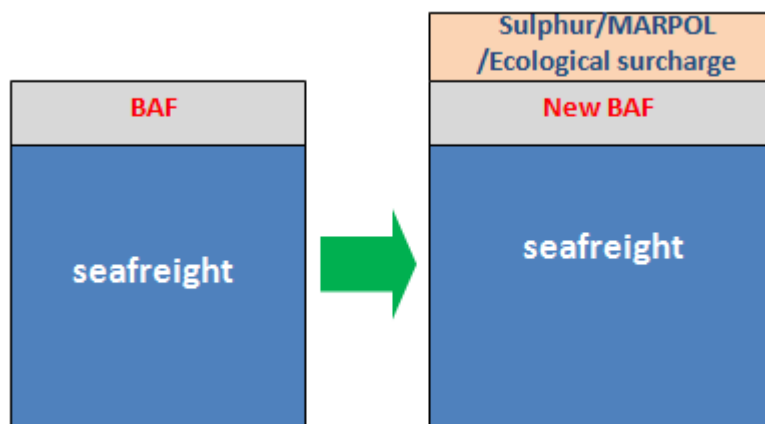
Solution chosen inter alia by
Stena Line, DFDS Seaways,
Finnlines, Viking Line

Bunker surcharge (BAF) as of March 2015

Ro-pax, ro-ro operator	EUR/per line meter
Stena Line	0.17-1.71
DFDS Seaways	0.52-4.96
Finnlines	1.60-2.80
Viking Line	1.95-2.92



Price adjustments by shipping lines due to new regulation



Solution chosen intera alia by
Scandlines, Transfenica, Unity
Line

Bunker surcharge (BAF)
and sulphur surcharge
as of March 2015

Ro-pax, ro-ro operator	BAF EUR/per line meter	Sulphur surcharge EUR/per line meter
Scandlines	0.70-2.59	0.41-0.94
Unity Line	0.88	2.41
Transfenica	not available	<ul style="list-style-type: none"> • 6-10 EUR per meter • 85-135 EUR per trailer • 38-60 EUR per TEU



Thank you

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