



Low Sulfur Fuel Implementation

Director Environmental Management Wolfram Guntermann

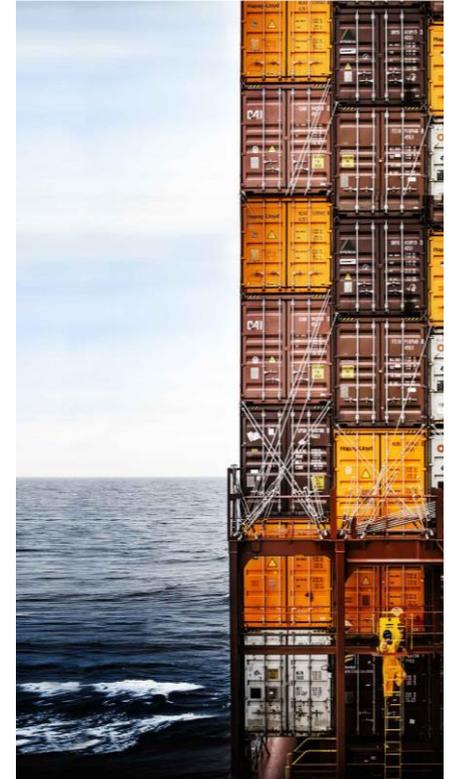
Hamburg – November 29, 2017



Hapag-Lloyd

We have been building one of the world's leading container lines...

- A shipping company with 170 years of experience
- The fleet comprises 215 container ships
- The TEU capacity of the entire Hapag-Lloyd fleet amounts to ~1.6 million TEU
- Hapag-Lloyd has a container fleet with a transport capacity of ~2.3 million TEU
- Offering one of the world's largest and state-of-the-art reefer container fleets
- Worldwide network of more than 115 liner services
- More than 12,000 employees



May I introduce myself?

Captain Wolfram Guntermann

Director Environmental Management Hapag-Lloyd AG

Sailing Career began in 1979

Masters and Engineers Licence, sailing as Ship Operation Officer

Master on several Hapag-Lloyd Vessels

Assignments to positions ashore in London, New York, and Hamburg



Environmental Activities in California

Public Perception of California ?



California as Environmental Role Model

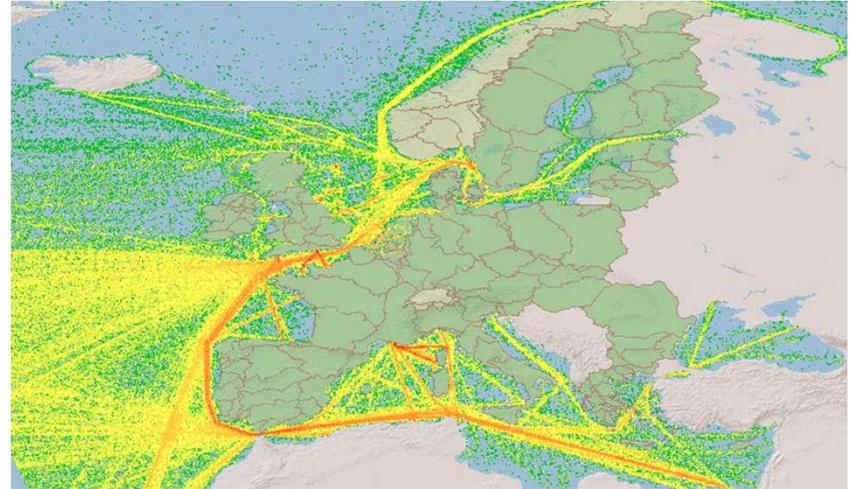
- Serious public health issues in the San Pedro Basin triggered political activity
- Vessel speed reduction program offshore already pursued in the Nineties
- Jan 01 2007 introduction for low sulfur fuels with 0.5 % for auxiliary engines
- Since July 2009 vessels calling Californian Ports have to use DMA/DMB with 0.5 % Sulfur at a distance 24 nm off the coast.
- Reduction to 0.1% Sulfur on Jan 01 2014
- Cold Ironing Project launched ten years ago, it is now mandatory for 70% of vessels calling Californian Ports
- Next stage will be 80% as from January 01 2020

Europe and Regional Systems

Development of Regulations

- Implementation of Baltic SECA already in May 2006
- North Sea followed in August 2007
- EU Sulfur Directive Jan 01 2010 using 0.1%S at berth
- 0.1 % Sulfur in ECA since Jan 01 2015
- MEPC 70 agreed on the NECA (IMO Tier III) as from Jan 01 2021
- EU Sulfur Directive implementation for 0.5%S in EU EEZ already as from Jan 01 2020 (no fuel availability review as conducted by IMO)
- National activities in Hong Kong, PR China implementing „Regional ECA“ with 0.5 % S at berth initially

Major Tradelane in European Waters



North American ECA

Enforcement of Limits

- Emission Control Area (ECA) North America with a max. of 1% sulfur is enforced since August 1st 2012
- As of Jan 01, 2014 US Caribbean Islands and Puerto Rico followed
- ECA Sulfur Content Cap actually 0.1% since Jan 01, 2015
- California still running a review period
- North American NECA since Jan 01, 2016
- USCG, EPA and Transport Canada do follow a stringent enforcement regime

Area of North American ECA



Impact on Hapag-Lloyd

Be proactive

- LS Tanks already installed in 1998 on board our London Express Class.
- Retrofitting and provision of designated LS Tanks necessary due to higher LS demand
- Pricegap between LS fuel and HFO still 50 %
- Huge cost impact being addressed with our customers by our Sales Organisation
- Intentional fraudulent non-compliance has been raised by the Trident Alliance
- Hapag-Lloyd joined Trident Alliance in Oct 2014

MS London Express



Political Engagement

A level Playing Field should be safeguarded

- Enforcement level still weak in some states
 - Never too late to start
- 2020 global cap concern
 - Longer term perspective, global issue
- Temptation to cut corners on compliance
 - Unacceptable business risk
- Level playing field: business imperative
 - Need robust enforcement

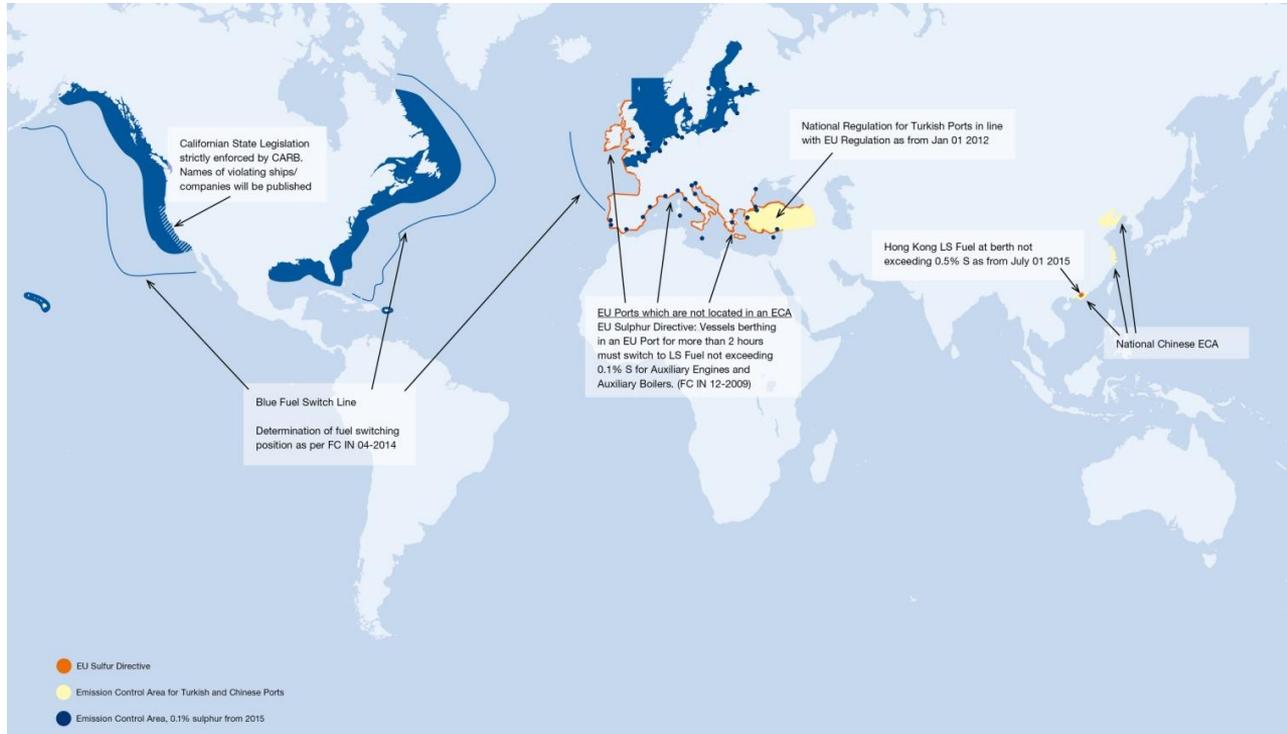


TRIDENT
ALLIANCE

Why it was
created

Low Sulfur Map of the World 2017

Visual Guidance for a Low Sulfur Regulations Maze



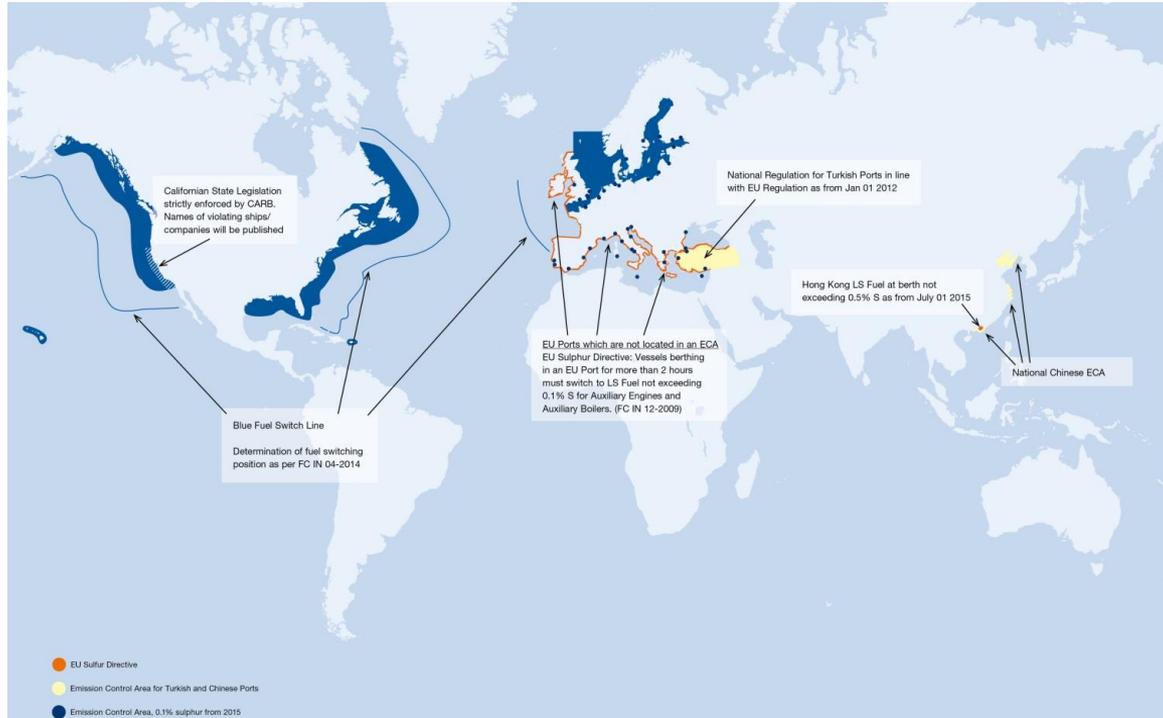
What if we would have the EU Sulfur Directive Map 2020 only ?

EU Sulfur Directive Implementation for 0.5%S in EU EEZ (yellow) as from Jan 01, 2020



IMO decided on a Global Sulfur Cap 0.5 % as from Jan 01 2020

Map with a different meaning



- ECAs with 0.1 % S remaining
- Local Rules remaining or covered by usage of 0.5 % S Fuel
- World Wide Usage of 0.5 % S
- Fuel Oil Availability ?
- Costs of 0.5 % S Fuel ?
- Quality of Fuels ?
- Stability of Blends ?
- Necessity of a robust implementation plan and enforcement of compliance
- Ensure a level playing field for the industry to have also the intended health impact for the population

Challenges and Tasks ahead

- 5th Session of IMO's Pollution Prevention and Response Sub-Committee (PPR) will be held in Feb 2018
- PPR meets annually and interacts with MEPC
- IMO MEPC 72 will be held in April 2018
- European Commission has launched a new ESSF (European Sustainable Shipping Forum) Air Emissions Sub-Group dealing with the same challenges of implementation and compliance
- A regional system should be avoided since a global system needs global legislation and adherence
- Hapag-Lloyd is part of the WSC Delegation in IMO PPRs and IMO MEPC Meetings
- Active Member of the EC ESSF Air Emissions Group



Thank you
for your attention!



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