

# What does mandatory shore power in EU mean?

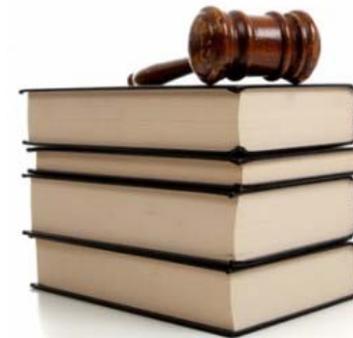
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Electrification in ports and vessels – benefits and new business opportunities  
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*Responsible traffic.  
Courage and co-operation*

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# INTRODUCTION

- Diesel-electric propulsion and diesel generators have been used in ships for decades, but power is normally generated on board by diesel-generators.
- Some ships having hybrid propulsion are already in use.
- Shore-side electricity supply is available in some ports and some ships utilize it already.

# IMO REGULATIONS FOR EMISSIONS FROM DIESEL ENGINES

- **Regulation 13, Nitrogen Oxides (NO<sub>x</sub>) of Annex VI to the MARPOL Convention**
  - **Tier I regulations**
  - Apply to a marine diesel engine that is installed on a ship constructed on or after 1 January 2000 and prior to 1 January 2011.
  - **Tier II regulations**
  - Apply to a marine diesel engine that is installed on a ship constructed on or after 1 January 2011.
  - **Tier III regulations**
  - Apply to a marine diesel engine that is installed on a ship constructed on or after 1 January 2016 and is sailing in an Emission Control Area for NO<sub>x</sub> emissions.
  
- **Regulation 14, Sulphur oxides (SO<sub>x</sub>) and particulate matter of Annex VI to the MARPOL Convention**
  - **Global sulphur limit of fuel oil**
  - 3.50 % m/m from 1.1.2012
  - 0.50 % m/m from 1.1.2020 or 1.1.2025 to be decided by the IMO based on a review to be completed by 2018
  
  - **Sulphur limit of fuel oil for ships sailing in Emission Control Areas for SO<sub>x</sub> emissions**
  - 0.10 % m/m
  
  - **Particulate Matter (PM)**
  - There are no limit values yet in regulation 14.

# IMO POLICY AND REQUIREMENTS FOR ON-SHORE POWER SUPPLY

- It is very clear that use of on-shore power supply is an acceptable alternative to meet the emission limits for diesel engines stipulated in MARPOL Annex VI.
- During the past decade IMO has considered the possibility to standardize on-shore power supply for ships at berth.
- In 2012 at the MEPC 64 Meeting the Committee was of the view that ports equipped with on-shore power supply are limited and mandatory requirements for the on-shore power supply should not be developed at this stage.
- However, the Committee decided to disseminate the information available at that time in a circular (MEPC.1/Circ.794) relating to the on-shore power supply, e.g.
  - lists of relevant standards issued by classification societies; and
  - ports providing on-shore power supply (three Finnish ports are on this list: Kemi, Oulu and Kotka).
- In the circular reference is made to the international standard "ISO/IEC/IEEE 80005-1:2012 Utility connections in port – Part 1: High Voltage Shore Connection (HVSC) Systems – General requirements"

# EU SULPHUR DIRECTIVE (2012/33/EU)

- **Text in red** indicate differences to MARPOL Annex VI
- **All ships of all flags inside SOx ECAs**
  - Applies to all ships of all flags sailing in SOx ECAs
  - Maximum sulphur content 0.10% from 1.1.2015
  - **3.50% maximum fuel sulphur content also when using scrubber (except closed mode)(article 3a).**
- **All ships of all flags outside SOx ECAs**
  - 3.50% from 1.1.2012
  - 0.50% from 1.1.2020 ~~(or 1.1.2025)~~ (article 4a)
  - **3.50% maximum fuel sulphur content also when using scrubber (except closed mode) (article 3a)**
  - **1.5% until 1.1.2020 for passenger ships sailing on regular services to or from EU port (article 4a)**
  - **0.10% for all ships in all EU ports (article 4b)**
- **Article 4c, Emission abatement methods**
  - According to section 2c of article 4a, Member States shall, as an alternative solution for reducing emissions, encourage the use of onshore power supply systems by docked vessels.

# DIRECTIVE 2014/94/EU ON THE DEPLOYMENT OF ALTERNATIVE FUELS INFRASTRUCTURE (AFI DIRECTIVE)

- According to section 5 of article 4: “Member States shall ensure that the need for shore-side electricity supply for inland waterway vessels and seagoing ships in maritime and inland ports is assessed in their national policy frameworks. Such shore-side electricity supply shall be installed as a priority in ports of the TEN-T Core Network, and in other ports, by 31 December 2025, unless there is no demand and the costs are disproportionate to the benefits, including environmental benefits.”
- According to section 6 of article 4.”Member States shall ensure that shore-side electricity supply installations for maritime transport, deployed or renewed as from 18 November 2017, comply with the technical specifications set out in point 1.7 of Annex II.”
- According to section 1.7 of Annex II: “Shore-side electricity supply for seagoing ships, including the design, installation and testing of the systems, shall comply with the technical specifications of the IEC/ISO/IEEE 80005-1 standard.”

# FINNISH POLICY AND LEGISLATION

- The Directive on the deployment of alternative fuels infrastructure (AFI directive), 2014/94/EU, obliges each Member State to adopt a national policy framework for the development of the market as regards alternative fuels in the transport sector and to deploy the relevant infrastructure by November 2016.
- Ministry of Transport and Communications has published in 2015 a proposal for a national framework until 2020/2030 on alternative fuels infrastructure, which was prepared by the expert group on alternative fuels infrastructure, see the publication 4/2015 at [www.lvm.fi](http://www.lvm.fi).
- In this proposal it is mentioned that the use of shore-side electricity supply in ports would decrease CO<sub>2</sub> emissions and other emissions as well as noise generated from ships in ports. Shore side power supply would be suitable for ships, which stay at port for several hours. Shore-side connection has to be tailored for each ship visiting the port.
- The Finnish Ministry of Transport and Communications has appointed a working group for implementation of the AFI directive. The work should be completed in 2016.

## **Finnish legislation**

- According to the Finnish act (2014/1057) on the protection of the environment from pollution from ships, a ship, which does not use its engines and uses shore-side electricity at berth, meets the provision not to use marine fuels with a sulphur content exceeding 0,10 % while at berth in Union ports.

# CONCLUSIONS AND MY VISION 2025

- According to the AFI directive: “Shore-side electricity supply shall be installed as a priority in ports of the TEN-T Core Network, and in other ports, by 31 December 2025, unless there is no demand and the costs are disproportionate to the benefits, including environmental benefits.” So, shore-side electricity supply is not mandatory.
- My vision is as follows:
  - The use of shore-side electricity will increase in ports in ships on regular routes on a voluntary bases.
  - We will see some ships having hybrid propulsion sailing in domestic trade on regular routes.
  - It may be possible that small ships sailing between Helsinki and Tallinn would also use hybrid propulsion.

**THANK YOU FOR YOUR ATTENTION!**



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