Consultation on an EU Strategy for Liquefied Natural Gas and Gas Storage

Transparency Register: 009214311424-03

6. What in your view are the most critical regulatory barriers by Member State to the optimal use of and access to LNG, and what policy options do you see to overcome those barriers? Have you encountered or are you aware of any problems in accessing existing LNG terminal infrastructure, either because of regulatory provisions or as a result of company behaviour? Please describe in detail.

7. What do you think are the most critical commercial, including territorial restrictions and financial barriers at national and regional level to the optimal use and access to LNG?

8. More specifically, do you consider that ongoing EU policy initiatives and/or existing legislation can adequately tackle the outstanding issues, or there is more the EU should do?

(Answer for Questions 6-8)

Exhaust emission limits for propulsion engines of Inland Waterway Vessels (IWV) are covered by the Directive 97/68/EC, which is currently in a revision process. The new emission regulation is planned to be put into force from 2019 onwards. The currently discussed Commission "Proposal for a regulation of the European Parliament and of the Council on requirements relating to emission limits and type-approval for internal combustion engines for non-road mobile machinery" (COM 2014(581)) does not align with any international marine engine standard and has emission limits based on on-highway technology for truck sized engines. These emission limit values are not applicable in a marine installation due to mandatory safety requirements as well as restrictions on cooling system design and surface temperature limitations. With the high costs involved, a valid business case for developing unique products at an affordable cost for this niche EU market could not be established. These counts for both diesel and LNG fuelled engines as this would require technical complex exhaust gas after treatment systems with SCR (Selective Catalytic Reduction) and Diesel Particulate Filter (DPF) [Panteia 2013], at high costs.

Without new products the sector would be reliant on maintaining existing engines in the fleet with associated higher emissions. **An amendment to the current COM proposal is urgently needed to align inland waterways engine emission limit values with US 40CFR1042 marine emission limit regulation, allowing engines developed for the US market to be supplied and placed on the EU market.** This provides an 80% reduction in emissions compared to the current inland waterway engine emission limits.

As LNG fuelled engines have better raw emission compared to diesel fuelled engines, an alignment with US 40CFR1042 would also mean, that LNG fuelled engines would fulfil the emission limit values, even without technical complex after treatment systems installed. Besides to the above mentioned technical and regulative restriction to marine installations, an alignment with US 40CFR1042 would therefore level out the generally higher cost for LNG installations on IWV compared to diesel engines. This would promote the use of LNG fuelled engines in the IWV business [Panteia 2013]. If the investment in a LNG powered vessel is a valid business case for IWV operators, this will automatically trigger for LNG infrastructure. In simple words, without affordable engines running on LNG there is no need for a LNG infrastructure and vice versa.

LNG Technology Issues including LNG use in Transport

11. What technological developments do you anticipate over the medium term in the field of LNG and how do you see the market for LNG in transport developing? Is there a need for additional EU action in this area to reduce barriers to uptake, for example on technology or standards, including for quality and safety?

The use of gas as a fuel is not new and many technologies exist today to take advantage of natural gas (compressed natural gas or liquefied natural gas). The membership of SEA Europe offers technology solutions at sea as manufacturers and integrators, with a specific focus on LNG in the marine sector.

The use of LNG as a marine fuel is increasing and it is expected to grow more rapidly in the next five to ten years although will not account for a large part of the transport fuel mix in the medium term. DNVGL believes that there will be around 1000 non-LNG carrier vessels running on LNG in 2020 or shortly thereafter. LNG is proving commercially viable and available worldwide to meet

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the fuel demands of shipping for the coming decades[1]. The recent drop in the oil price will only act to slow the penetration of LNG until such a time that a corresponding drop in LNG is realised.

Whilst the LNG fuel price differential to oil price is a key driver in penetration rate it is not the only one. Capital expenditure (CAPEX), redundancy, regulatory/financial incentives and, bunkering availability all have a role to play.

The marine industry (both in offshore and commercial) is actively working to reduce the CAPEX of LNG systems and to convince the offshore industry (where redundancy is key) to move away from Dual Fuel applications to a pure LNG solution. As the introduction of LNG newbuilds has only been recent - entering into service in certain sectors, such as the containerised and passenger / cruise fleets, experience is limited. However, with increased service experience, the benefits of a lower fuel costs and improved environmental performance relative to HFO will become apparent and are likely to trigger a larger uptake of LNG in these ship types.

The lower fuel costs of LNG fuel outweigh the initial larger CAPEX and for a marine vessel switching to LNG the payback period is estimated to be between 3 to 6 years (based on June 2015 prices of MDO). Further to lower operating costs, gas engines exhibit up to a 5% efficiency improvement over diesel engines and, as natural gas has a lower carbon-hydrogen ratio it will result in up to a 35% CO2 reduction for the same energy output. Further to the reduction in CO2, combustion of LNG fuel results in near zero SOx emissions, reduced Particulate Matter emissions, and NOx emissions that meet the stringent IMO Tier III NOx standards.

Despite the steady progress and environmental benefits, assistance is required from the EU in increasing the LNG bunkering availability and putting in place the correct regulatory and financial incentives. As LNG bunkering is not widely available operators are forced to either plan a restricted number of routes (hence why LNG uptake is popular for ferries) or consider a dual fuel (LNG and Diesel) option. The dual fuel option exacerbates the CAPEX issue and results in operators opting for diesel engines with after-treatment technologies, when the superior

[1] http://www.dnv.de/Binaries/LNG_report_2014-12__web_tcm4-620156_tcm70-620366.pdf

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technical solution (that is commercially available) is the gas fuelled engine that does not require after-treatment technology.

The EU is asked to consider the promotion of more LNG bunkering facilities and to examine regulatory and financial incentives to develop the European LNG infrastructure.

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Background Note:

SEA Europe:

SEA Europe brings together CESA and EMEC and represents an industry which generates more than €91 billion turnover annually and offers employment in high profile jobs for more than 500,000 Europeans. The association represents close to 100% of the European shipbuilding industry in 18 nations, encompassing the production, maintenance, repair and conversion of all types of ships and floating structures, commercial as well as naval including the full supply chain with the various producers of maritime systems, equipment material, and services.

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