EUROMOT

The European Association of Internal Combustion Engine Manufacturers

EUROMOT POSITION

FUEL EU MARITIME – GREEN EUROPEAN MARITIME SPACE

EUROMOT COMMENTS ON THE EUROPEAN COMMISSION INCEPTION IMPACT ASSESSMENT

23 April 2020

EUROMOT, the European Association of Internal Combustion Engine Manufacturers, would like to submit comments on the consultation on the European Commission's Inception Impact Assessment on "FuelEU Maritime – Green European Maritime Space".[1]

1. Technical requirements on marine propulsion systems and marine power units

Combustion engines are the prevalent technology for propulsion and power units on board of ships. Reasons lay in the continuous and ongoing development of the technology, which has sharpen the following capabilities:

- Outstanding deliverable energy density over a long period
- Reliability in stand-alone energy supply
- Robustness in harsh environments and under severe mechanical stress
- Excellent response to sudden load changes and fast reversing
- High mechanical efficiency
- High fuel flexibility with capability to adapt to varying fuel qualities

Combustion engines will continue to play an important role as prime mover on board of ships. Power density in combination with a high mechanical efficiency are outstanding. In addition, engines provide reliability for stand-alone energy supply and are suitable for the use under harsh conditions. Ongoing engine technology development has resulted in substantial improvement of fuel efficiency over the past decades driven by market

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requirements to lower the fuel consumption as the major operational expenditure of ships. Against the background of the GHG-discussion, this requirement is now, and will be in future, even more demanding.

2. Interaction of technology development of engines and making available of low/zero carbon fuels

Technology development of marine engines is an ongoing process since first diesel engines were fitted on seagoing ships. Improvement of specific fuel oil consumption and fuel efficiency moved into the focal point of development work latest during the first oil price crisis in the decade of the 1970s. This continuous effort has paid-off and enabled the maritime sector to develop to the most efficient means of transport of all sectors with the positive effect of low GHG-emissions based on the performed transport work. Against the background of the GHG-discussion, engine manufacturers are intensifying efforts and are providing enormous resources to assure that marine engines will play its role in the maritime energy transition towards low/zero carbon fuels.

It is of utmost importance that the discussion at IMO and at European level follows two goals: One comprises the availability of marine fuels with low carbon intensity and measures to increase the market share of sustainable alternatives in the fuel mix of international maritime transport as fast as possible. The emphasis is on the availability of these fuels, since development work is already ongoing for a variety of gaseous and liquid fuels. The uncertainty lays therefore in the question: Which low/zero carbon fuels will be scaled up to be relevant as global marine fuels?

This currently open question must not challenge the second goal: technology development in the maritime sector, which is an equally important task. The assessment should comprise improvements in a multitude of technical measures related to, e.g. ship's hull design, propulsion system layout, power management systems, marine engine design and alternative power systems.

Engine development has to be pushed further to assure the availability of safe and high efficient marine engines at that time when low carbon intensity fuels will reach market penetration. Technical measures have to be accompanied by organisational improvements, e.g. ship's route planning and optimisation.

3. Well-to-wake approach for low/zero carbon fuels

It is EUROMOT's understanding that at this early stage low/zero carbon fuels may carry a certain GHG-intensity even when it is true that the fuel feedstock is carbon free. This needs to be accounted for. EUROMOT therefore fully supports a well-to-wake approach when assessing the GHG-intensity of low/zero carbon fuels. Three predominant factors have to be considered in the assessment:

- The GHG-effect from cultivation/extraction of the fuel's feedstock/raw material
- The amount and the feedstock of energy necessary for the production and refinement of a fuel correlated to the final energy content of the respective fuel
- The GHG-effect of a fuel due to losses in the distribution network

Sustainability criteria such as land use change (LUC) as well as indirect land use change (ILUC) for cultivation and production of biofuels have also to be taken into account.

"Greenwashing" of fuels by means of several energy conversion processes without real GHG-benefit must not be accepted.

From a regulatory perspective, EUROMOT acknowledges boundaries in IMO's rule setting competence. It is understandable that IMO cannot regulate the production and shore-based distribution of low/zero carbon fuels. A way forward would be, to assess fuels pertaining to their GHG-intensity at the point of transfer to a ship and to deliver the information to the ship. The reported fuel specifics could be considered in IMO instruments for regulating and promoting energy efficiency measures on board of ships as the already existing EEDI- and SEEMP-frameworks and the EEXI-provisions currently under development.

IMO should continue in its effort to regulate and to promote energy efficiency improvements of ships in a tank-to-propeller approach.

4. Market barriers

EUROMOT fully supports initiatives to promote and, where required, to incentivise in a goal-based and technology neutral way the uptake of low/zero carbon fuels. Possible fuels in the discussion are not new in a sense of chemical compounds and their physical and chemical properties. Production processes, handling and safety measures are known in the industry. Development work for the use of a variety of gaseous and liquid low/zero carbon fuels in combustion engines is already ongoing. Nevertheless, EUROMOT is of the view that market barriers exist:

- Insufficient production capacity and global availability of low/zero carbon fuels
- Uncertainty, which entities will be providers of low/zero carbon fuels
- Unclear timeframe for a setup of a global low/zero carbon fuel distribution network
- Uncertainty, how the required energy demand for the production of low/zero carbon fuels with stepwise greening of the energy sources can be provided
- As consequence of above: Uncertainty which low/zero carbon fuels will reach market availability on a global scale

4.1. Safety issues

Another market barrier against an implementation of new marine fuels and demanded technology is the time taking process of developing safety regulations, namely updating the IGF-Code and related guidelines. Most of low/zero carbon fuels have to be considered as low-flashpoint fuels, which do not comply with the fuel flashpoint requirement of at least 60°C in SOLAS regulation II-2/4.2. Safety- and HSE-requirements have to be updated in the IGF-Code and related guidelines for each substance which is considered as a future marine fuel. This process is ongoing continuously but continuously behind the work plan and has been finalized at the time being just for LNG/CNG and methanol and not yet for requirements for the technology of fuel cells. EUROMOT appreciates the resources provided to this work by IMO's Marine Safety Committee (MSC) and the Sub-Committee on Carriage of Cargoes and Containers (CCC). However, the development of technical regulations related to future marine fuels must speed up to be able to cope with the variety of future marine fuels.

EUROMOT has noted in technical discussions with regard to a safe use of new marine fuels and demanded technology, prescriptive regulatory approaches of some IMO Member States. EUROMOT needs to address this as an additional market barrier. Engine development must be accompanied by safety assessments to assure that only safe products are placed on the market. Methodologies are laid out in international industry standards, to which several references in the IGF-Code exist. It is obvious, that with growing variety of available marine fuels and technologies, the efforts of assessing safety concepts will not only rise on the part of engine manufacturers. It is rather required that Administrations and recognized organizations, working on their behalf, have to ramp up resources and expertise to review safety assessments of products and safety concepts in detail for all those fuels considered in future in the IGF-Code. In contrast, the current practice is that Administrations submit proposals to IMO containing prescriptive technical solutions, which limit technology development and overrule results of demanded safety assessments. EUROMOT requests that Administrations and recognised organisations ramp up resources and expertise to cope with increasing efforts during the implementation phase of low/zero carbon fuels. Engine manufacturers are at disposal for technical discussions and support.

4.2. Regulatory uncertainties

In addition, EUROMOT needs to point out that regulatory barriers could be removed by increasing legal certainty to the waterborne sector including the maritime technology sector. Recent negative examples are e.g. the ballast water management, the use of open-loop scrubbers or the use of LNG as marine fuel, where those technologies were initially accepted and even financially supported, and during the implementation phase delayed or put into question. Against the background of the identified life-cycle of ships of 25-30 years, legal certainty must last for many years and when necessary adaptations to legal instruments are made, grandfathering of existing technologies and protection of the first movers have to be considered.

5. Cost implications and the need for drivers

EUROMOT estimates that the global transition from fossil energy sources to low/zero carbon fuels will especially in the transition phase require enormous financial resources. The unpredictability of the future global market relevance of individual low/zero carbon fuels requires a screening and development of numerous options. These efforts are to be made in addition to the further development of “conventional” combustion engine technologies. Other sectors, e.g. production of low/zero carbon fuels and set up of a distribution network, facing similar challenges. Besides a dependable regulatory framework, comprehensive economic incentives for supporting and safeguarding first movers are essential.

EUROMOT agrees with estimations that low/zero carbon fuels have at market implementation considerably higher costs compared to fossil-based fuels. Depending on the market development of individual fuels, some will reach a scaling effect, which should lead to cost reduction and a gradual shrinking of the price gap. However, EUROMOT is of the view that higher production costs and the high energy demand from renewable sources for production will induce a noticeable price gap to the disadvantage of low/zero carbon fuels that will remain beyond the implementation phase. EUROMOT supposes that incentive measures as drivers for the use of low/zero carbon fuels have to be implemented and have to be maintained. Market-based-instruments, e.g. the ETS, may be applied for bridging the gap.

6. Benefits of LNG

LNG offers a number of benefits and will play an important role in the transition from fossil-based to low/zero carbon fuels. Dual fuel/gas engines, on-board equipment as well as LNG bunker infrastructure are meaningful assets for the upcoming greening of LNG and the use of a variety of future low/zero carbon fuels.

LNG offers the highest energy content of all available marine fuels in combination with a lower carbon content compared to conventional liquid marine fuels. This results in a CO_2-benefit in a range of about 20-30%. Besides this advantage, LNG contributes to a significant reduction of harmful local emissions. LNG is used as fuel in engines since decades typically on gas tankers, where energy of boil-off gas from cargo is converted. Since a short time, LNG has developed a noticeable market share as alternative fuel on other ship types as well. The reported 3% share from the European MRV system is still low but encouraging, because several gas-fuelled ships came into service just recently, including a number of LNG retrofit projects.

LNG is a fuel that does not comply with the fuel flashpoint requirement of at least 60°C in SOLAS regulation II-2/4.2. Regulatory paths for paving the way as marine fuel is the IGC-Code for tankers and the IGF-Code for other ship types. Many of the low/zero carbon fuels will take the regulatory path through the IGF-Code due to the same reason - they are non-SOLAS fuels. The IGF-Code is therefore adapted continuously to cope with the variety of low/zero carbon fuels. The development of required engine technology is following the same path and it is EUROMOT’s view that further technology improvement of gas engines and dual fuel engines will be beneficial for the adaptation to future low/zero carbon fuels.

EUROMOT has noted with concern the recent discussions regarding the sustainability of LNG. LNG as marine fuel is contributing to environmental initiatives for air quality improvement and greening the maritime sector. LNG is at the time being and for the years to come an important alternative to conventional liquid marine fuels. Engine manufacturers assure that continuous development of gas engine and dual fuel engine technologies takes place. Improvement of mechanical efficiency, which includes the further reduction of methane slip, is a major development goal.

LNG is a very attractive fuel, against the background of the high energy content and the price per unit. This advantage is partly eroded by higher capital expenses of the gas technology on board of ships and the bunker infrastructure ashore. The roll-out of gas technology should be accelerated and incentives are to be provided for new ship installations, for LNG retrofit projects and the fast expansion of the LNG bunker infrastructure.

7. Benefits of shore-side electricity

EUROMOT fully supports the use of shore-side electricity at berth. An immediate benefit to improvement of the air quality in the vicinity of port areas is provided. The effect to overall GHG-reduction depends however highly on the GHG intensity of the energy provided in the local grid. An advantage of shore-side electricity is the regulatory simplicity of implementation. Making it available is in the hand of Member States and port Authorities and depends on national ambition and available resources, which can be fostered with several policy options. The voluntary or mandatory use of shore-side electricity, where available, by ships requires however an alignment of regulations on international or cross-national level.

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EUROMOT is the European Association of Internal Combustion Engine Manufacturers. It is committed to promoting the central role of the IC engine in modern society, reflects the importance of advanced technologies to sustain economic growth without endangering the global environment and communicates the assets of IC engine power to regulators worldwide. For more than 25 years we have been supporting our members - the leading manufacturers of internal combustion engines in Europe, USA and Japan - by providing expertise and up-to-date information and by campaigning on their behalf for internationally aligned legislation. Taken together, the EUROMOT member companies employ about 200,000 highly skilled and motivated workers. The European market turnover for the business represented exceeds 25 bn euros.

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