The European Association of Internal Combustion Engine Manufacturers

EUROMOT

EUROMOT COMMENTS ON THE ROADMAP ON THE EU SMART SECTOR INTEGRATION STRATEGY

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EUROMOT (the European Association of Internal Combustion Engine Manufacturers) supports the Commission's initiative to develop an EU Smart Sector Integration Strategy. In this paper we would like to contribute our observations on the corresponding roadmap.

1. The role of Internal Combustion Engines (ICEs) in achieving the EU climate targets

ICEs will continue to play an important role in the years and decades to come. Their power density in combination with a high mechanical efficiency are outstanding. **ICEs have fully demonstrated over time a high degree of operational flexibility and adaptability both to different fuels and technological changes**, regardless of their type, size, or whether they are used in power generation systems, non-road mobile machinery, rail or marine applications. Aside from conventional fossil fuels, ICEs are capable of operating on a wide range of bio-, hydrogen and synthetic fuels, such as hydrogen-derived liquid/gaseous fuels. For this reason, ICEs are an essential part of the solution to enable the decarbonization of the EU economy.

2. The key factor for safeguarding the '*efficiency first*' principle: Predictability and stability of fuel specifications

EUROMOT recognises, and supports, the need to de-carbonise the energy supply system, which inevitably means changes for both gaseous and liquid fuel supply chains. In paragraphs 3 and 4, EUROMOT is highlighting specific issues for ICEs used in hard-to-decarbonize sectors and for power generation respectively. More generally, we would like to emphasize one pivotal concept, valid for all ICE sectors and applications, that we are convinced policy-makers should carefully consider, irrespective of the supply chain: the need for the type and specifications of the fuels delivered to end-users to be predictable and sufficiently stable.

Many fuel consumers, including ICEs, must be designed and optimised for each fuel type and specification. i.e. the operational flexibility and adaptability to different fuel compositions and

technologies inherent to ICEs, which we mention in paragraph 1, does not mean that *any* ICE can operate efficiently on *any* fuel composition. Changes in fuel type or specification beyond certain limits require physical hardware changes. Manufacturers can develop and optimise ICEs for these alternative fuels, but a sufficient level of **stability and predictability in fuel composition** is a key factor: abrupt and deep changes in fuel composition will jeopardize ICEs' performance, thus undermining key EU policy objectives such as **safety and energy efficiency**. Consequently, newly introduced fuels must either sufficiently match the properties of existing fuels ('backwards compatible'), or be introduced in a step-wise manner with sufficient lead-time to make the necessary physical changes to the ICEs.

3. Availability of decarbonized fuels for hard-to-decarbonize sectors

For ICEs installed into hard-to-decarbonize applications (such as marine transport and non-road mobile machinery), EUROMOT is convinced it is of the utmost importance that two processes go hand in hand, thus nourishing each other.

First and foremost, **availability and market penetration of fuels with low or net-zero carbon intensity, considering their full production chain**. In this regard, it is critical that the EU energy policy has the prospect of creating wide availability of low or net-zero carbon fuels in sufficient scale, and at an acceptable total cost of ownership to the end-user. We are convinced that no one-fits-all solution exists: each fuel having different technical properties, **sector-specific impact assessments should be conducted, having also in mind the different end users' technical needs and specificities**. The fuels could either be based on biological feedstock or hydrogen. Further refining (e.g. 'Power to X') is possible to provide synthetic fuels, processed to the sector-specific requirements, taking into consideration not only development of new ICEs, but also the ICEs already installed and operating. Synthetic 'Power-to-X' fuel production is an efficient way to avoid curtailment of intermittent renewable electricity production (a key issue already today), enabling a further expansion of renewable electricity and ultimately, on the long term, deep greening of the sector (see also section 4).

Establishing which fuels will most likely be available in each sector then guides the necessary further ICE technology development to ensure the availability on the market of highly efficient ICEs capable of running on those decarbonized fuels.

4. Power generation sector's concerns

When presenting the overall objectives of the Smart Sector Integration Strategy, the Commission's roadmap states the following: "***To meet our 2030 and 2050 climate objectives, while also guaranteeing secure and affordable energy for consumers****, there is a need to accelerate the pace of our energy transition and to ensure that all sectors fully contribute to decarbonisation. This can be done by creating new "links" in our energy system, exploiting thus possible synergies between sectors. At the same time, it should contribute to providing new investments to relaunch economic growth and jobs, while strengthening EU industrial leadership*".

The gas-fired ICE is well suited for this.

The supply of heat/cooling, renewable gas and especially volatile renewable electricity will usually not match the demand in total quantities/capacities needed at each moment by different consumers. As highlighted by EUROMOT in the past, gas-fired grid balancing ICE plants make possible, thanks to their ability for rapid start-up, response to varying demand, and shut down, as well as to their multifuel capability, the **step-by-step integration of intermittent renewables in the electricity grid**. This contributes to fundamental key policy objectives of the whole EU Energy Union, as reminded in this roadmap, such as: increase the production and thus the use

of low-carbon electricity; replacement of fossil gas with decarbonised gas and fuels; increase energy efficiency; ensuring access to secure, stable and affordable energy to EU citizens.

Unfortunately, recent EU regulatory developments may establish barriers to the process: the recent **technical report** (and its Annex) **defining a 'Taxonomy for Sustainable Finance'**, prepared by the Commission's Technical Expert Group (TEG), is expected to be the basis for a Commission's delegated act to be adopted at the end of 2020.

EUROMOT considers that the TEG report suffers from **two main shortcomings** (which we urge the Commission to address when drafting the delegated act), when it comes to the power generation sector:

- It defines economic activities as "sustainable" based on the equivalent **CO_2 production performance of individual plants, rather than of the whole integrated power system**. For example, ICE-driven generators operating on commercially available fuels today (with the exception of biofuels, which are anyway not yet commercially available on a large scale) emit on their own more than 100 g CO_{2e}/kWh, which is the threshold proposed by the TEG. However, being part of an integrated power system, operating particularly when there is insufficient renewable energy due to lack of wind or sun, they crucially provide energy security whilst contributing to key EU energy and climate objectives, as described above, and the net CO_{2e}/kWh of the combined system is well below the threshold: such a valuable contribution would not be "captured" by a threshold based solely on the individual part of an integrated system.
- The report is **based on assumptions on technologies that are not yet mature, and will probably require support for years to come – most notably, the CCS technology**. EUROMOT is of the view that such a technology – as well as CCUS – should be encouraged. However, it is also essential that the Taxonomy architecture facilitates use of already fully viable technologies enabling a fast cost-effective decarbonization coupled with access to secure, affordable and sustainable energy.

Finally, we would like to stress the **importance of European harmonized gas composition standards**, in a context of progressive market penetration of decarbonized gases.

Such standards play a key role in making sure that the gas provided to end users at exit points of the gas grid allows them to run their appliances with high efficiency at high reliability levels and low emissions. In particular, we would like to stress the importance of the current revision of standard **EN 16726**, most notably on the value of the following parameters in the gas delivered to consumers:

- The **Wobbe Index** (WI), which should not exceed 53 MJ/m3, and which should remain as stable as possible.
- A maximum **rate of change in the WI** of 1%/minute.
- The **Methane Number**, which should not drop below the value of 70.
- The total **sulphur contents** of natural gas, which should be limited to a maximum of 5 mg/m3, preferably lower if technically possible. Sulphur free odorants should be preferred.

5. Conclusive remarks

EUROMOT has highlighted that Internal Combustion Engines, in all their possible applications, are an essential part of the solution to the de-carbonization of the EU and how they provide critical security of supply in an integrated energy system. We are convinced that taking into account the principles and concerns expressed in this paper will strengthen the Smart Sector Integration Strategy to the benefit of society.

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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 20 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. The EUROMOT member companies employ all over the world about 200,000 highly skilled and motivated men and women. The European market turnover for the business represented exceeds 25 bn euros. Our **EU Transparency Register** identification number is **6284937371-73.**

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