



Motor Oil on European Commission's methane strategy in the oil & gas sector

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General remarks

- The largest share of energy-related methane emissions associated with fossil fuels consumed in the EU comes from upstream emissions arising in the supply countries → **International action**
- No independent, international body collects/ verifies man-made methane emissions data → **International observatory**
- Robust **MRV** framework in the whole gas supply chain, addressing the particularities of every segment
- Focus on **global super-emitters**, building upon the satellite-based detection capabilities of the EU's Copernicus programme
- Thorough **impact assessment** prior to enforcing any mitigation measures
- **Policy enabling environment** at a global level ensuring a **level playing field**
- Methane pricing **not to turn EU from a raw materials importer to a finished goods importer** –loss of competitiveness issues in conjunction with the CO₂ pricing within the EU ETS
- **Methane pricing not to restrict the role of natural gas as a transition fuel** that replaces coal, lignite, HFO securing immediate and major environmental benefits (↓ of SO_x, NO_x, PMs) → **clear roadmap needed** for the capital-intensive development of LNG small-scale/ bunkering applications
- **Holistic approach**: with just 19% of anthropogenic EU methane emissions coming from the energy sector, mitigating action should also be taken in agriculture (53%) and waste (26%), along with the exploitation of **cross-sectoral synergies**, for an effective methane strategy to materialize

Refinery specific comments

- **Safety:** Safer to run refineries steadily without startup/ shutdown of critical process units such as the hydrogen production unit that needs natural gas as feedstock instead of naphtha or LPG. Preventive maintenance schedules are planned accordingly, thus the intervals for “difficult” repairs could reach the time between major turnaround which is 5 years
- **Operational balance** between minimization of methane emissions from leaks and intervals of maintenance schedules
- **Environmental impact:** Refinery shutdowns result in extensive flaring (in order to empty the relevant units, reactors, columns and networks) and could be very costly, with heavy environmental impact in terms of GHG emissions
- **Quantification methods** for leaks measurement based on global standards and methodology need to be in place before any binding measures are taken. Motor Oil’s **LDAR** programs already in place; to be enhanced in the future
- **Flaring:** Oil refineries are already paying for flaring within the ETS framework
- **Anticompetitive considerations:**
 - EU ETS CO₂ pricing: MOH’s refinery currently burdened with ~10€/MT on final product price → Disadvantage for competition in the international refining business with players from non-EU countries
 - Additional methane pricing at 1.400 €/tCH₄ (50 €/tCO₂eq), applied only to upstream emissions, result to a burden:
↑ 16% of avg 2020 wholesale natural gas price

Motor Oil's pathway to sustainable development

- **Compressed Natural Gas (CNG):**
 - Off-grid locations
 - 1st industrial CNG application in Greece
 - Compressor unit in the refinery
 - De-compression at customer sites



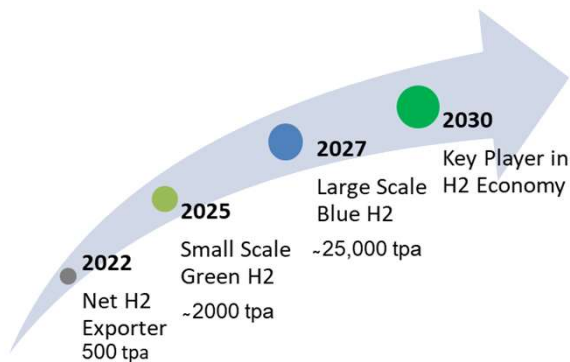
- **Small-scale Liquefied Natural Gas (SSLNG):**
 - Off-grid, islands, marine fuel



- **Floating Storage and Regasification Unit (FSRU):**
 - Floating LNG import terminal
 - A new SEE NG gateway → security of supply, competition



Hydrogen:



Hydrogen Key lever in carbon neutral economy & integral to MOH's transition journey

