Public-Private Roundtables – Tuesday, May 28, 2019

Towards a Clean Mobility Future
Co-Chair: Denmark

Brief Overview:

This session will focus on better understanding the opportunities and impediments in large scale commercialisation of emissions-free transportation, both maritime and land-based heavy transport. There is a pressing need to accelerate the development of advanced fuels and associated technologies in order to promote sustainable development, combat climate change and mitigate transportation GHG emissions. Biofuels as well as other emissions-free transportation technologies will be needed to decarbonize heavy transport modes like marine vessels and aeroplanes, and over the next couple of years new technologies must come to market.

Narrative:

Maritime transportation

International maritime activity represents 90% of all shipping energy use, and ship efficiency has not changed significantly in recent years. International tourism is also on the rise, and as such the amount of passengers on cruise ships and ferries is increasing. This means that the maritime sector accounts for high emissions as most of the worlds traded goods are transported by sea. To counter this, the International Maritime Organization (IMO) has set the goal of at least halving emissions from international shipping by 2050, and some private companies like Mærsk has set their ambitions even higher. This will increase the demand for low and zero emissions solutions – both for the transportation of goods and for the transportation of passengers.

Aviation

The jet aviation industry has advanced quite far in the standardisation of biofuels as drop-in fuels to match the performance of kerosene. Biofuels have not achieved large commercial production yet, however they have proved their feasibility for a range of aeroplanes from a number of manufacturers. Compressed Biogas generated from waste agricultural residues and MSW is also catching up as an alternate to CNG in long distance heavy transport.

Long Distance Heavy Transport
Emissions have grown faster for heavy-duty vehicles (HDVs) than for any other transport mode – 2.4% annually since 2000. On a positive note, more countries are implementing new fuel economy and CO2 emissions standards for HDVs. Fuel economy standards and green freight programmes are the two most

promising policy instruments in the near- and mid-term to improve the efficiency of road freight services. But in the longer term, it will be vital to gradually shift away from today's near complete dependence on petroleum-based fuels, and develop alternative emissions-free solutions, such as clean hydrogen and electrification.

Technologies

A number of technologies are being explored. Within maritime transport using less energy through enhanced ship design and slower sailing is one way forward. Using cleaner fuels is another obvious way, and a variety of alternative fuel options like biofuels, compressed natural gas (CNG), renewable natural gas (RNG), and hydrogen, as well as electrification are being explored and used in a range of different settings.

Biofuels will be needed to decarbonise heavy transport modes (aeroplanes, marine vessels and long-haul trucks) that rely on liquid fuels. Over the next 40 years, new biofuel technologies must come to the market, using less land and showing better overall efficiencies, to contribute to meeting the roadmap targets. Up to 27% biofuels will be needed by 2050 corresponding to 65 EJ primary biomass – equivalent to 100 million ha.

For most HDVs, the suitability of electrification will depend upon continuing energy density improvements and cost reductions in lithium-based batteries. But for certain operations, such as city buses, a market for electric drive is emerging because of its suitability for buses' fixed routes and schedules, their frequent stops and municipalities' ambitions to reduce local air pollution.

However, radical new thinking and innovation is required if we are to move the sector significantly forward when it comes to long-haul fright, and create emissions-free transport.

Desired Outcomes:

- To challenge MI members and the private sector to think beyond the present status and propose plans to meet industry needs.
- Explore new business models and public-private partnerships for stakeholders.
- Explore the need for enabling infrastructure.
- Explore how the MI community may assist the development.

Guiding Questions:

1. What are key RD&D challenges within for example alternative fuels, ship design and electrification?

2. How do we create demand for innovation and global standards to move the sector significantly forward?

3. How do we create a green value chain in handling and logistics surrounding ports and airports?