資料36-4







DNV Environment outlook 2022

Presentation by DNV on February 10th

Useful view in context of Frontier economic study

Two models included: Best Estimate (BE) and 1.5 C° scenario. In the BE we end up with a climate warming of 2.2 C° until 2100, the ETO points out the gaps and the urgently needed policy measures to reach the goals set in Paris.

Main discussion points after presentation:

- Energy demand development: DNV ETO 2022 sees a build up until 2040. From 2040 on there will be first a stagnation and then a reduction of energy demand due to better technologies enabling a higher energy efficiency.
- Technology development in the marine fuel industry: DNV does not select a predominant fuel in shipping and does not exclude the option that there will be several technologies and fuels in the future.
- Future car engines: clear statement by DNV that there is only a minimal possibility that some technology enabling hydrogen and hydrogen arrives on the market -> mainly electrified future for the road sector.



Frontier Economics study for maritime industry

- Similar study as performed for FVV "Transformation of Mobility in the Climate-Neutral and Post-Fossil age" (Future Fuels: FVV Fuels Study IVb)
- First offer received (after delay due to illness)
- Ongoing discussion on financing



Miscellaneous activities

Presentation of the DNV Alternative Fuel Insight platform

- Overview of alternative fuel uptake (investment, bunkering)
- Platform only includes data from existing contracts, no modelling/outlook (planned in future)

White papers

- Biofuels: first draft written (T. Schutte) and reviewed final adjustments planned in June
- Methanol: first draft written by D. Schwarz not yet reviewed
 - ➤ Discussion on formaldehyde high-level information for methanol white paper → contact to be initiated with WG5
- Batteries: not enough experience in group contact to be initiated with Maritime Battery Forum on whether they already have a position or could supply the group with a paper concerning batteries