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Norwegian Public Roads
Administration

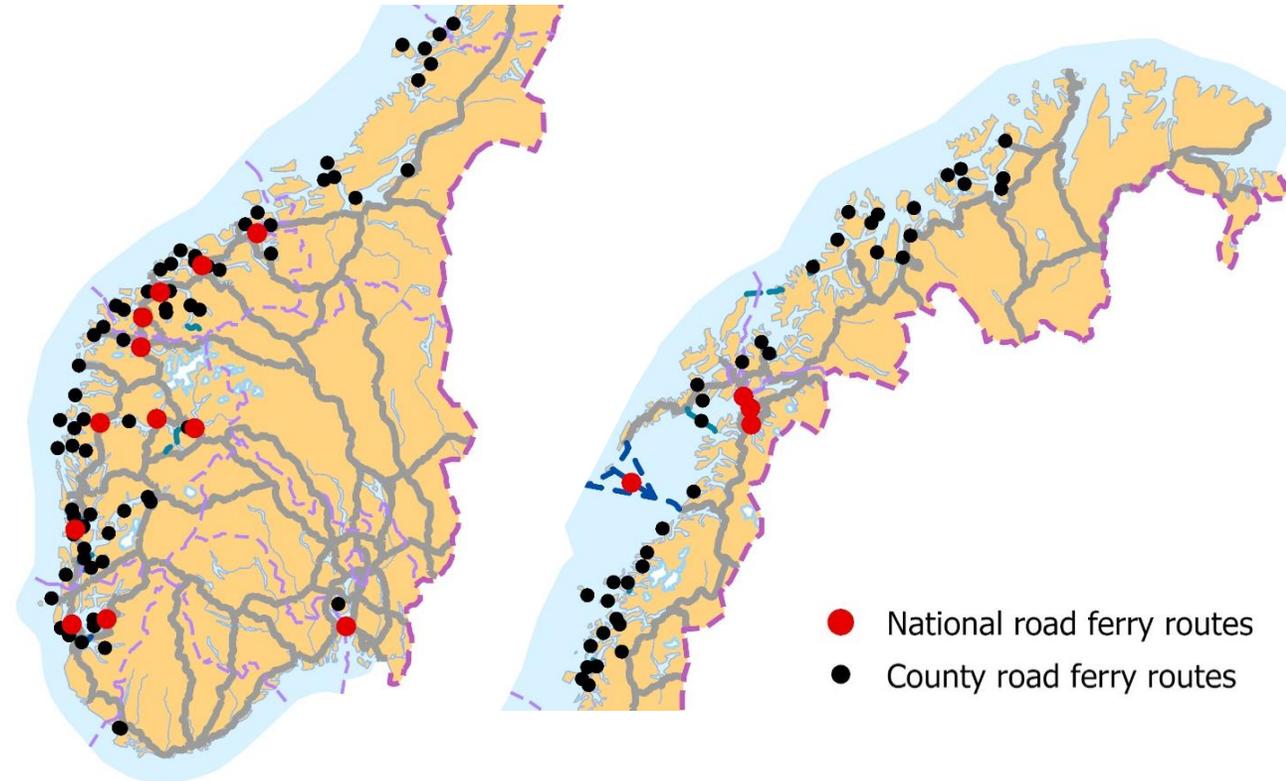
Senior advisor Joachim Rønnevik, Norwegian Public Roads Administration

The green shift in the Norwegian ferry market



The Norwegian ferry market

- 130 ferry routes and 200 ferries
- 22 mill. vehicles and 44 mill. passengers annually
- Routes operated by private ferry companies, through competitive tendering
- Annual turnover 600 million Euros, 50 % operating subsidies from the government



«The Norwegian *ferry* tale»



Liquefied natural gas (LNG)

(2000)



Battery-electric

(2015)



Hydrogen

(2022)

Battery powered and hybrid ferries

2015

2022



Battery powered and hybrid ferries

2015



2022



Hydrogen

2022

2024/2025-



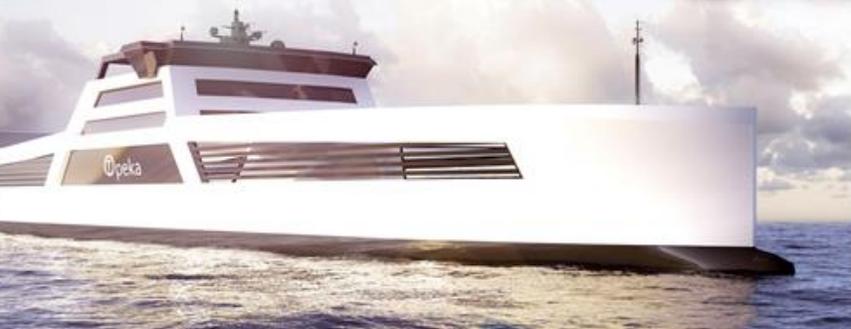
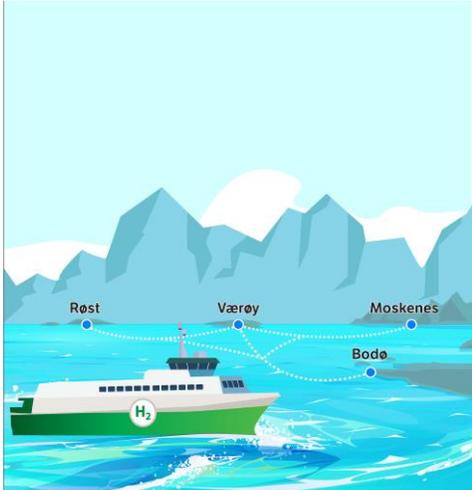
Hydrogen



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2022

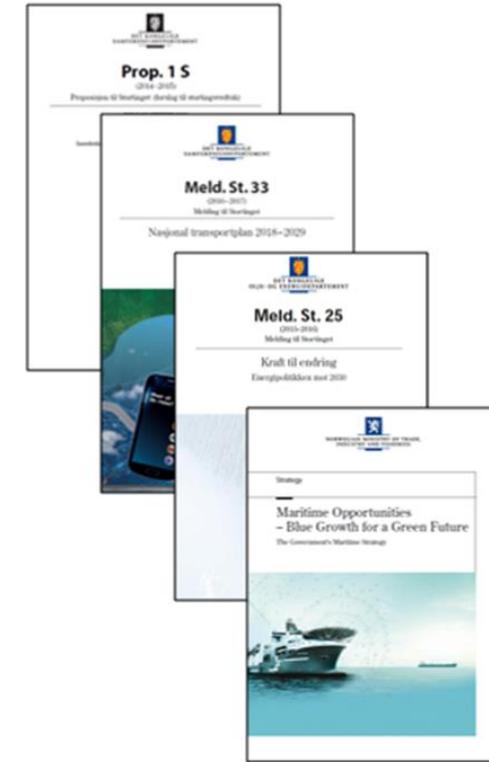
2024/2025-



Zero- and low emission technology

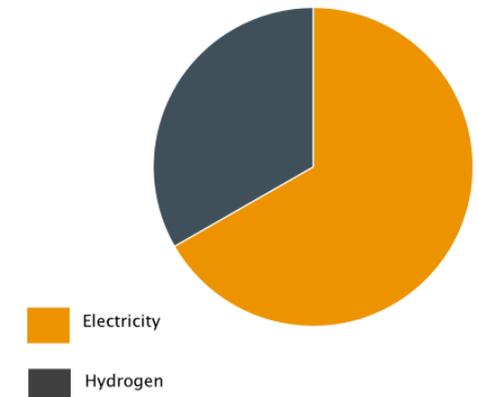
Success criteria/prerequisites

- Involvement and commitment from Norwegian authorities and NPRA management regarding the ambitions and direction of development
- Funding that reflects the level of ambition
- A competent and professional procurement organization that secures cost efficient procurement of ferry services
- Dialogue with the market
- Joint effort from the public procurers in the ferry market (critical mass)
- Consistent and predictable requirements
- Market development
 - Measures to secure the long term development of the ferry market
 - Individual tenders – assessment of economic risk on the ferry companies and predictable conditions



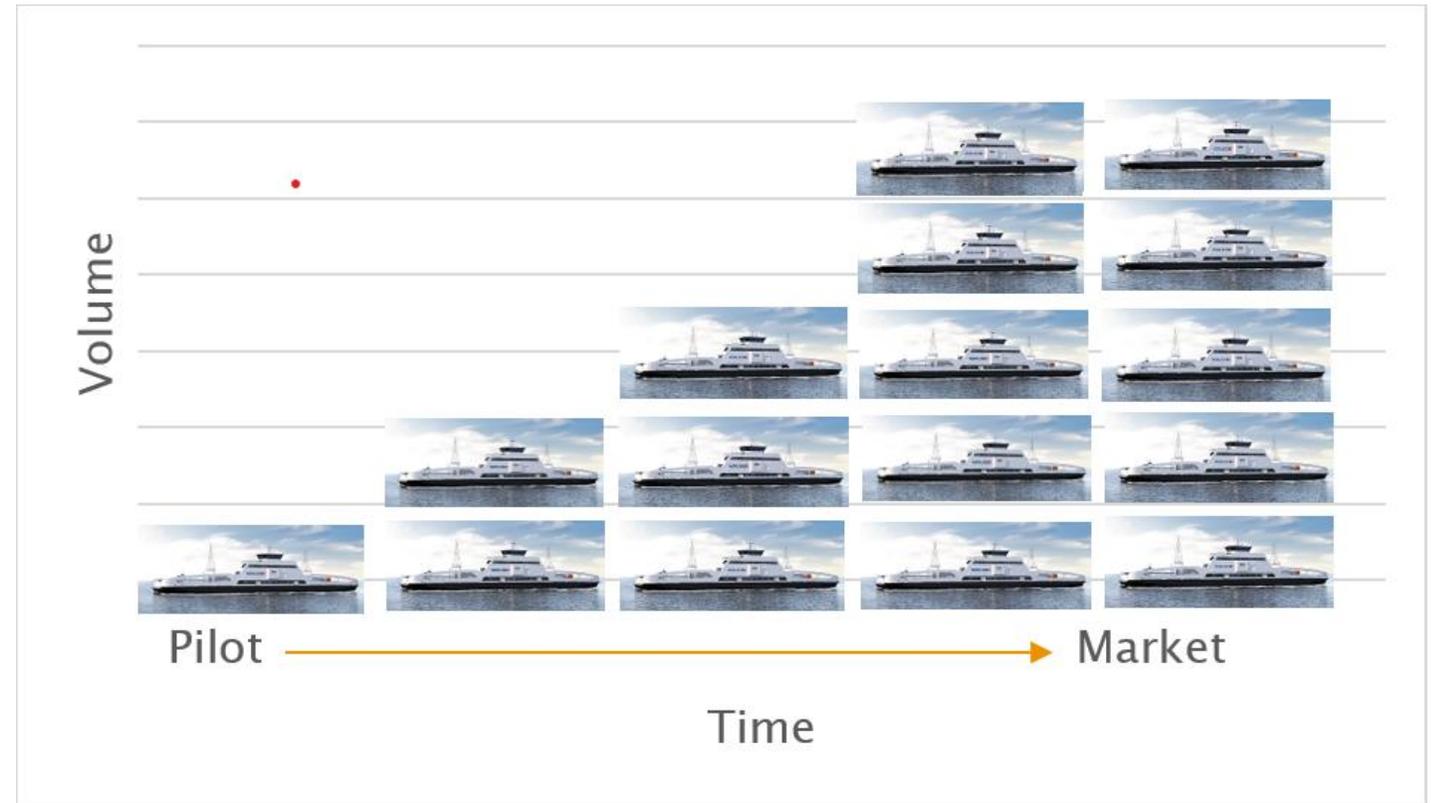
Future mix of energy in the Norwegian ferry market

- 2/3 of the energy from electricity
- 1/3 – Hydrogen
- Biofuel as back up



Innovation and technological development – lessons learned

- «First mover»
- From pilot to market
 - Incremental innovation
 - Development of the value chain
 - Cost/availability





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Thank you for the attention!



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