

Fredericia workshop

Objectives:

- Realising Circularity and Industrial Symbiosis
- Explore strategies to enhance public support/involvement
- Exchange of ideas how to speed up Nordic deployment, permitting - collaboration

**Hydrogen, electrofuels,
CCU and CCS
in a Nordic context**

2022



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Nordic Energy Research - What we do

- Nordic Energy Research is the platform for cooperative energy research and policy development under the Nordic Council of Ministers – the intergovernmental body between Denmark, Finland, Iceland, Norway and Sweden, Greenland, Åland and the Faroe Islands.
- We fund R&D to promote a sustainable future
- We contribute to policy-making

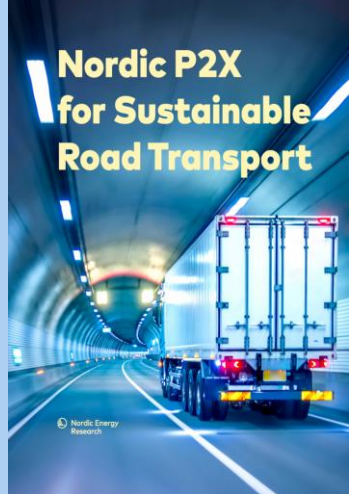
Hydrogen, electrofuels, CCU and CCUS

Completed:

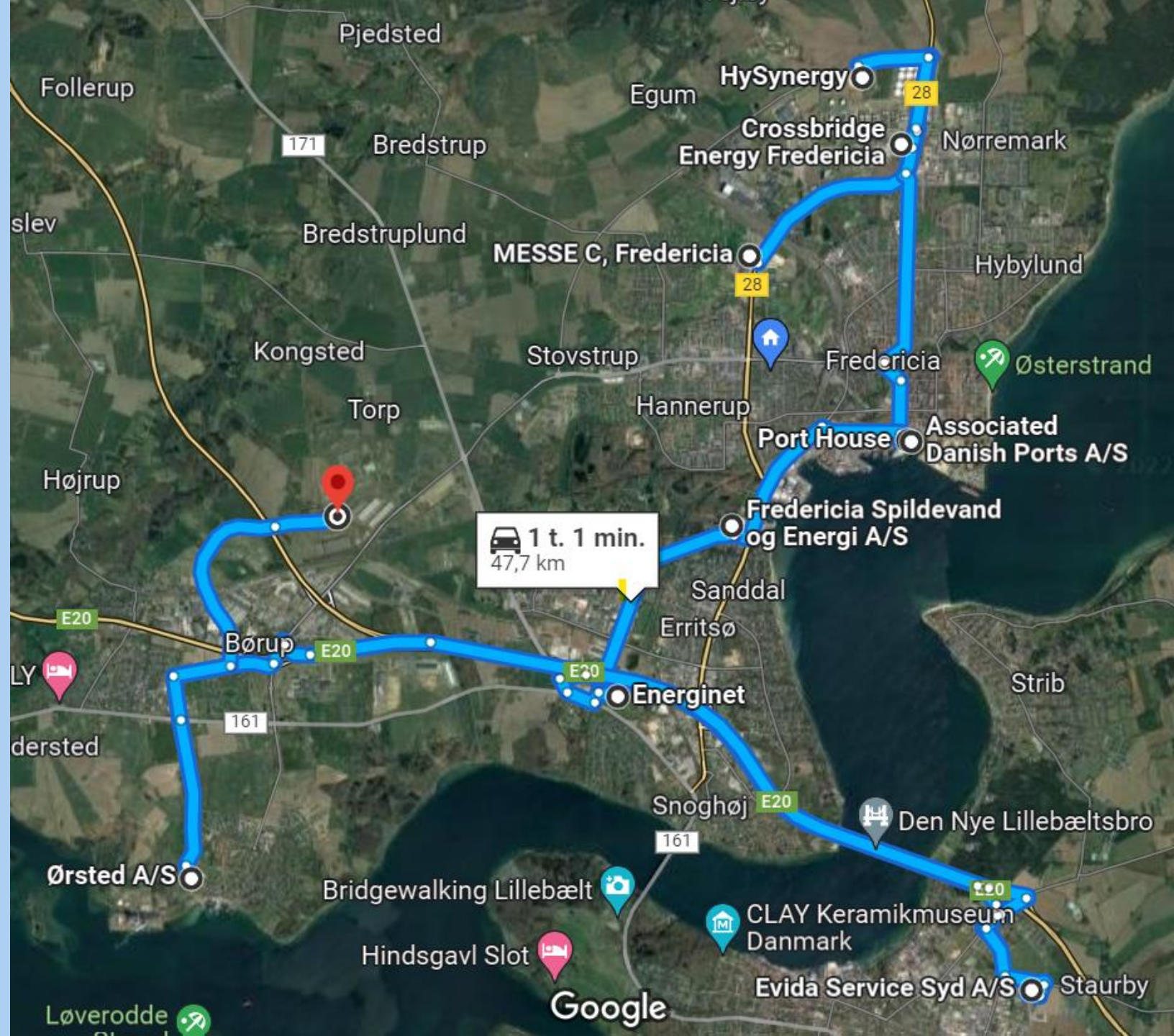
- Sustainable Aviation Fuels - e-fuels
- SHIFT - flagship programme

Ongoing:

- Report
- NGCCUS
- NMTEP – Phase 1
- Nordic hydrogen valleys as energy hubs – focus on ports



An industrial symbiosis in the making!





Carbon Capture & Storage

- Existing oil and gas infrastructure. (Denmark and Norway)
- Iceland pilots on CarbFix and DAC.
- Sweden and Finland might export CO₂.



Hard-to-abate sectors

- Fossil-free steel
- CCUS technologies for cement
- E-fuels in agriculture
- Hydrogen for heavy transport, short-distance shipping & aviation
- Matching hydrogen & e-fuels with cheap renewables
- Improves system flexibility



Nordic level, I

- Involve stakeholders to address financial, technical, regulatory challenges
- Develop a Nordic model for hydrogen distribution and storage
- Develop the skills needed for hydrogen & electro-fuel production & CCUS



Nordic level, part II

- Establish financial incentives: CO₂ -pricing, taxation, or reversed auctioning
- Develop a Nordic network for carbon storage facilities
- Collaborate on regulatory measures, incl. Art. 6 of the London Protocol
- Develop cross-Nordic training programmes
- Map the Nordic potential for biomass



National level

- Study the potential for hydrogen and CO₂-storage
- Ratify the amendment to Article 6 in the London Protocol

THE LONDON CONVENTION AND PROTOCOL:

THEIR ROLE AND CONTRIBUTION TO PROTECTION OF THE MARINE ENVIRONMENT

Takeaway lessons from Stockholm launch

- Predictability
- Permitting
- Pricing



Speakers at Fredericia workshop

- **Tommy Rachlitz-Nielsen**, Chairman of “Klima-, Energi- og Miljøudvalget”
- **Anders Horsbøl**, Aalborg University
- **Søren Schmidt Thomsen**, Triangle Energy Alliance
- **Per Møller**, Kalundborg Symbiosis
- **Anne Marie Gotfredsen**, Fredericia Spildevand
- **Peter Daugbjerg**, Sludge2Fuel
- **Nicolai Sørensen**, Energinet.dk

Moderators: Maj Dang Trong and Svend Søyland, NER

ADP, Fredericia

Site visits

Fredricia
Spildevand

Skærbækværket



Nordic hydrogen valleys as energy hubs

- 80 MNOK (4 consortia 20 MNOK)
- Q&A webinar 10 October.
- Submission by: 31 October 2022
- Selection completed- February 2023

[Call text](#)





Thank you for your attention!



Nordic Energy
Research