Solving The Arctic Energy Challenge: Examples of Green Transition on Svalbard and the Faroe Islands

Agenda:
11.15 - Welcome and Introduction to the Arctic Energy Situation
   Kevin Johnsen
11.30 - The Future Energy System in Longyearbyen
   Hans-Kristian Ringkjøb
11.45 - Heat Supply in Leirvík – A Case Study
   Morten Hørmann
12.00 - Q&A
Introduction to the Arctic Energy Situation

Kevin Johnsen
Adviser, Nordic Energy Research
What we do

• We are under the auspices of the Nordic Council of Ministers – the intergovernmental body between Denmark, Finland, Iceland, Norway and Sweden.
• We fund R&D to promote a sustainable future
• We contribute to policy-making
What we wanted to do:

• Build on the experiences from the Nordic Energy Technology Perspectives 2016 (NETP)

• Produce a coherent analysis of the energy system in the west Nordics and the arctic areas

• Find research areas for more Nordic cooperation
Web page with interactive map, webinars and modelling-resources:
Introduction to the Arctic Energy Situation

Kevin Johnsen
Adviser, Nordic Energy Research
CO₂-emissions

Qatar = 35.73 tonnes CO₂ per capita
ENERGY IN THE WEST NORDICS AND THE ARCTIC

Scenario Analysis:
- CO₂ targets based on IEA policy scenarios

<table>
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<tr>
<th>CO₂ tonnes per capita</th>
<th>Greenland</th>
<th>Iceland</th>
<th>Faroe Islands</th>
<th>Svalbard and Jan Mayen</th>
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Case Studies:
1. Electrification of road transport
2. Igaliku hybrid energy supply
3. Electrification of fishing vessels
4. Tourism
5. Decarbonizing Svalbard
ENERGY IN THE WEST NORDICS AND THE ARCTIC

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Important:
- No taxes
- No minimum threshold for economic gains
- No financing hurdles
Scenario Analysis: Renewable energy is cost efficient

This happens without imposing restrictions on CO₂ emissions

Disclaimer: model results
Scenario Analysis: Electrification of heating is already behind schedule

- It's cheap
- It's flexible
- It has great synergies

Disclaimer: model results
### Case studies: Electrification of road transport

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<tr>
<td><strong>Climate hardened batteries</strong></td>
<td><em>Two solutions close to commercialisation</em></td>
</tr>
<tr>
<td><strong>Electric off-road vehicles</strong></td>
<td><em>Wide range of options and even further rapid development in coming years</em></td>
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<td><strong>Electric heavy vehicles (busses and lorries)</strong></td>
<td><em>City busses and short/medium range lorries are available</em></td>
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<td><em>Long range remains a challenge</em></td>
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Taiga electric snowmobile
Case studies:
Electrification of road transport

Number of vehicles by type

- Cars: 48%
- Buses: 0%
- Vans: 5%
- Trucks/lorries: 2%
- Snowmobiles: 10%
- ATV & 4-wheeler: 35%
Case studies: Electrification of fishing vessels

"In five years' time, we will see battery-driven fishing boats as completely normal."

(Erik Ianssen, Selfa Arctic A/S)

Fuel cells for large long distance vessels
Several pilot projects with cruise ships and ferries

Photo: Selfa/Siemens
Case studies: Electrification of fishing vessels

Scenarios for reduction potentials from electrification of diesel powered fishing vessels
Download report and more at:

www.nordicenergy.org/project/eva/
Thank you for your attention!

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