

HyNor and the Scandinavian Hydrogen Highway Partnership NAHA conference Reykjavik, April 24, 2008

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Chairman SHHP, Board member HyNor

Agenda

- About StatoilHydro Hydrogen
- HyNor – The Hydrogen Road of Norway
- Scandinavian Hydrogen Highway Partnership
- Nordic Collaboration in hydrogen for transport





A company with ambitions for global growth

- Maximise value creation and exploit the whole potential of the Norwegian continental shelf
- Build strong and internationally expansive upstream positions
- Exploit the company's world-leading technology and ability to execute projects
- Strengthen the position in the gas value chain and the downstream business
- Build a stronger, sustainable position in the field of new energy

New energy portfolio



Wind



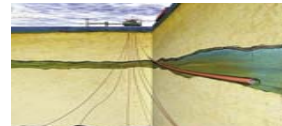
Biofuel



Tidal



Wave



CCS



Hydrogen



Energy systems



Kyoto CDM/JI



Developing Hydrogen as an energy carrier

- Participating in market preparation activities
- Developing Hydrogen as a vehicle fuel
- Developing Renewable Hydrogen Systems
- Developing technology for Hydrogen production and supply

StatoilHydro delivers hydrogen solutions for Europe

- **ECTOS/HyFLEET:CUTE** –
Hydrogen station Reykjavik
- **CUTE/HyFLEET:CUTE** –
Hydrogen station Hamburg
- **CEP Berlin**
Hydrogen production Messedam
- **Utsira Wind-Hydrogen plant**
- **HyNor** –
Grenland Hydrogen station



HyNor

HyNor Objective

- The HyNor project was established in 2003 with the objective of a broad market demonstration of hydrogen for transportation in Norway, described by the following vision:

“In 2009 it shall be possible to drive hydrogen fuelled vehicles between Stavanger and Oslo ”

- This is to be achieved by establishing local nodes along the 580 km long road – “The hydrogen road of Norway”



The Hydrogen Road of Norway

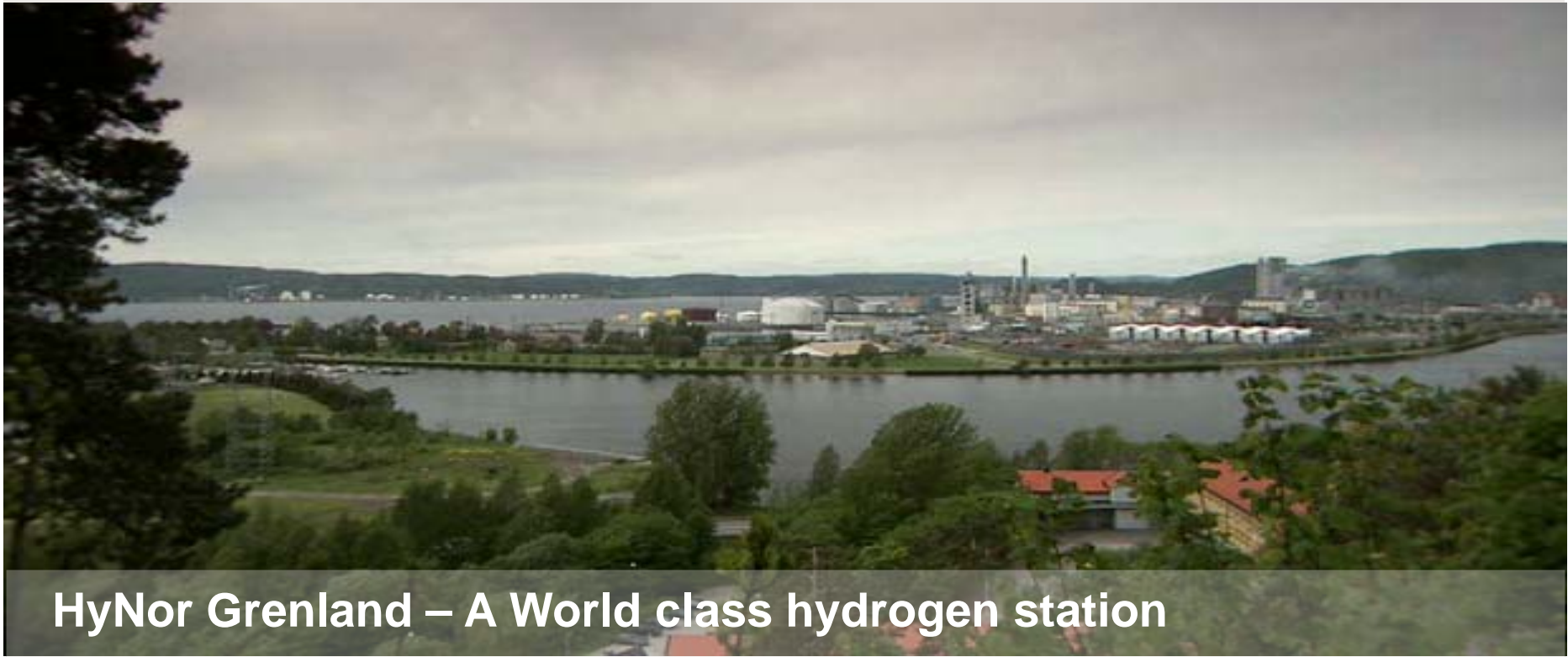
The HyNor nodes





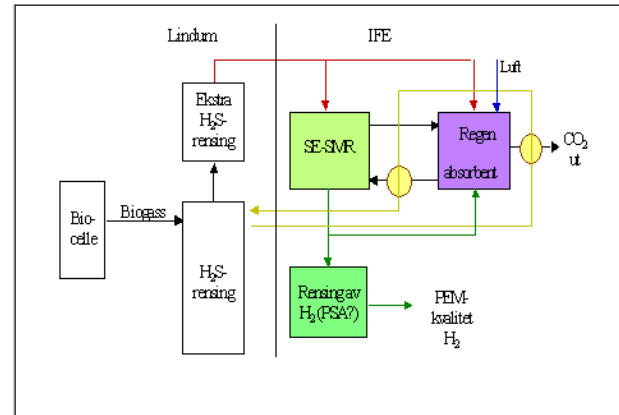
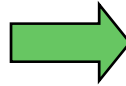
HyNor Stavanger – Norway's 1st Hydrogen Station

- Opened August 2006 as an integrated part of a petrol station
- Hydrogen, NaturalHy (8% H₂ in Natural Gas) and Natural Gas
- Start-up with trucked in hydrogen
- Phase II with production of H₂ from Natural gas with CO₂ handling or from biogas + second filling station



HyNor Grenland – A World class hydrogen station

- Several technology innovations
- Direct linked to large scale hydrogen production
- Scalable solution that can handle increases in traffic
- Possibility for supply and back-up for other HyNor stations
- 9 hydrogen cars in operation at the station



H₂

HyNor Drammen – Hydrogen from local waste

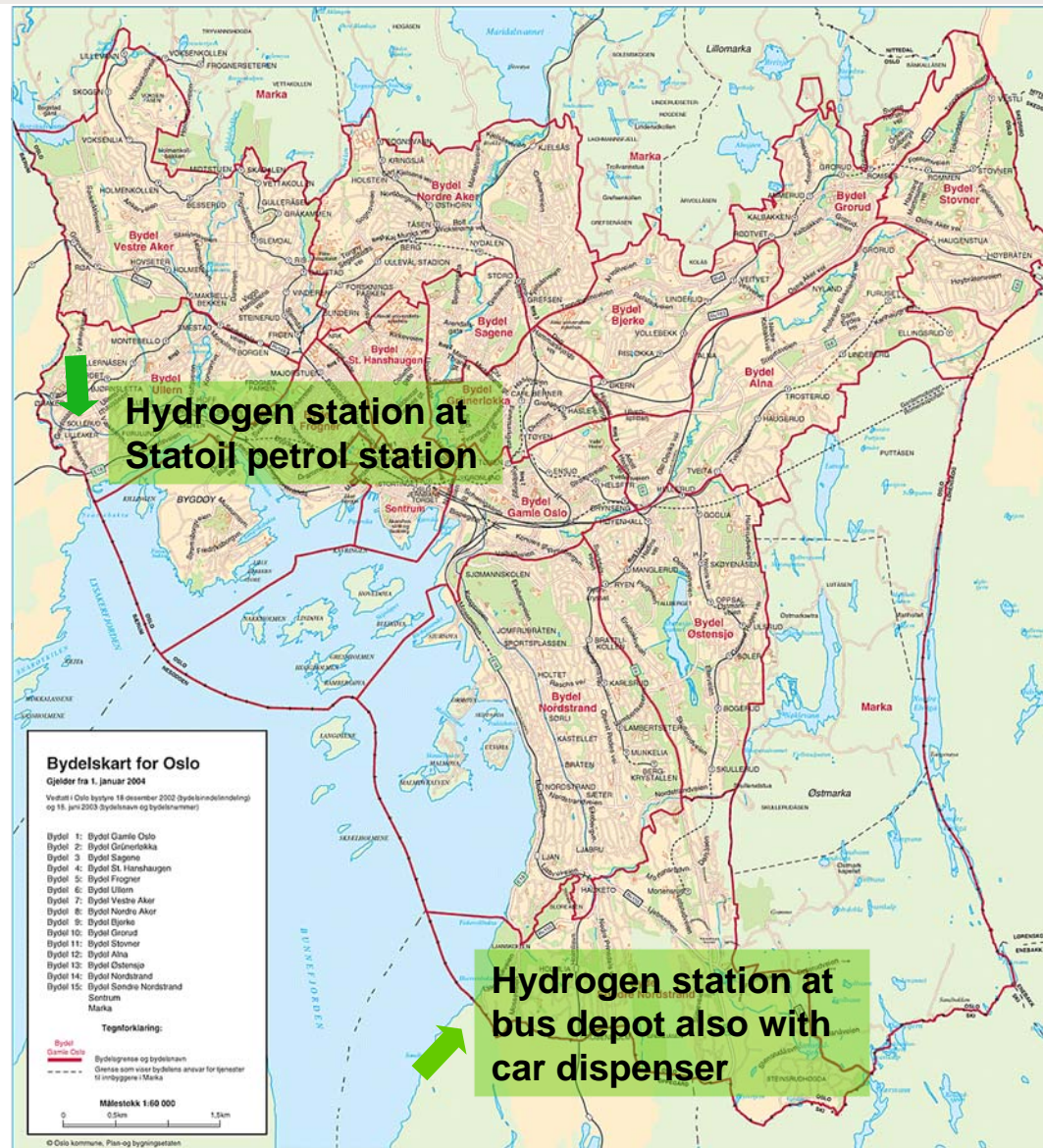
- Hydrogen production from local landfill
- Transport of hydrogen to Statoil station in Drammen
- Plans for a few cars, and one bus
- Will be in operation by early 2009



HyNor Oslo – Hydrogen in Public Transport

- Plan for 4 buses, 5 taxis and 15 cars
- Production of hydrogen from water with electrolysis, demonstrating new world-class technology
- Will be in operation in 2009

HyNor Oslo



VEHICLE FLEET IN HyNOR



Hydrogen Prius:
converted to
hydrogen operation
by Quantum US, 15
cars in Norway



Think Hydrogen:
A hydrogen/electric
hybrid, 5 cars to
HyNor in 2008/2009



Mazda RX8:
A hydrogen/petrol,
dual fuel, 30-40 cars
to HyNor/SHHP in
2008/2009



Buses:
Plans for 8
buses in HyNor
2009-2010

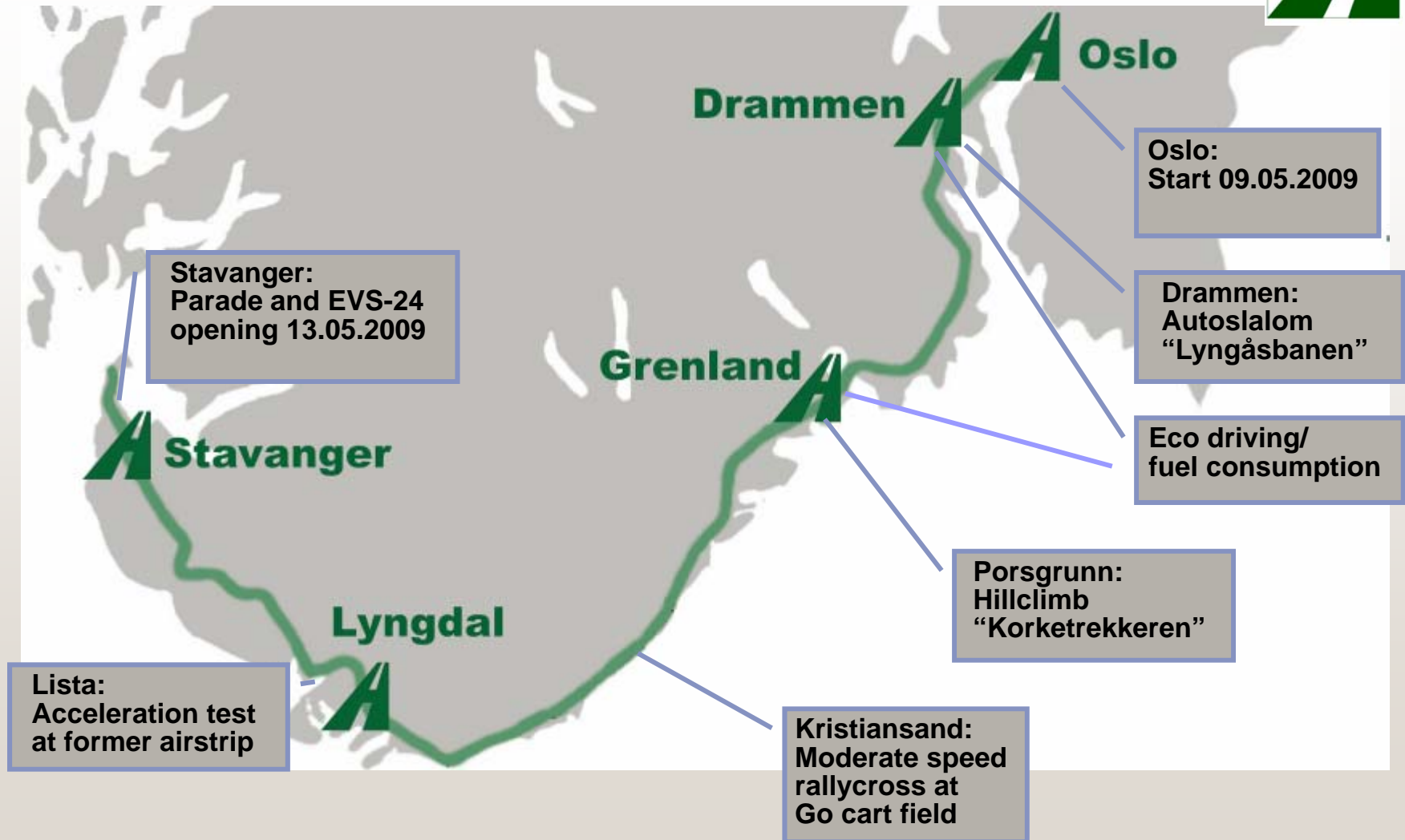


More cars:
Dialogue
ongoing with
several car
manufacturers
for larger series
of cars to
HyNor and
SHHP



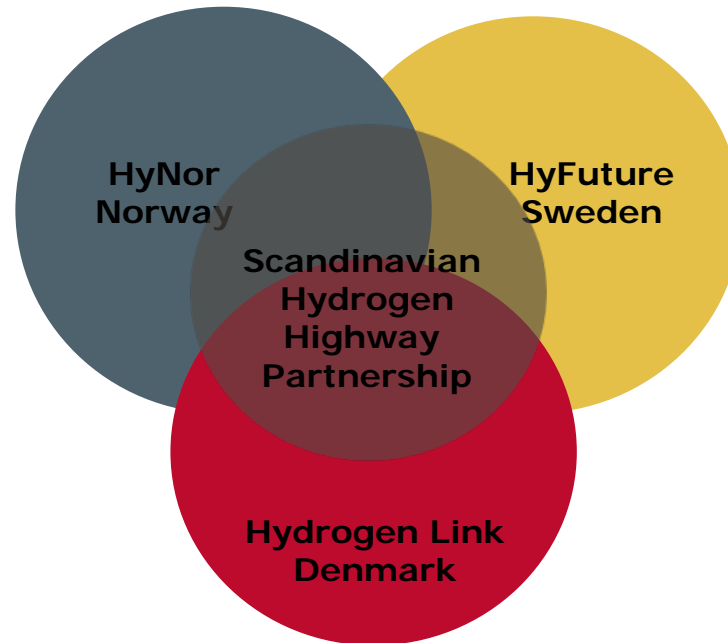
Agreement between Mazda and HyNor signed November 7, 2007

The Viking Rally



The Scandinavian Hydrogen Highway Partnership

JOINING FORCES



Making the Scandinavian Region one of the first regions in Europe where hydrogen is commercially available and used in a network of refuelling stations



Building a network of hydrogen stations



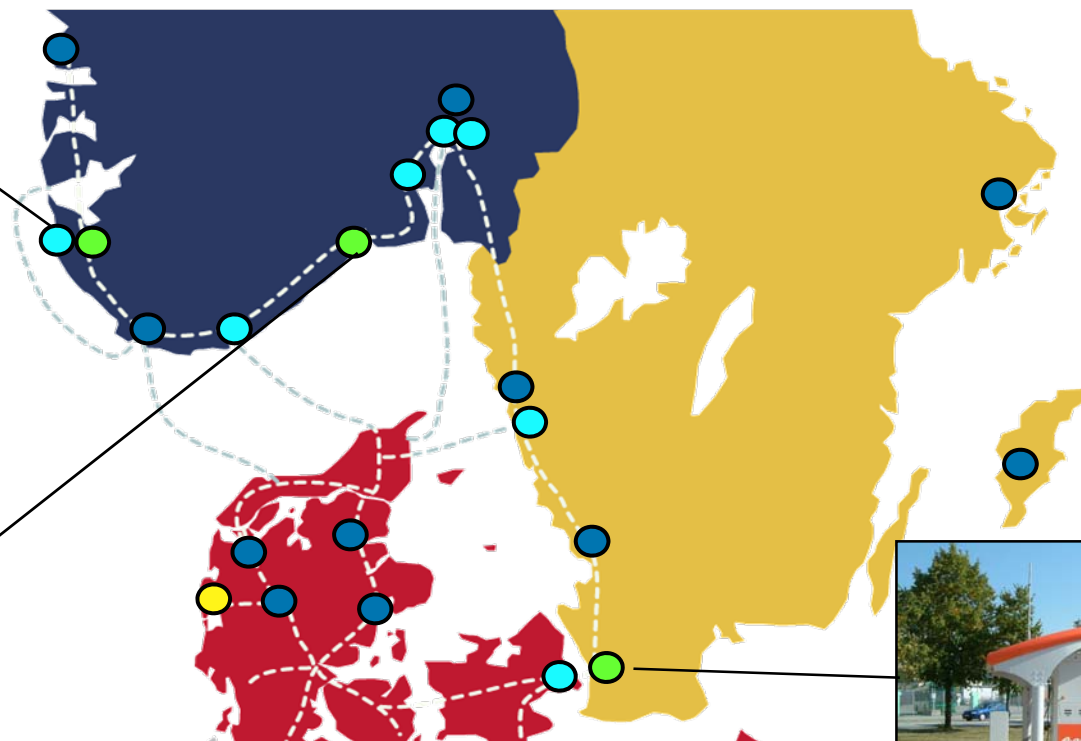
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Stavanger



Grenland



- 3 stations are opened
- 1 will open in 2008
- 7 planned for 2009
- 11 sites under evaluation



Malmö

RAISING OUR AMBITIONS

- We are looking at the next level of development for 2008 – 2015
 - SHHP aims to become a Lighthouse Project in EU
- A network of Hydrogen stations
 - 20 stations
 - 15 satellite stations
- A large fleet of vehicles
 - 100 buses
 - 500 cars
 - 500 speciality vehicles



Nordic collaboration in the transport sector

- SHHP links with Iceland and Finland in network project
- Strong links between Iceland, Norway and Denmark
 - StatoilHydro technology in Electrolyser based hydrogen station in Reykjavik
 - H2Logic (DK) partner in the Fuel cell ship project in Iceland and Think (N)
 - Close cooperation on the fleet Hydrogen Prius
- The Nordic countries are playing an important role in hydrogen development
 - Today there are 4 hydrogen stations in operation, 5 by June this year, by end of 2009 the plan is to have 13 stations in operation
 - Current car fleet counts 28 hydrogen cars, concrete plans for 70 – 80 vehicles by end 2009



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