

Hydrogen – gaining momentum in Norway

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RENEWABLE ENERGY HEAVEN

VAST MAJORITY: HYDRO

CHEAP & RENEWABLE: 98%

NET ANNUAL EXPORT: ~10 TWH

BEST WIND CONDITIONS IN EUROPE

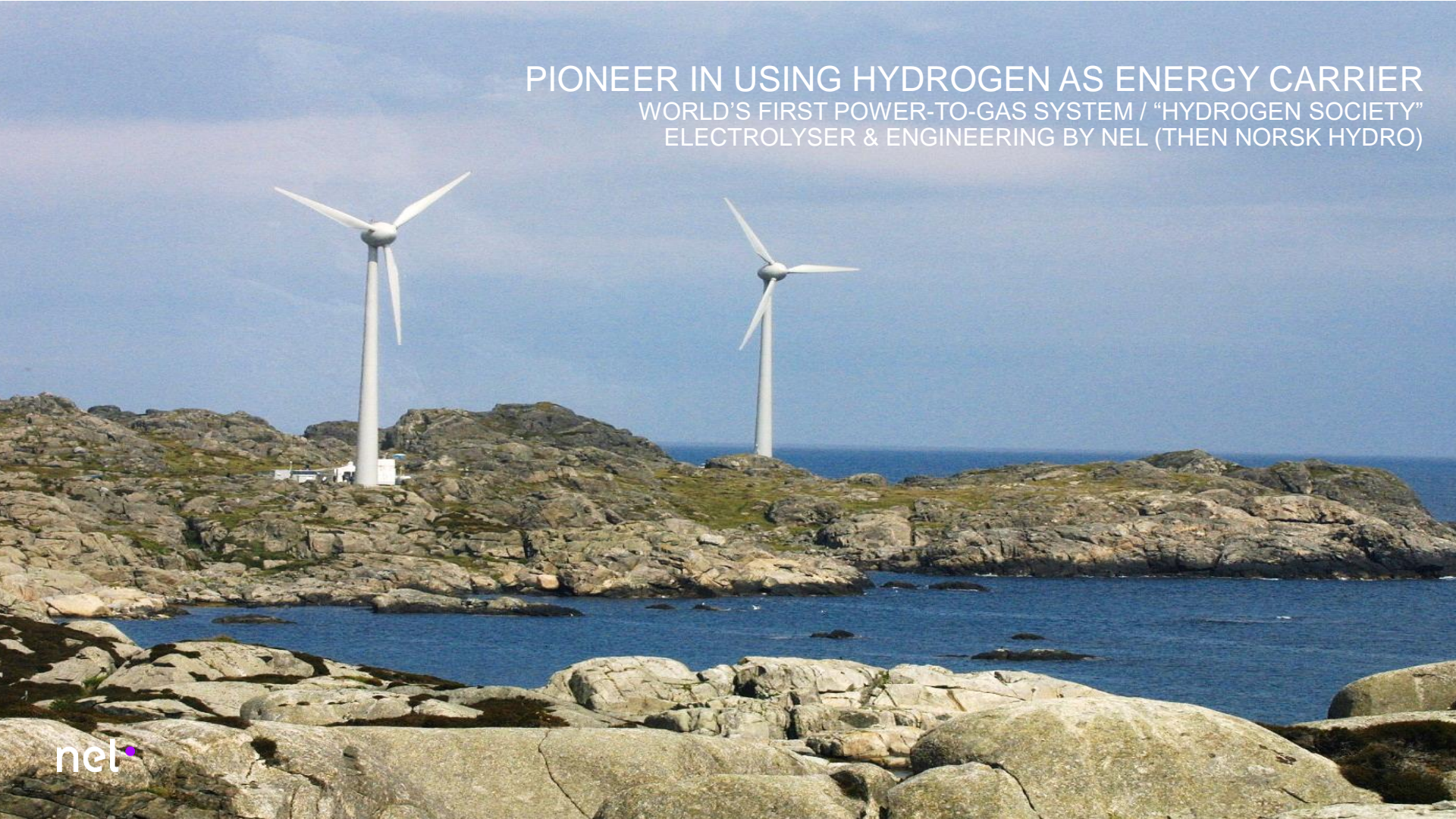
An aerial photograph of a winding road in a mountain valley. The road is highlighted with a vibrant, multi-colored light trail that glows in shades of yellow, orange, and red. The surrounding landscape is rugged and mountainous, with a river or stream visible in the lower part of the valley. The sky is a pale, hazy blue.

ZERO-EMISSION VEHICLE HEAVEN

PURCHASE TAX AND VAT EXEMPTION
ACCESS TO PUBLIC TRANSPORT LANES
FREE DRIVING ON TOLL ROADS AND FERRIES
FREE PUBLIC PARKING – AND CHARGING
90% DISCOUNT ON ANNUAL ROAD FEE

~130,000 BEVs in 7 years
20%+ SALES SHARE

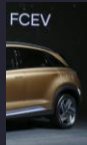
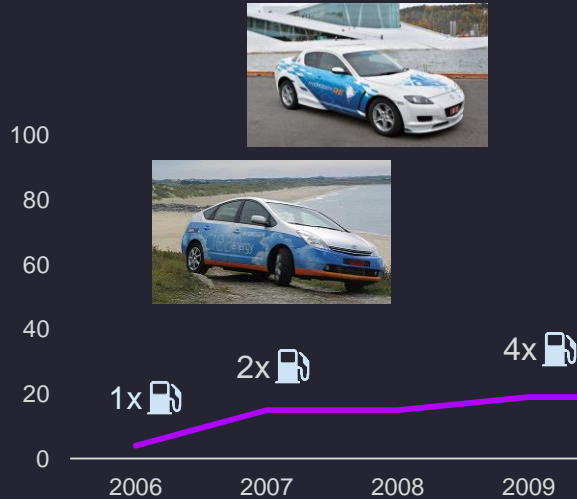
PIONEER IN USING HYDROGEN AS ENERGY CARRIER
WORLD'S FIRST POWER-TO-GAS SYSTEM / "HYDROGEN SOCIETY"
ELECTROLYSER & ENGINEERING BY NEL (THEN NORSK HYDRO)



PIONEER IN INTRODUCING HYDROGEN VEHICLES & STATIONS

HYNOR-PROJECT DEMONSTRATED FEASIBILITY OF HYDROGEN FOR TRANSPORT
STATOIL AND HYDRO DEVELOPED HRS – TECHNOLOGY IN NEL TODAY

vehicles



2x?



Over the course of the period 36 cars and 4 stations are taken out of service
There is also one bus HRS and 5 buses in operation until end of 2017 – not counted above



ASKO HYDROGEN TRUCKS & MULTI-HOSE FUELING STATION

LOCATION: TRONDHEIM W/LOCAL SOLAR POWER
H2STATION® & ELECTROLYSER FROM NEL
CAN FUEL TRUCKS, FORK-LIFTS AND PASSENGER VEHICLES

UNO-X HYDROGEN FUELING STATION

LOCATION: KJØRBO W/LOCAL SOLAR POWER

H2STATION® & ELECTROLYSER FROM NEL

PAYMENT BY MOBILE APP

MOST USED STATION IN NORTHERN EUROPE

TARGET: 20 BY 2020

COVERING SOUTHERN NORWAY



HYDROGEN CAR FERRY FROM FISKERSTRAND

TARGET FOR COMPLETION: 2020

NATIONAL PROJECT TO HAVE A H₂ FERRY OPERATING BY 2021



HYDROGEN SPEED PASSENGER FERRY FROM BRØDRENE AA

30 M, 100 PASSENGERS, OPERATIONAL FROM 2021

ONE FERRY DISPLACES 500,000 LITER DIESEL PER YEAR





VIKING CRUISES
NORWEGIAN OWNED CRUISE LINER
230 M, 900 PASSENGER CRUISE SHIP FUELED BY LIQUID HYDROGEN

RAUMABANEN/NORDLANDSBANEN

114 / 729 KM WITHOUT OVERHEAD WIRES
STUDY FAVORS HYDROGEN TRAINS



SVALBARD

SOLAR PV AND HYDROGEN (IMPORTED) TO REPLACE COAL
CHEAPEST ALTERNATIVE, COMPARED TO MAINLAND CABLE



LARGE SCALE EXPORT OF HYDROGEN FROM NORWAY

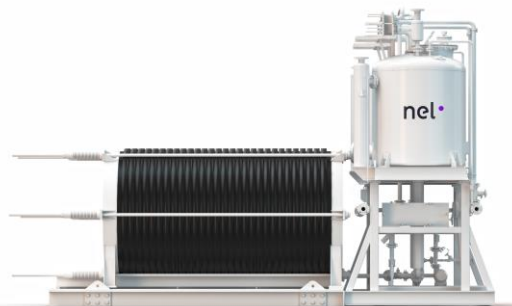
SUSTAINABLE, LIQUEFIED HYDROGEN OR GREEN AMMONIA – FROM CA.
2025

NORWEGIAN-JAPANESE PROJECT ONGOING TO EXPLORE POTENTIAL
58,8% capacity factor in Finnmark

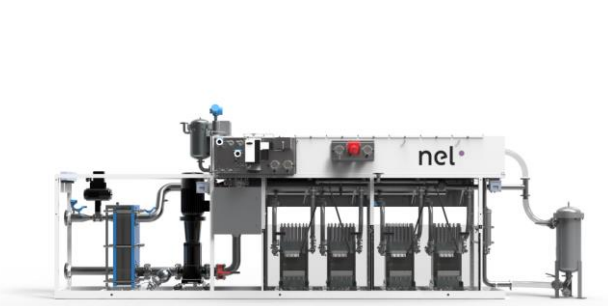


Nel Hydrogen

- Hydrogen technology company listed on the Oslo Stock Exchange (NEL.OSE)
- ~200 employees with facilities in Norway, Denmark and U.S.
- World's largest electrolyser manufacturer with 3500 units delivered in 80+ countries since 1927
- 30+ hydrogen fueling stations delivered 8 countries, entering the U.S. in 2018



Alkaline and PEM electrolysers
Converting water and electricity to hydrogen and oxygen



Hydrogen fueling stations
Fast fueling of all types of vehicles, enabling same long range as today

NEL HYDROGEN SOLUTIONS ENABLES:

FOSSIL PARITY

RENEWABLE HYDROGEN - OUTCOMPETING

1. **FOSSIL FUELS FOR THE TRANSPORT SECTOR**
2. **FOSSIL H₂ FOR THE INDUSTRY SECTOR**

A night sky with the Milky Way galaxy visible, overlooking a valley with city lights and mountains.

Thanks for the ride, dinosaurs!
We'll take it from here.