Norway’s green industry initiative

- The lowest carbon footprint in the world

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Senior Advisor
Royal Norwegian Embassy in Seoul

21 October, 2026

Norway

Innovation Norway

About Norway

Norway

Innovation Norway


Reykjavik
Iceland
Norwegian Sea
Sweden
Norway
Finland
Oslo
St Petersburg
Санкт-Петербург
Stockholm
Baltic Sea
Estonia
Ireland
United Kingdom
North Sea
Latvia
Moscow
Москва
Denmark
Lithuania
Pioneering Sustainability
London
Netherlands


MB
MN
IA
WI
NU
ON
MI
OH
WV
PA
NY
QC
NH
ME
NB
NL
PE
Greenland
Iceland
Japan
South Korea
Russia
Mongolia
China
Thailand
Myanmar
(Burma)
ML
WB
Nepal
OR
UK
JK
India
PB
TS
TN
RJ
MH
Pakistan
GJ
Afghanistan
Turkmenistan
Kazakhstan
Kyrgyzstan
Sweden
Norway
Finland
Ireland
United
Kingdom
Denmark
Germany
Poland
Belarus
Ukraine
France
Portugal
Spain
Austria
Western
Sahara
Morocco

10 key facts about Norway

1. Population: approx. 5.5 million
2. Area: 384483 km^2
3. Capital: Oslo
4. Three largest cities: Oslo area (1.1 million), Bergen (270k), Stavanger/Sandnes (234k)
5. Government: Constitutional monarchy
6. Currency: Norwegian krone (NOK)
7. Credit rating: One of 11 countries in the world with an AAA rating
8. Norway is a part of the European Economic Area (EEA) and a member of the EU's single market
9. Airports: 55 airports
10. Ports: Ship can call at over 3000 ports and quays in Norway

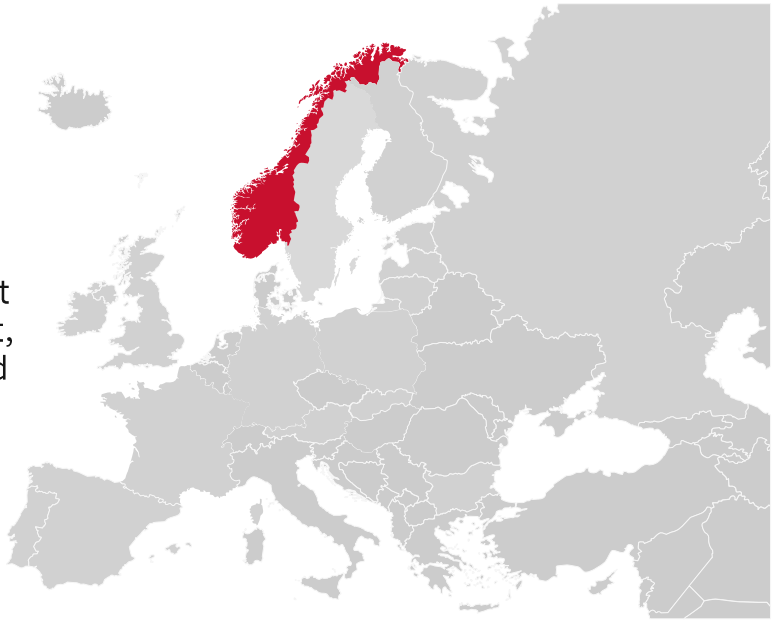
Norway



Norway – a World leader in sustainable & green industry

Economy
- Top 2 Global resilience index
- Top 9 Ease of doing Business
- Top 5 richest countries in the world

Education & competence
- Top 11 best higher education globally
- Free higher education



Industry
- World class processing industry
- Material expertise – key when manufacturers aim for minimal carbon footprint and the highest possible degree of reuse and recycling

Innovation
- Top 20 in Global Innovation index
- Expertise and product development through close interaction throughout the value chain - high degree of trust, willingness to share competence and technology.

Productivity
- Top 5 productivity in Europe
- High work ethic
- Equal opportunities

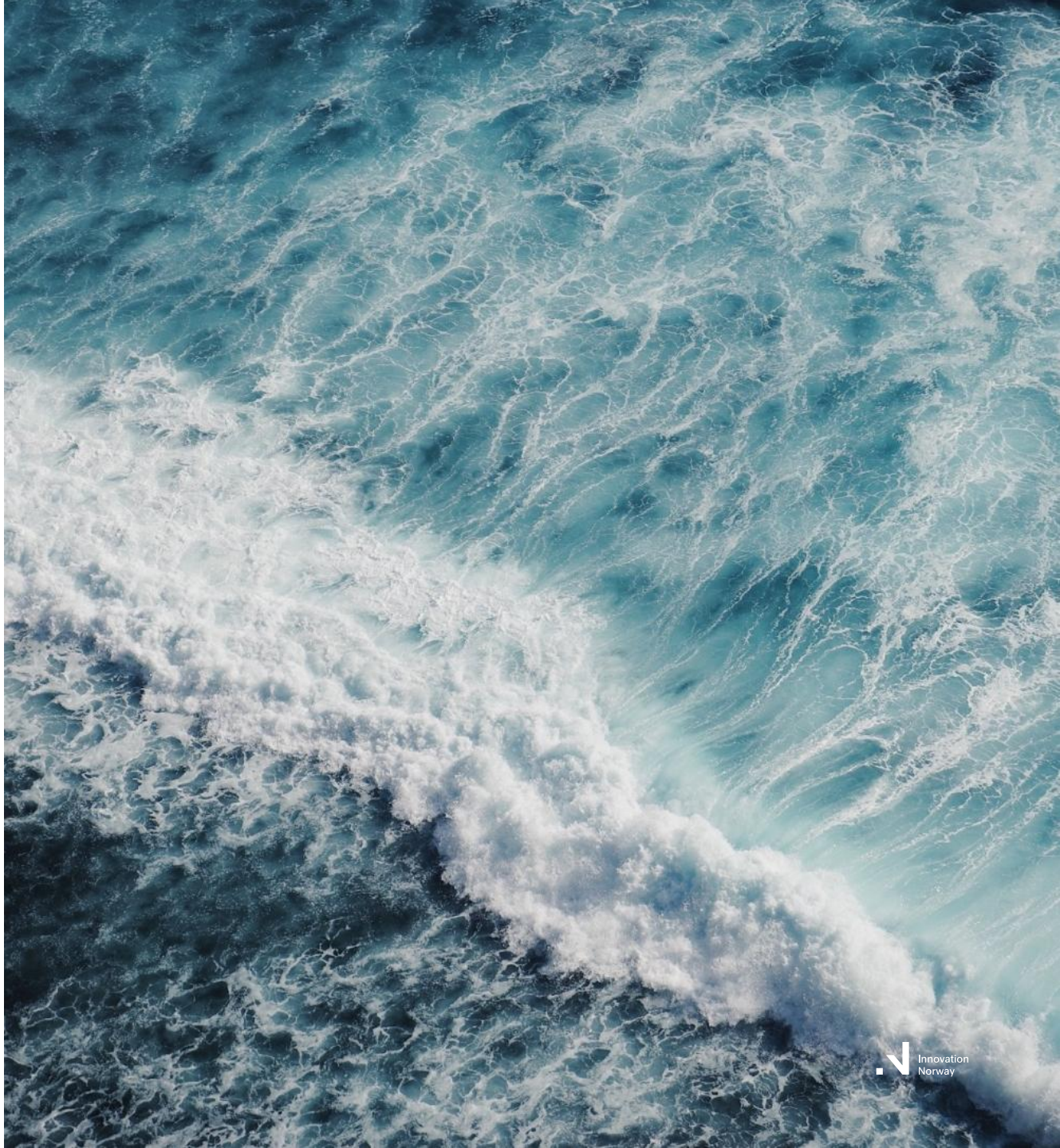
Climate
- Country sustainability index: #7
- >99% renewable energy
- CO2 reduction and GDP growth

Norway has...

An abundant supply of renewable energy

Norway has long been at the forefront of renewable energy production.

- ~100% renewable energy for electricity generation and stable power grid in all domestic regions.
- This abundant source of energy is the main reason for Norway's world-leading position in power-intensive industries



Norway

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Norway offers...

World-class expertise and technology

In Norway, technology and expertise are developed in close collaboration between the maritime and energy sectors.

Norway

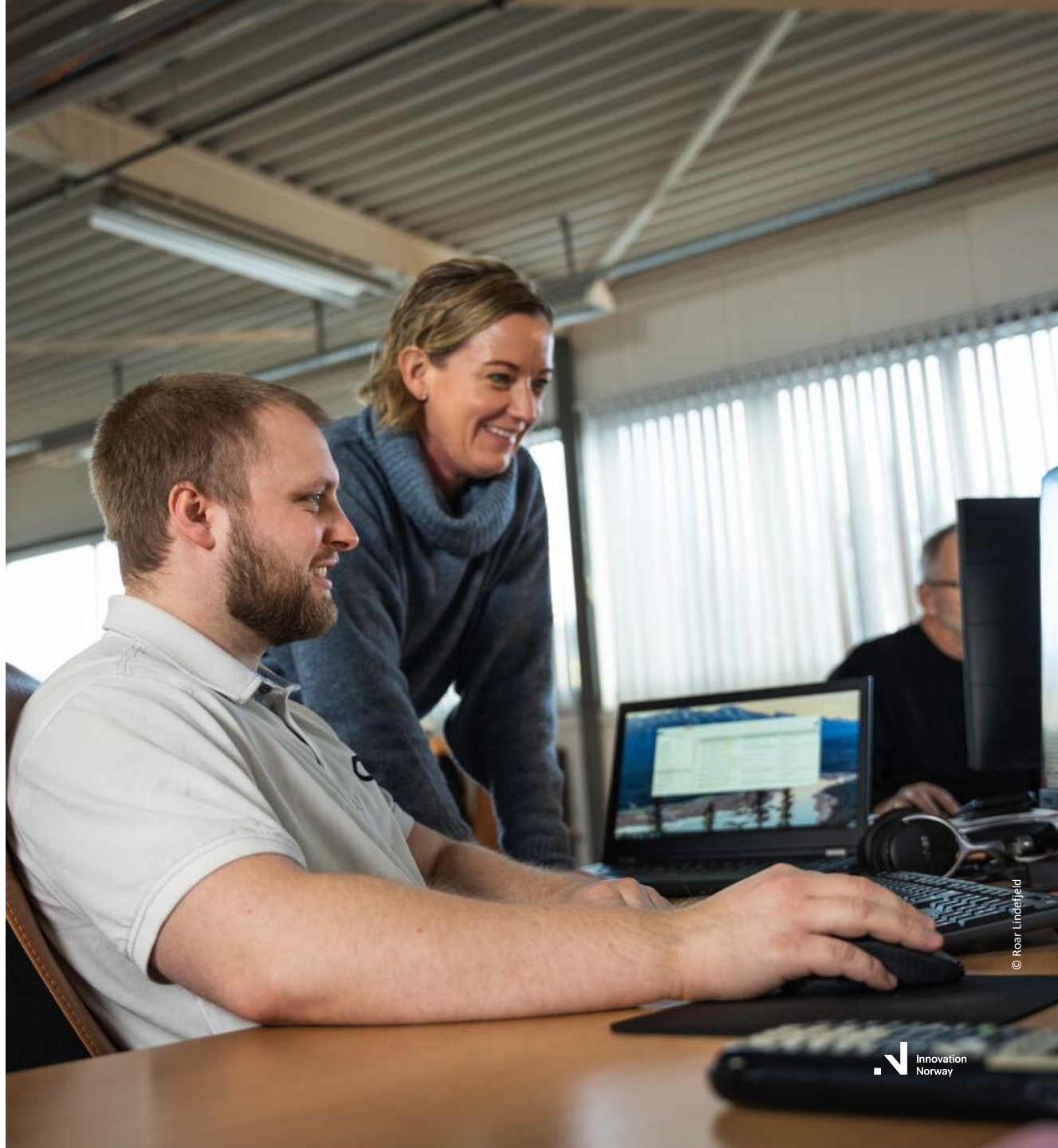


Norway offers...

A competent, independent and tech-savvy workforce

In Norway, technology competent and independent workforce from business clusters, universities and research institutes.

Highly skilled workforce and an industrial culture built on trust, cooperation and a flat hierarchy, yielding outstanding efficiency



Norway

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As a result,

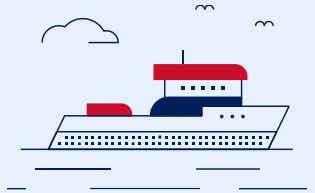
Norway's key focused industries

As the country producing with 'the lowest carbon footprint in the world', Norway focuses on:

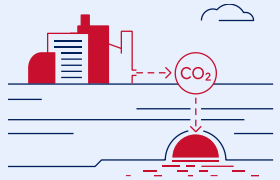
- Offshore wind
- Green maritime
- Hydrogen
- Battery
- Carbon Capture, Utilization & Storage (CCUS)
- Data centers
- Defence and Space



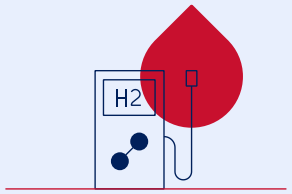
Offshore wind



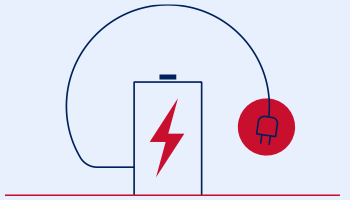
Green maritime



CCUS



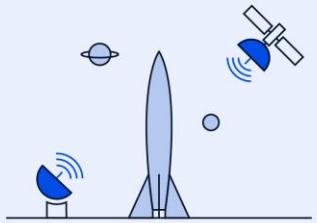
Hydrogen



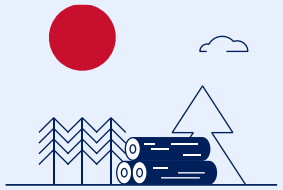
Battery



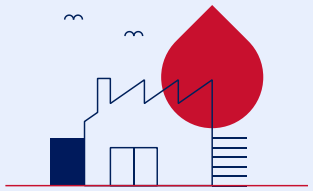
Data centers



Space and Defence



Circular & bioeconomy



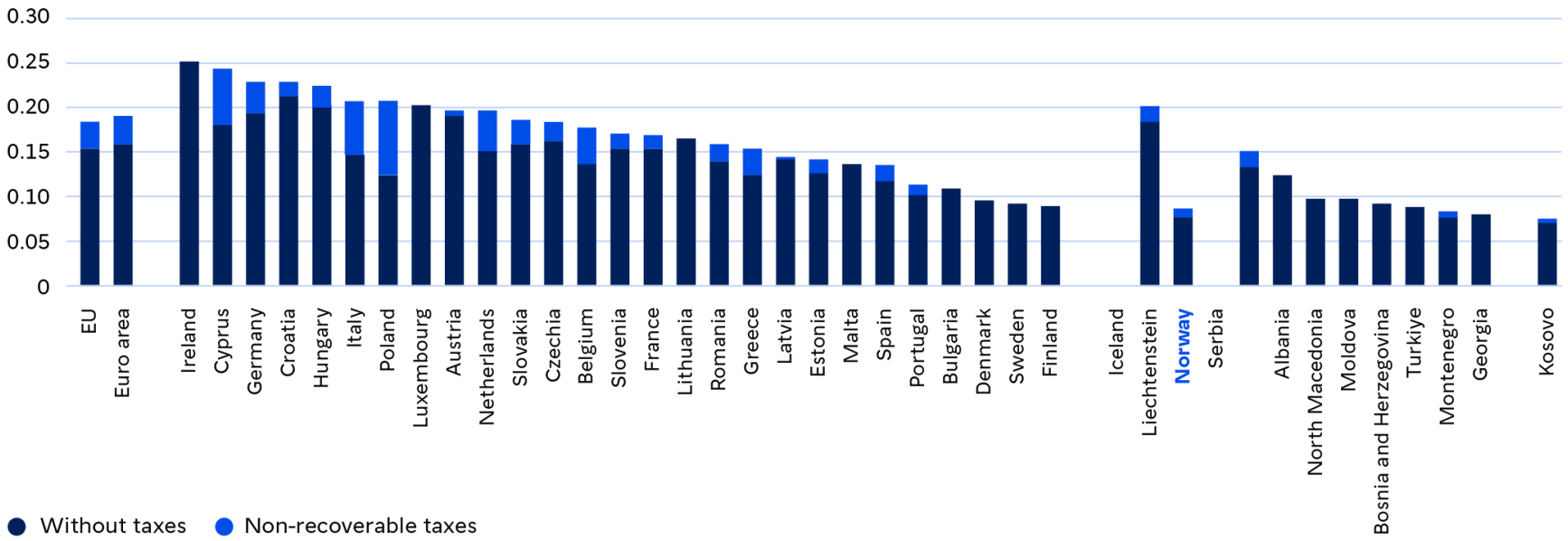
Process industry

Norway

The Nordics have ideal conditions for energy-intensive production

Norway has one of the lowest electricity prices for non-household consumers in Europe*

Annual average prices



*Non-household consumers are defined as medium-sized consumers with an annual consumption between 500 and 2000 MWh.
Source: EU Electricity price statistics - Statistics Explained

Norwegian green industry initiatives

Norway

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Norway has the world highest EV adoption rate

미래 전기차 시대가 궁금하면 노르웨이를 보라[딥다이브]

노르웨이서 전기차가 휘발유차 세계 첫 추월

노르웨이 전기차 점유율 90%...1위는 폭스바겐 ID.4

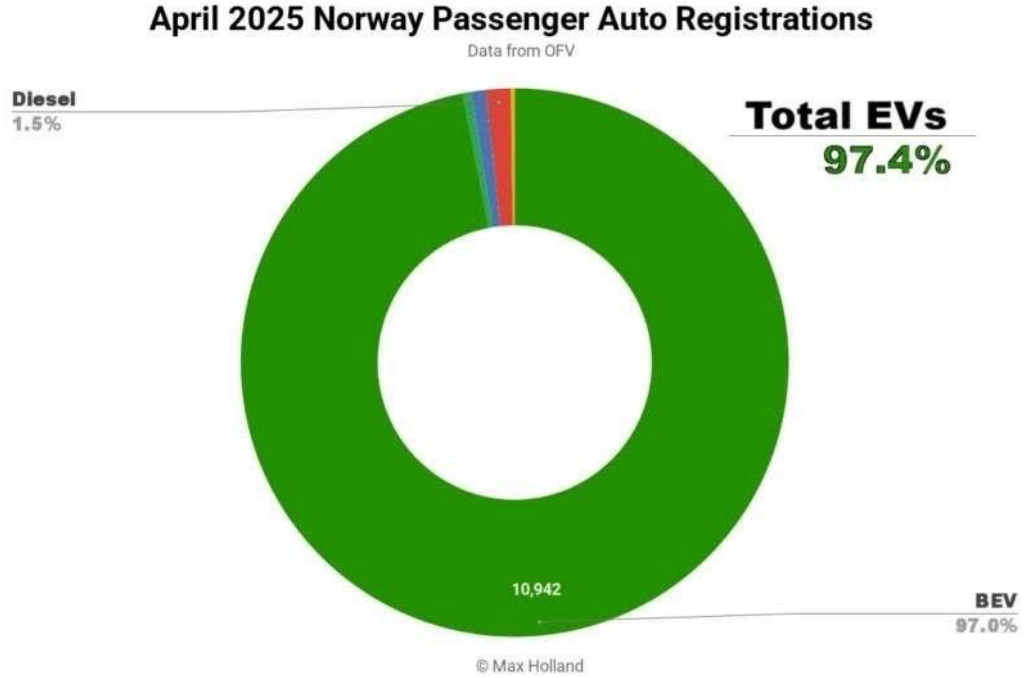
NYT "노르웨이 신차 80%가 전기차…미국에 10년 이상 앞서"

전기차 '바로미터' 노르웨이 상반기 BEV 점유율 83.1%...

노르웨이, 전기차 판매 10년 만에 30배 급증한 이유는?

노르웨이, 인구당 전기차·충전소 수 전 세계 1위...비결은?

가솔린·디젤 신차 사실상 멸종...노르웨이 전기차 98.7%



*Market share is calculated as the ration of new EV registrations against total vehicle registrations

Source : Rystad Energy BatteryCube

What is next EV?

Setting course for net-zero shipping – together

Green shipping is vital to achieve the goals of the Paris Agreement and EU climate neutrality by 2050.

Norway

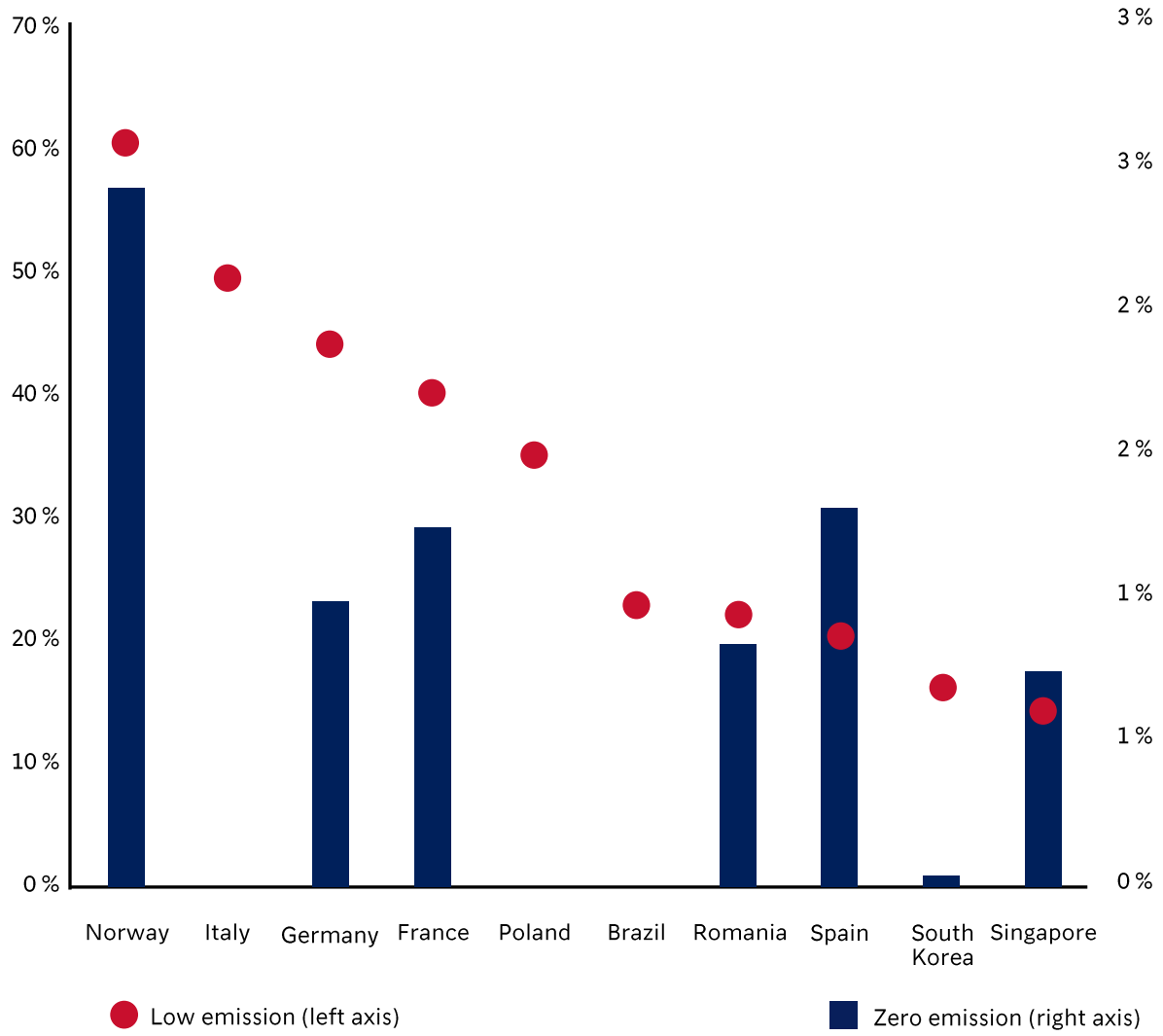


What is next EV?

Full speed ahead – aiming for climate neutrality

Norwegian shipyards have come further than anyone in the world. The share of low and zero emission vessels built in Norwegian shipyards are higher than that of all other ship building nations combined.

The Norwegian Shipowner's Association aims to only order zero-emission vessels from 2030 and become climate neutral by 2050.



© Menon Economics

Norway is World No 1. in World's Firsts:

VIKING ENERGY
First Ammonia Offshore Vessel



HÖEGH AUTOLINERS AURORA
First ammonia-ready car carrier



AMPERE:
First electric ferry



NORTHERN PIONEER
First CO_2 Carrier



HAVILA POLLUX
First Cruise Ship sailing World Heritage fjords emission-free





HYDRA:
First hydrogen passenger vesel

SOLVANG CLIPPER ERIS
First OCC Ship



MEDSTRAUM:
First electric fast-ferry



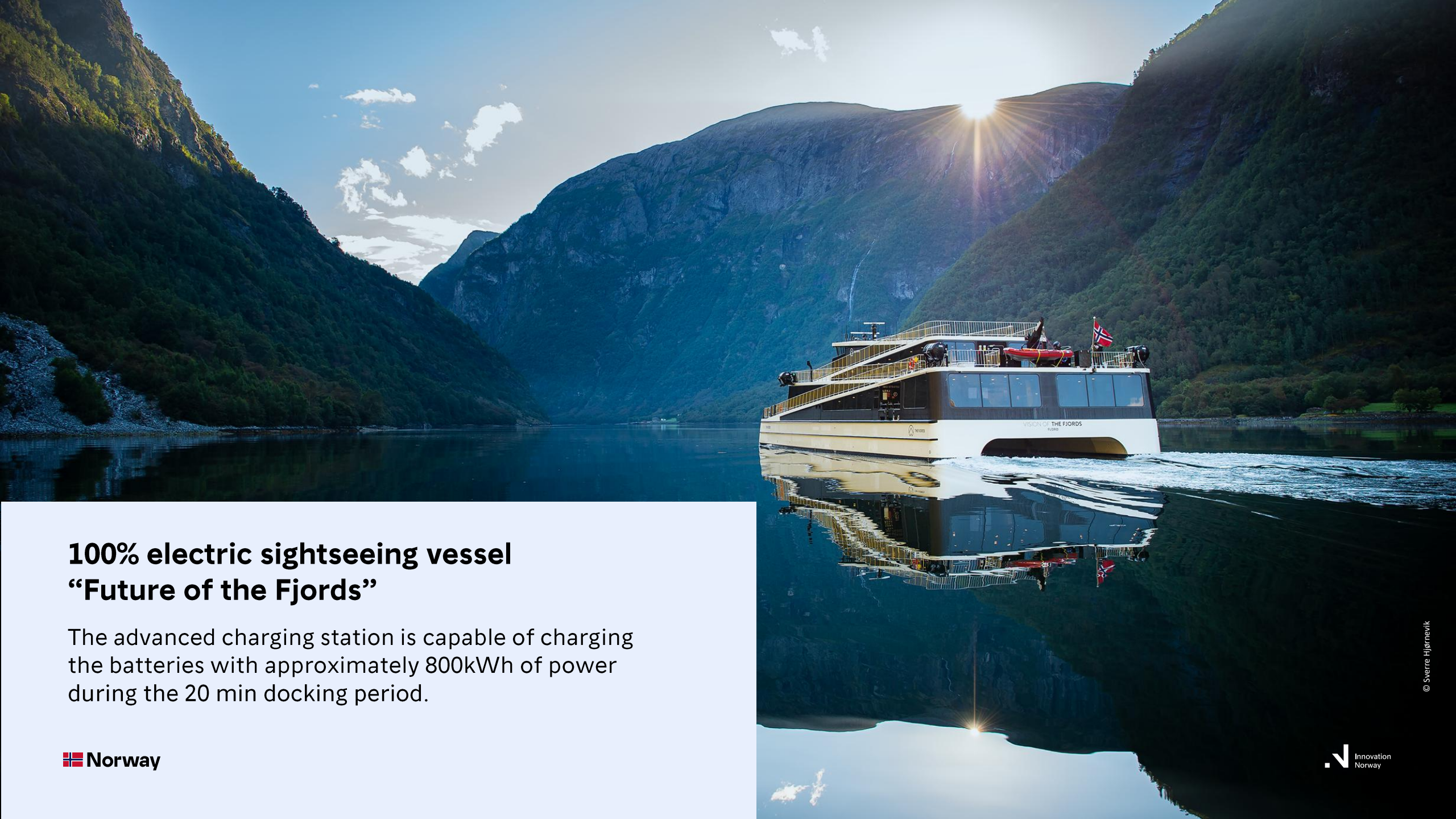


YARA BIRKELAND
First electric and autonomous vessel

MS HØYDAL:
First LNG Ship



INVEST IN BERGEN



100% electric sightseeing vessel “Future of the Fjords”

The advanced charging station is capable of charging the batteries with approximately 800kWh of power during the 20 min docking period.

Norway

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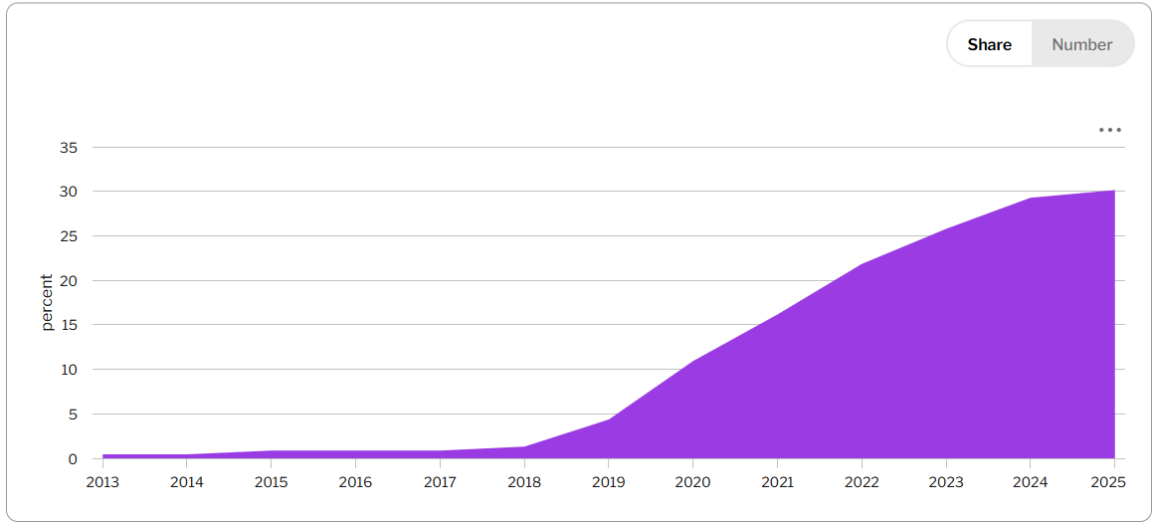
© Sverre Hjørnevik

Overview of Electric ferries in Norway (as of August, 2025)

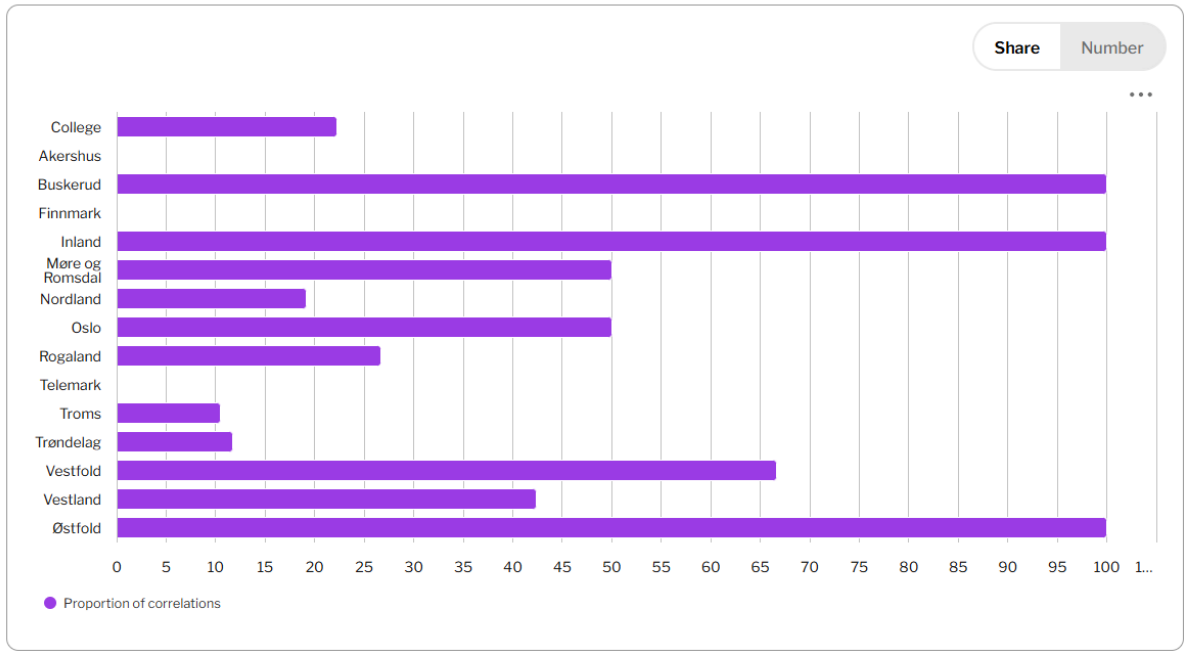
Number	Car ferries	Passenger ferries	Total
Electric	82	22	104
Non-electric	119	97	216
Total	201	119	319
% electric	40.8%	18.5%	32.6%

Ferry connections	Cars	Passengers	Total
Connections	131	98	229
Electrified*	56	15	71
% electrified	42.7%	15.3%	31.0%

Development in the share of electrical connections in Norway

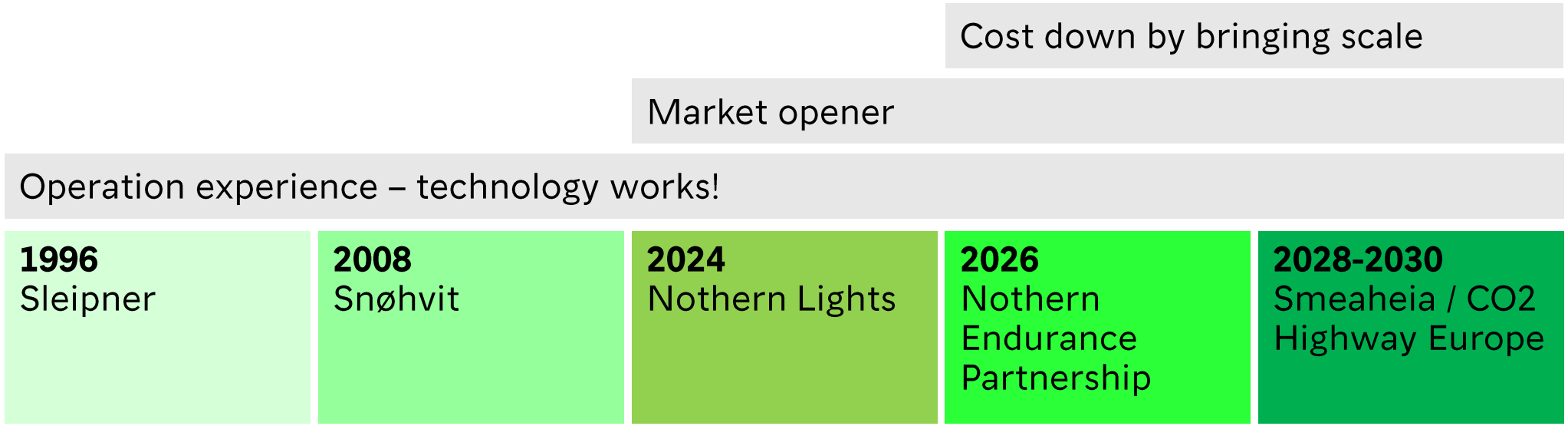


Connection with at least one electric ferry



Source: Elektriske fergesamband i Hele landet

Norwegian CO2 storage (CCS) experience



First dedicated CO_2 storage at the Sleipner field off the Norwegian coast.

Second industrial-scale CO2 storage in Europe at Snøhvit Field, offshore Norway.

The Northern Lights project is part of the Norwegian full-scale CCS project called Longship.

Longship & Nothern Lights - Full scale CCS value chain

- World's first cross-border, open-source CO2 transport and storage infrastructure network
- Demonstration of full scale open-source infrastructure for CO2 capture, (ship) transport and storage
- Phase one of the project will be operational in 2024 with a storage capacity of up to 1.5 million tonnes of CO2 per year.
- Longship includes CO2 capture from industrial sources in Norway (cement and **waste to energy**)
- Liquid CO2 shipment
- Total investment estimation (2 bill USD) with Norwegian Government support
  - Capture of CO_2 at the Heidelberg Materials (previously Norcem) cement factory in Brevik.
  - Capture of CO_2 at the waste-to-energy plant Hafslund Oslo Celsio in Oslo.
  - A combined transport and storage solution, managed by Northern Lights JV DA.

The world 1st cross-boundary CCS project

Northern Lights main partners

LONGSHIP

NORTHERN LIGHTS SCOPE

CO_2 capture

Capture from industrial plants. Liquefaction and temporary storage.

Transport

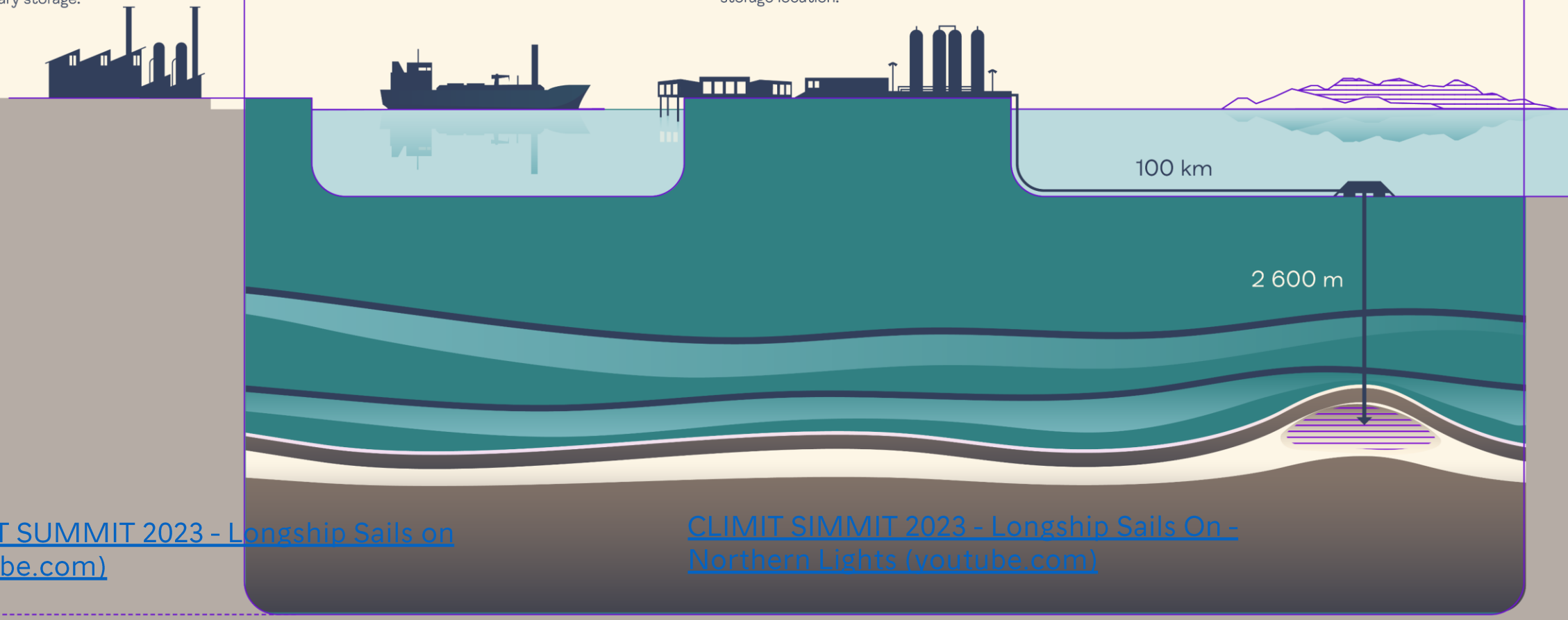
Liquid CO_2 transported by ship.

Receiving terminal

Intermediate onshore storage. Pipeline transport to offshore storage location.

Permanent storage

CO_2 is injected into a saline aquifer.



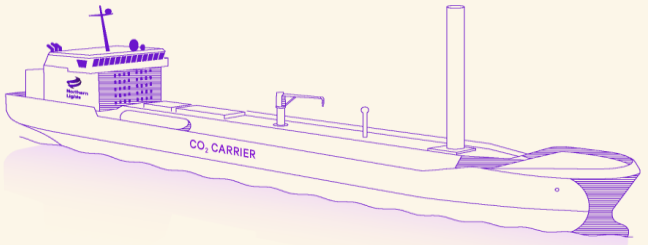
CLIMIT SUMMIT 2023 - Longship Sails on (youtube.com)

CLIMIT SIMMIT 2023 - Longship Sails On - Northern Lights (youtube.com)

Longship project



The world 1st commercial CO_2 hub terminal in Øygarden, Norway.



Nothern Lights project includes 16 partners across seven European countries and aims to build an effective CO2 transport and storage network.

Carbfix
Arctic Cluster Team
Sundsvall Energi
Neste - Porvoo
NL Storage Site
Energy Park
Climeworks
Fortum Oslo Varme
Stockholm Exergi
Norcem
Borg CO_2
Northern Lights JV
Eyde Cluster
Preem
Söderenergi
VEAB
Preem
Cinfracap
Greensands
TVCA
Ervia
Aramis
ArcelorMittal
Equinor
ArcelorMittal
Shell
ArcelorMittal
3D
TotalEnergies
Air Liquide
Port of Antwerp
Fluxys
Eqiom
Yara
TotalEnergies
Esso
Air Liquide
HAROPA
Borealis
Suez
ArcelorMittal
Yara
North Sea Port
DOW

Northern Lights – Funding Scheme

Building a market for CO_2 storage

Northern Lights

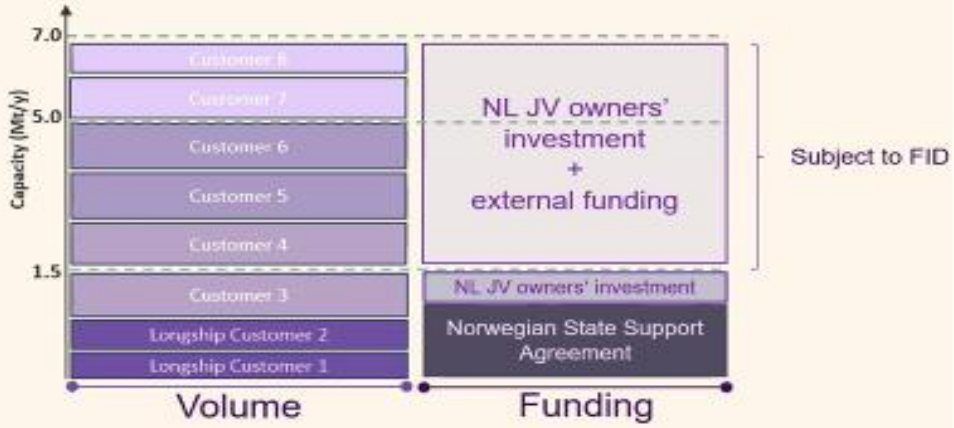
Significant demand for storage capacity

→ European Commission concern:
- not sufficient storage capacity being developed

→ Overcoming challenges:
- Everything we do is new
- First contracts of this type
- LCO_2 ships are new
- Little/no operational experience
- Risks management
- Costs
- De-risking subsurface is expensive
- Regulatory requirements – many firsts
- Northern Lights – Test Pilots

→ Northern Lights Phase 1
- capacity to transport, inject and store up to 1.5 Mtpa of CO_2

→ Northern Lights Phase 2
- capacity to transport, inject and store 5-7 Mtpa of CO_2



Norway’s competitive advantages of CCU

- Most of the CCU projects are requiring two sources: Hydrogen and CO2
- Norway’s advantages:
  - CCS capacity; see Longship and Northern Lights
  - 100 % renewable energy that can be used for electrolysis
  - 100% renewable energy that can be used for DAC(Direct Air Capture)
  - Large volumes of blue hydrogen can be produced from natural gas with CCS
  - Industrial infrastructure with many point emissions
  - Markets demanding sustainable feedstock, like the aquaculture industry (protein) and the aviation industry (fuel- like eSAF)



TCM Mongstad

Technology Centre Monstad (TCM) – World largest and most flexible test center for carbon capture



Vendors' Proprietary Campaigns

(more than 20,000 hrs so far)



Non-Proprietary Test Campaigns

(so far 14,000+ hrs MEA & AMP+PZ)



Advisory to Project Developers (Global)

[Technology Centre Monstad - TCM]



Key points:

- Main objective to test, verify and demonstrate different cost-efficient, industrial scale CO2 capture technologies
- In operation since 2012 at Equinor processing plant
- Owned 73.9% by Norwegian Government, remaining between Equinor, Shell, Total
- Successful test campaigns with Aker Solutions, Alstom (now GE), Cansolv and Carbon Clean Solutions.

SAF(Sustainable Aviation Fuel) / eSAF in Norway

Link to Avinor & DNV report:
[20221104 DNV Avinor hydrogen-supply-to-norwegian-airports.pdf]

SAF reports from Avinor: [Miljørapporter - Avinor]

Project developers Norway:
- Norsk E-Fuel AS
- Nordic Electrofuel AS
- Biozin Holding AS
- Mo Industrial E-Fuel AS
- Silva Green Fuel

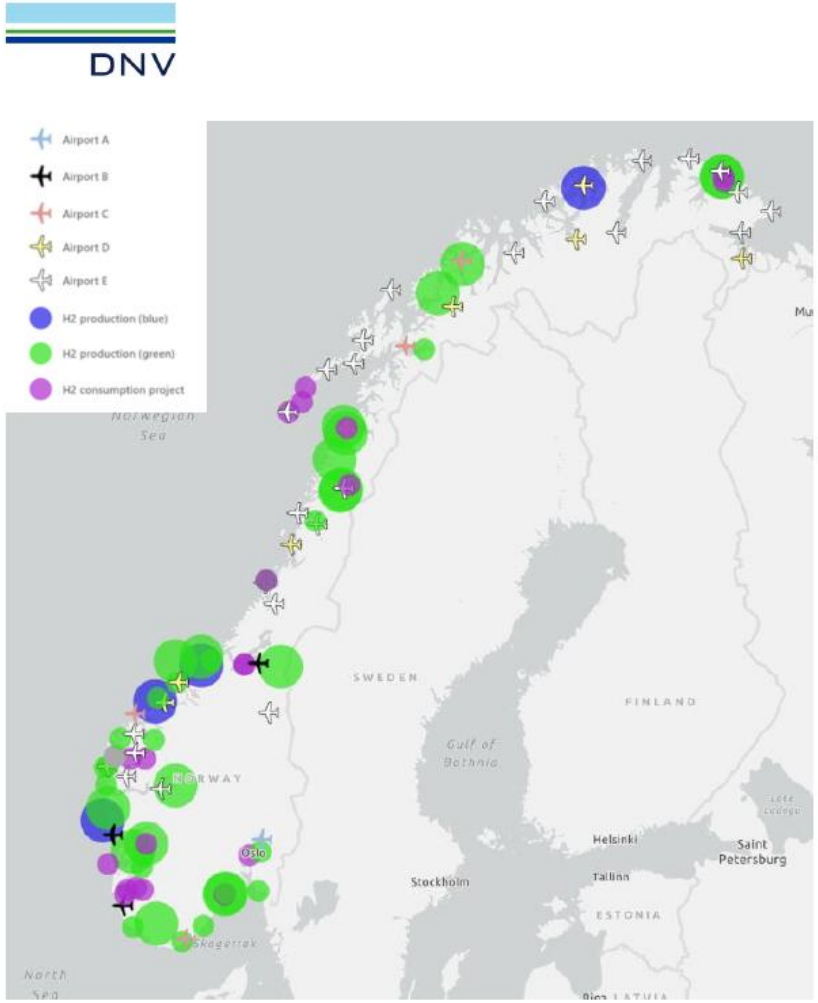


Figure 4-1 Hydrogen projects and Avinor's airports

Increasing demand for sustainable aviation fuels

2014: Demo flights



2016: Avinor Oslo airport



2020: Norwegian mandate



2021: Proposed EU mandate



SAF integrated in the value chain



	2025	2030	2035	2040	2045	2050
All SAF vs. total fuel supply	2%	5%	20%	32%	38%	63%
Synthetic fuels vs. total fuel supply	NA	0.7%	5%	8%	11%	28%

AVINOR

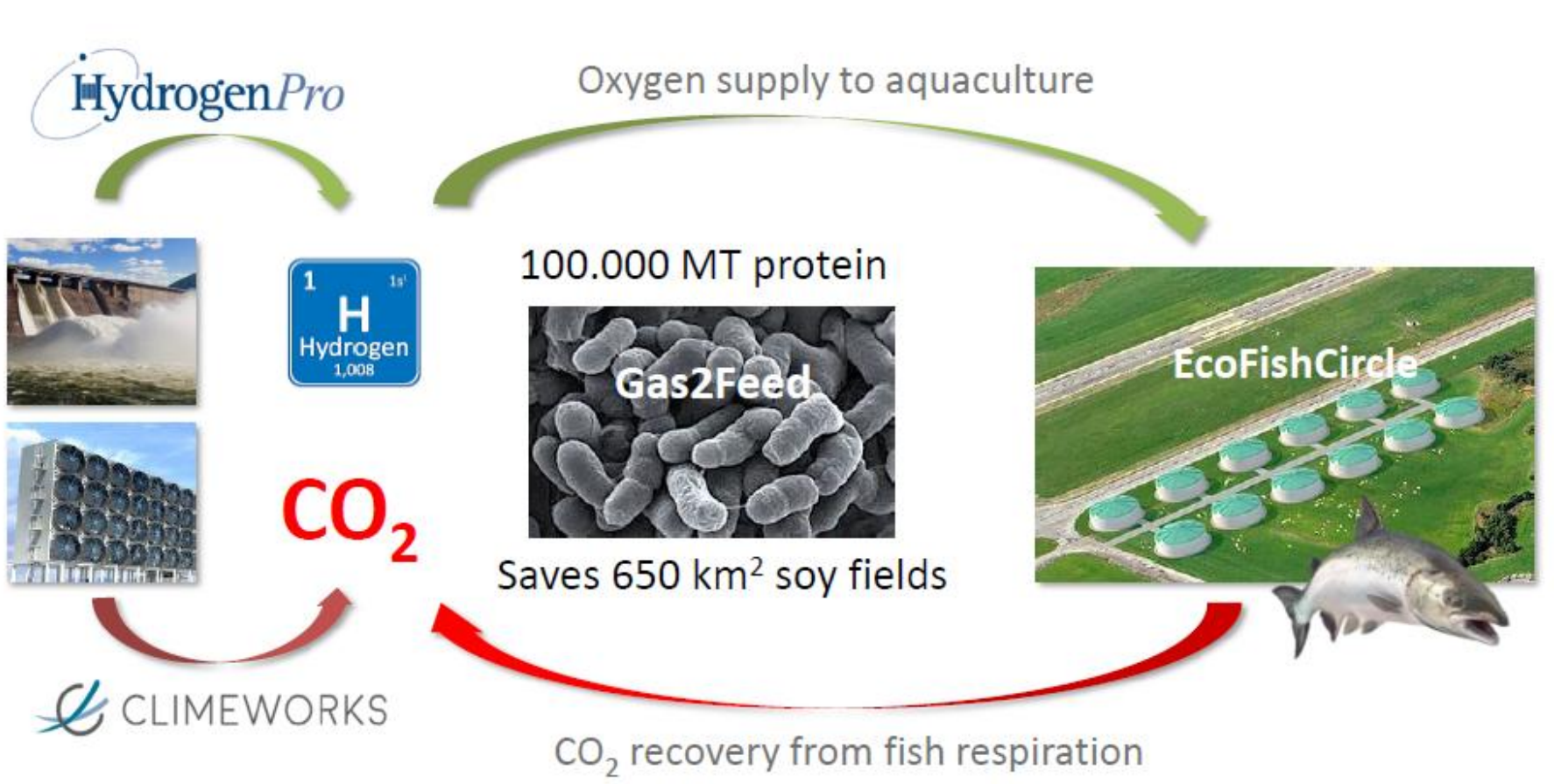
= EU demand 2035 > 10 mill tons

A picture containing graphical user interface

Description automatically generated

Innovasjon Norge

Gas2Feed, an example of producing protein from CO2 and hydrogen



Norwegian Carbon Pricing scheme

Norway

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Carbon Pricing: Two Complementary Instruments

Norway combines a government-set CO_2 tax with the EU Emissions Trading System (EU ETS).

CO_2 TAX

PRICE SET BY GOVERNMENT

- Levied on fossil fuels / selected emissions
- Tax rates and exemptions vary by sector
- Provides a predictable marginal carbon cost

EU ETS(Emissions Trading System)

PRICE SET BY THE MARKET

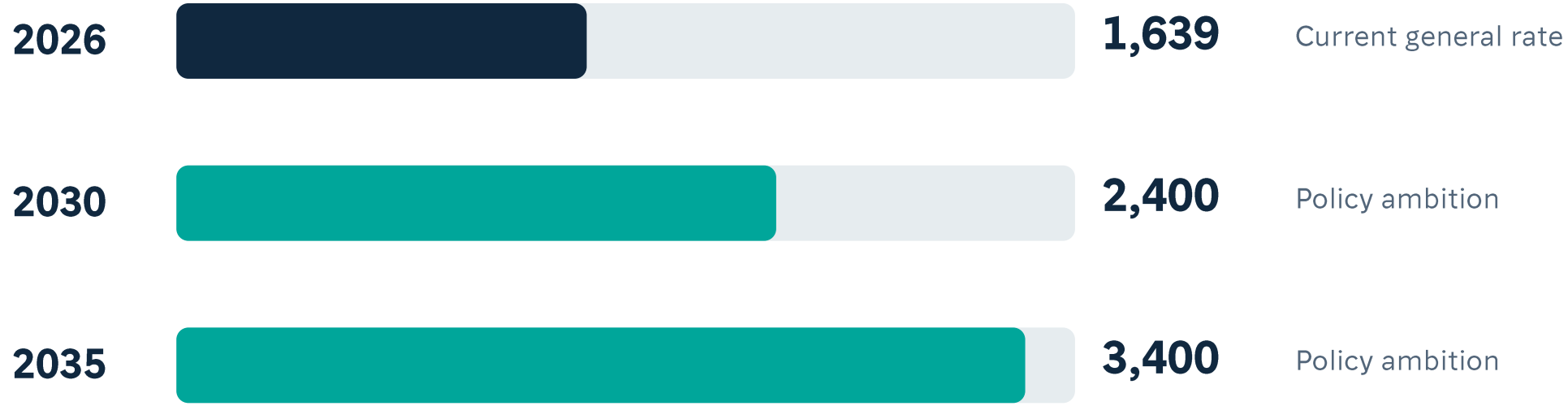
- Cap-and-trade for covered installations
- Companies surrender allowances for emissions
- Allowance prices fluctuate with market supply / demand

Some activities face both instruments; the effective carbon price is sector-specific. According to the Norwegian government, approximately 85% of total greenhouse gas emissions are subject to a price through either a carbon tax, the EU ETS, or both systems. Emissions from agriculture—such as methane and nitrous oxide—are, for the most part, excluded from carbon pricing.

Policy Trajectory & Business Implications

Indicative Norwegian CO_2 tax policy pathway

NOK per tCO_2e



2026: nominal tax rate | 2030 / 2035: targets expressed in 2025 prices; not enacted future rates.

COMMERCIAL IMPACT : Stronger incentives for CCS, industrial electrification, maritime decarbonisation and efficiency.

Sources: Norwegian Ministry of Finance (2026 tax rates); Government climate policy / 2030–2035 tax ambitions. Actual burden varies by exemptions, ETS exposure and free allocation.

Important public financial institutions - Norway

Enova SF is owned by the Ministry of Climate and Environment. Enova's mandate is to contribute to reduced climate gas emissions in Norway towards 2030, and to technology development and innovation enabling the transition to the low emission society in 2050.

Innovation Norway is the Norwegian government's most important instrument for innovation and development of Norwegian enterprises and industry. Innovation Norway provides competence, advisory services, promotional services and network services as well as financial means and a broad support system including a strong international network.

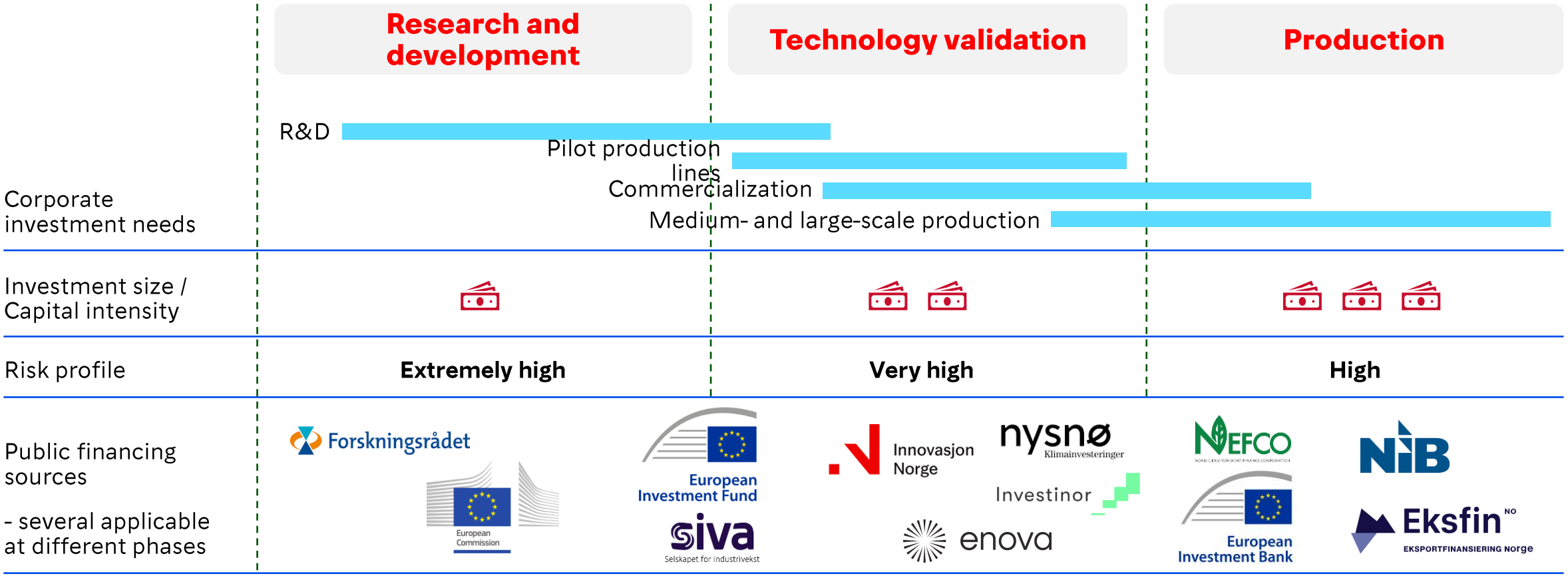
Siva is a governmental enterprise facilitating national infrastructure for innovation, consisting of incubators, business gardens, catapult centres, innovation enterprises, innovation centres and industrial real estate.

The Research Council works to promote research and innovation of high quality and relevance and to generate knowledge in priority areas to enable Norway to deal with key challenges to society and the business sector. In 2019, NOK 11.4 billion was allocated by the Research Council for R&I.

Export Finance Norway (Eksfin) is a governmental financial enterprise established on 1 July 2021 through the merger of the Norwegian Export Credit Guarantee Agency (GIEK) and Export Credit Norway . Their mission is to ensure that Norwegian export industries are financially competitive abroad. Eksfin falls under the Norwegian Ministry of Trade, Industry and Fisheries.

Nysnø is a sovereign climate investment company, is administrated by the Norwegian Ministry of Trade, Industry and Fisheries.

Public financing should trigger private investment



Invest-in Norway cases

Norway

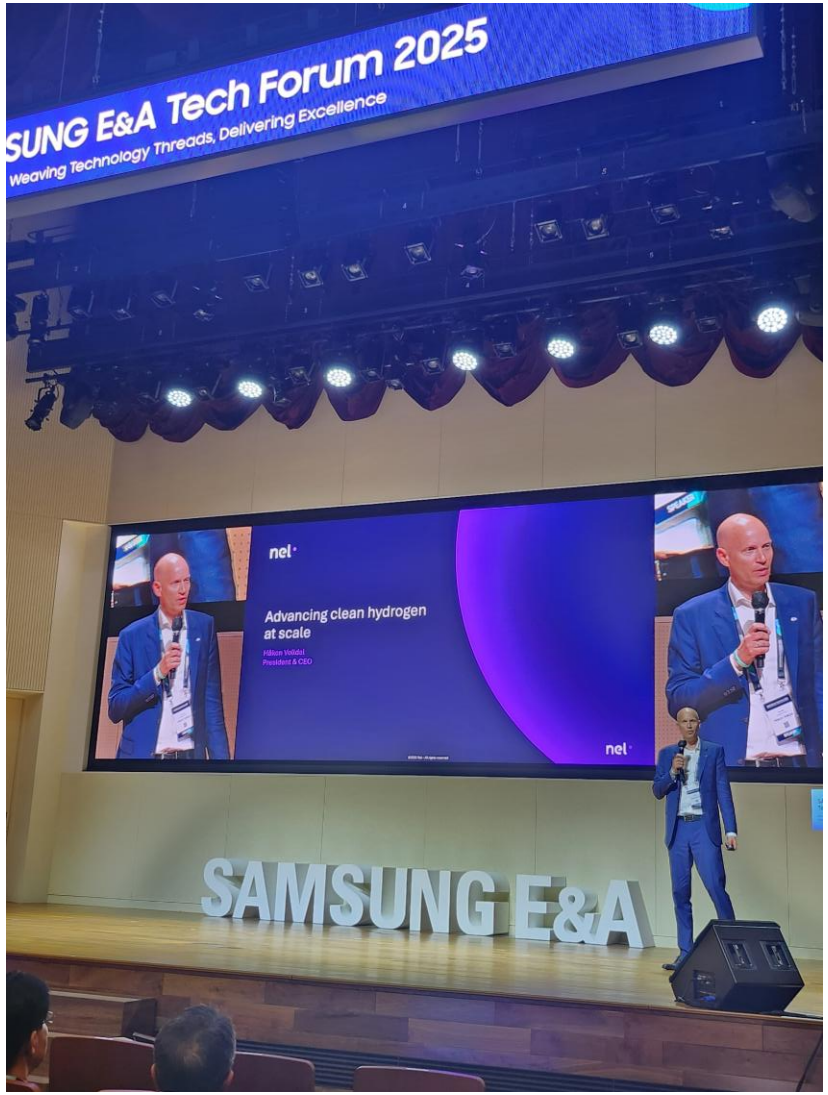
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Invest In : Samsung E&A's investment into Nel

SAMSUNG E&A

nel





Invest In: Hanwha's investment into SEAM

Hanwha Engine

SEAM
팔로워 6,088명
1개월 •

Today marks an important milestone for SEAM! 🔔

We're proud to announce that SEAM has been acquired by 한화, one of Asia's largest industrial groups, through Hanwha Engine.

From our base outside Haugesund, we have built a strong international position in low- and zero-emission automation and propulsion systems. With Hanwha as our industrial partner, we now combine Norwegian engineering excellence with global scale and reach.

SEAM continues under its current brand and management. Our team and expertise will remain firmly anchored in Norway.

Together with Hanwha Engine's extensive maritime portfolio in batteries, fuel cells, and ship systems, we are well-positioned to further accelerate the decarbonization of the global maritime industry.

We want to thank **Longship AS** for a strong and fruitful partnership, and look forward to the journey ahead with Hanwha.

Together, we will build the future of clean maritime technology 🔵

Read the press release: **https://lnkd.in/emUAgwKU**

#Hanwha #HanwhaEngine #MaritimeTechnology #Decarbonization #GreenShipping #EnergyTransition



SEAM Acquired by Hanwha to Accelerate Global Maritime Decarbonization - SEAM
seam.no

SEAM
December 19, 2025

SEAM



Norway

Innovation Norway


Thank you for attention!
Please visit us at
Business Norway
Norway
Innovation Norway