



SINTEF

Towards 0-emission transport

- SINTEF's key role & contribution

Nordic Hydrogen Valleys Conference 2026
Trondheim, 29th April 2026

Steffen Møller-Holst
Vice President Marketing
Hydrogen Technologies



Chair for
Transport



H₂

Technology for a better society

Illustration: NHF





SINTEF

SCANDINAVIA'S LARGEST **INDEPENDENT**
RESEARCH ORGANISATIONS

368 million €
turnover

2200
employees

6400
projects

3300
customers

INTERNATIONAL
71 million €

NATIONALITIES
80

PUBLICATIONS (INCL. DISSEMINATION)
6200

CUSTOMER SATISFACTION
4,6 / 5

Technology for a better society



SINTEF

Technology for a better society



Research and innovation

Develops new technological knowledge and solutions with our clients



Laboratories and software

Establishes & operates advanced research infrastructures



Commercialisation

Facilitates market uptake of products and concepts and establishes companies



Sustainability

Contributes to decision support by providing science-based advice and knowledge



50 EU projects under the European H₂ Partnerships

SINTEF's H₂ EU-project portfolio



One slide per project ↑,
Not exhaustive!

Since 2010, SINTEF has coordinated >25 projects in the European H₂ partnerships →
With that, SINTEF has the second most comprehensive R&D portfolio within H₂ in Europe

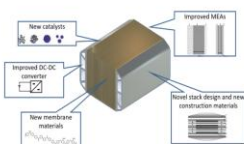


Technology for a better society

PEM Water Electrolysis @ SINTEF

• SINTEF-coordinated EU funded projects (2010 →)
 Materials development → Up-scaling → Market deployment

NEXPEL Next generation PEM Electrolyser for Sustainable Hydrogen Production



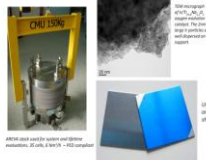
Key numbers:

Start	2018
End	2021
Total budget	€ 10M
Coordinated by	SINTEF
Coordinated by	Magnus & Thomas

Main objective: Develop and demonstrate electrolyser integrated with efficiency (LHV₂) of at least 65,000 / Nm³ h, target life 40,000 h

Coordinated by: Fraunhofer, HELION, BurntTech, SINTEF, University of Reading

NOVEL Novel materials and system designs for low cost, efficient and durable PEM electrolyzers



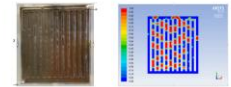
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MEGASTACK Stack design for a Megawatt scale PEM electrolyser



Key numbers:

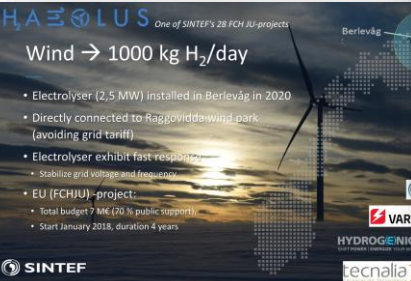
Start	2018
End	2021
Total budget	€ 10M
Coordinated by	Magnus & Thomas

Main objective: Multi-scale and multi-phase models which to serve as engineering tool for stack design and up-scaling. Model validation through high speed image capture and processing. Pressure drop and flow distribution prediction. LCA analysis.

Coordinated by: ITM POWER, Fraunhofer, SINTEF

HAEOLUS One of SINTEF's 28 FCH JU-projects

Wind → 1000 kg H₂/day



Key numbers:

Start	2020
End	2022
Total budget	€ 10M
Coordinated by	Magnus & Thomas

Main objective: Electrolyser (2,5 MW) installed in Berlevåg in 2020. Directly connected to Raggevidda wind park (avoiding grid tariff). Electrolyser exhibit fast response. Stabilize grid voltage and frequency.

EU (FCHJU)-project: Total budget 7 ME (70 % public support). Start January 2018, duration 4 years.

Coordinated by: SINTEF, VARANGER KRAFT, HYDROGENICS, TECNALIA

REFHYNE Clean Refinery Hydrogen for Europe




Key numbers:

Start	2020
End	2024
Total budget	€ 300M
Coordinated by	SINTEF

Main objective: 100 MW using different types of stacks. Integrate with refinery. Integrate with hydrogen production.

Coordinated by: SINTEF, ITM POWER, sphera, elementenergy

REFHYNE 2 From 10 to 100 MW in REFHYNE 2 – worlds largest PEM electrolyser



Key numbers:

Start	2024
End	2028
Total budget	€ 300M
Coordinated by	SINTEF

Main objective: 100 MW using different types of stacks. Integrate with refinery. Integrate with hydrogen production.

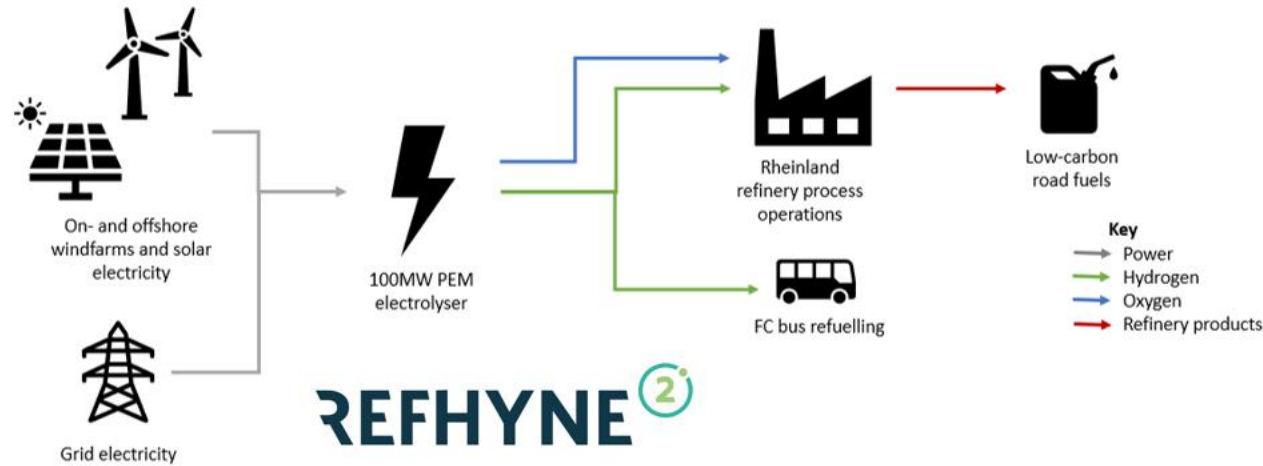
Coordinated by: SINTEF, ITM POWER, sphera, elementenergy

The European Green Deal

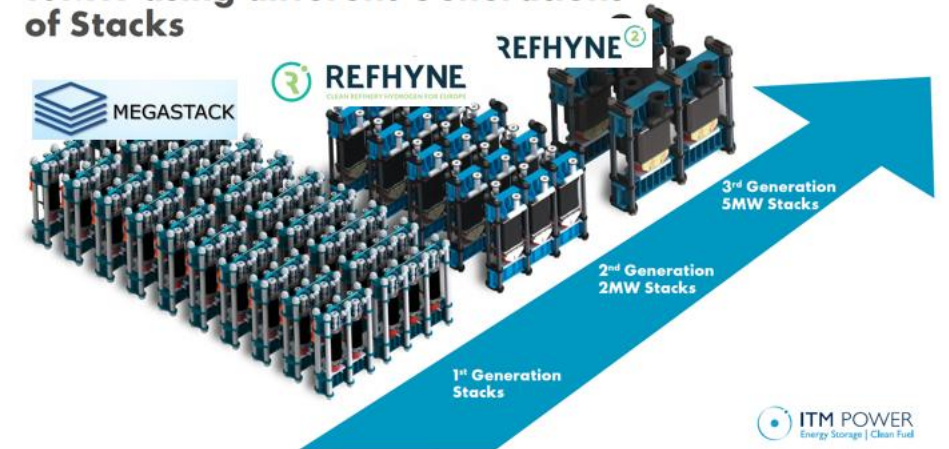


From 10 to 100 MW in REFHYNE 2 – worlds largest PEM electrolyser

- > 300 MNOK EU funding
- At Shell Energy and Chemicals Park in Cologne; Germany
- Production up to 40 tons hydrogen per day, from 2024
- Hydrogen for industrial use (refinery) and as fuel
- Also use of oxygen and heat, balancing of internal/external grid

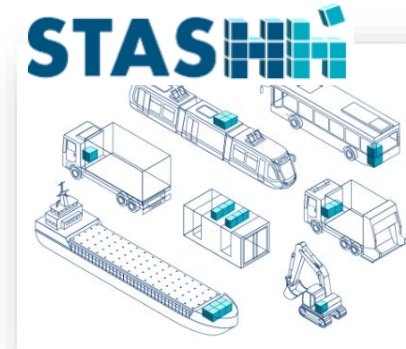
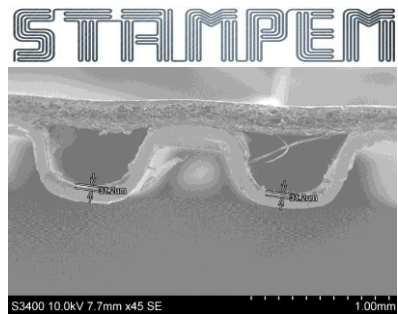


10MW using different Generations of Stacks



Some Fuel Cell/H₂ transport projects @SINTEF

Selected SINTEF-coordinated EU-funded fuel cell projects (2010 → 2029)
 Materials development → Modelling → Up-scaling → Market deployment





The H2AccelerateTRUCKS Project

PAVING THE WAY FOR LARGE SCALE DEPLOYMENT OF
HYDROGEN TRUCKS AND THE EXPANSION OF THE
HYDROGEN REFUELLING NETWORK IN EUROPE



Co-funded by
the European Union



Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Education,
Research and Innovation SERI



The Research
Council of Norway

This project has received funding from the Clean Hydrogen Partnership under Grant Agreement 101101446. This partnership receives support from the European Union's Horizon Europe research and innovation Programme. The project is co-funded by the Research Council of Norway and the Swiss State Secretariat for Education, Research and Innovation (SERI). The content of this presentation reflects only the author's view.

H2Accelerate TRUCKS in Numbers

15

PARTNERS INVOLVED

125

VEHICLES TO BE DEPLOYED

>6

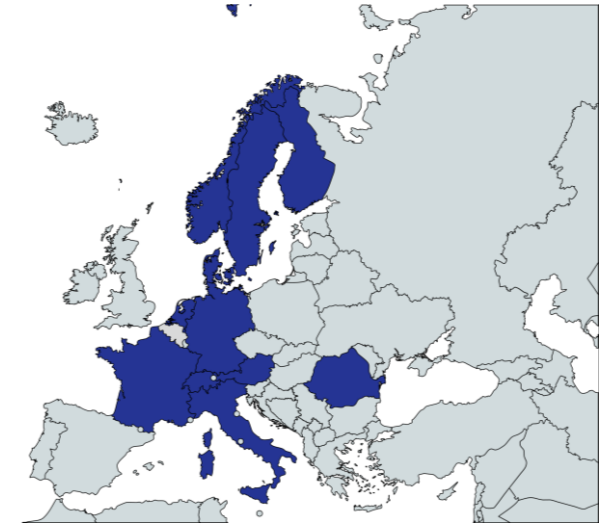
DEPLOYMENT COUNTRIES

~30M€

OF FUNDING RECEIVED FROM THE CLEAN HYDROGEN PARTNERSHIP

~110M€

TOTAL BUDGET FORESEEN FOR THE PROJECT



2023

PROJECT START

7.5

YEARS PROJECT DURATION

4

OEMS: VOLVO, Scania, Hyundai, Hyliko

3

FUEL PROVIDERS: Everfuel, TotalEnergies, TEAL Mobility

Project Goals and Objectives



Large-scale trucks deployment

Deploy **125 fuel cell trucks** up to 40+ tons across more than **6 countries by 2030**



New network of high throughput HRS

Operate on a **hydrogen refuelling stations network** designed for zero-emission trucks



Demonstrate viability

Analyse technical, environmental, economic and behavioural data, →display the **viability of hydrogen & fuel-cell trucks** as a solution to decarbonise road freight transport



Develop awareness

Raise awareness of the **benefits of using green hydrogen for trucking** in Europe

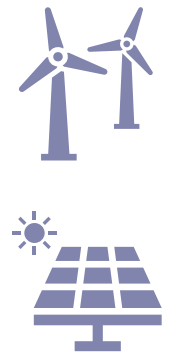
Project Partners across Europe



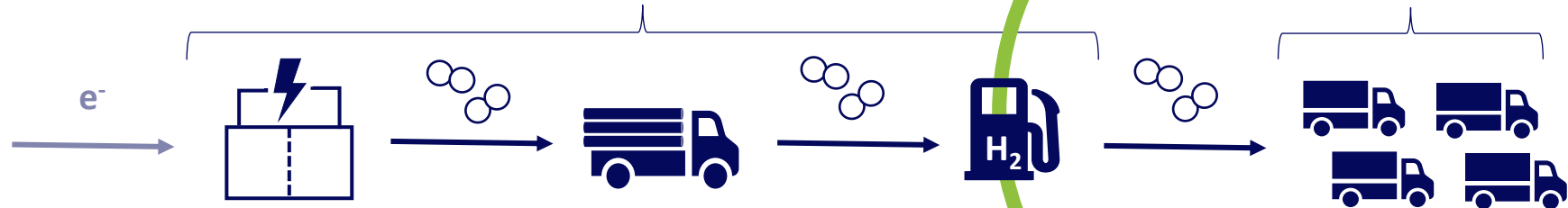
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Project Focus along the Value Chain

Coordination, research and dissemination partners



Renewable energy production



Hydrogen production via electrolysis

Trailer transport to stations

Hydrogen refuelling stations

Fuel cell trucks

Project progress and restructuring

- ✓ Kick-off meeting in Brussels February 2023,
- ✓ Legal and Administrative framework in place, Project progressed according to plan,
- ✓ Project meetings at Volvo, Gothenburg (Oct. 2023) and SINTEF, Trondheim (June 2024):



- ✓ Changes in market expectations & key Partners' strategic priorities → restructuring during 2025
- ✓ The Clean Hydrogen Partnership accepted Amendment II, project re-launched February 2026
- ✓ Scania, Hyundai and Hyliko entered H2AccelerateTRUCKS as Beneficiaries and TEAL Mobility as Associated Partner

Renewed momentum for H₂/FC HD trucks

26 JANUARY 2026, NEWS TRUCKS

Three new partners join forces with Volvo Group to deploy hydrogen trucks across Europe

Mirela Atanasiu, Head of Unit Operations and Communication at the Clean Hydrogen Partnership, emphasised:

“The Clean Hydrogen Partnership welcomes the renewed momentum of the H2Accelerate TRUCKS project. The strengthened consortium and recommitment to large-scale deployment demonstrate the resilience of Europe’s hydrogen mobility ecosystem and its ability to adapt to evolving market conditions. The project remains a key contribution to advancing zero-emission heavy-duty transport across Europe”.

*«SINTEF is eager to continue both our coordination and research efforts, thereby contributing to reducing transport related GHG emissions in Europe, in compliance with SINTEF’s vision: **Technology for a better society**», says Project Coordinator, Dr. Steffen Møller-Holst, Vice President Marketing, Hydrogen Technologies, SINTEF*

Renewed momentum for H₂/FC HD trucks

- *Press Release 31st March 2026:*
**Hydrogen Heavyweights:
Toyota Joins Volvo & Daimler in Massive Fuel Cell Pact**

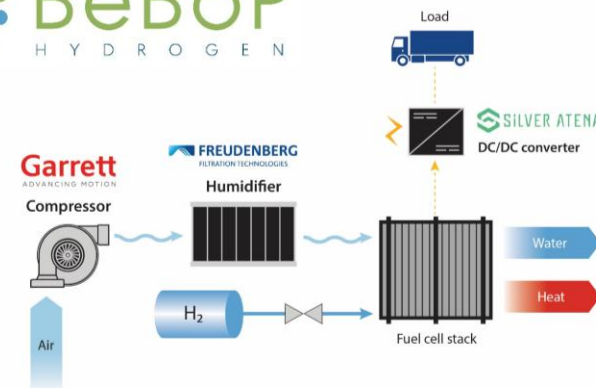
Volvo, Daimler, Cellcentric, and Toyota will continue to jointly develop the fuel cell systems expected to have a major impact on the commercial vehicle industry.



- *Next generation Fuel Cell Systems
for Heavy Duty Trucks (2025-2030)*

Project Objectives:

- Design, develop, and validate Balance of Plant (BoP) components and the overall system for PEM fuel cells, including degradation
- Facilitate the development and commercialisation of fuel cells in the heavy-duty transport market



Co-funded by
the European Union

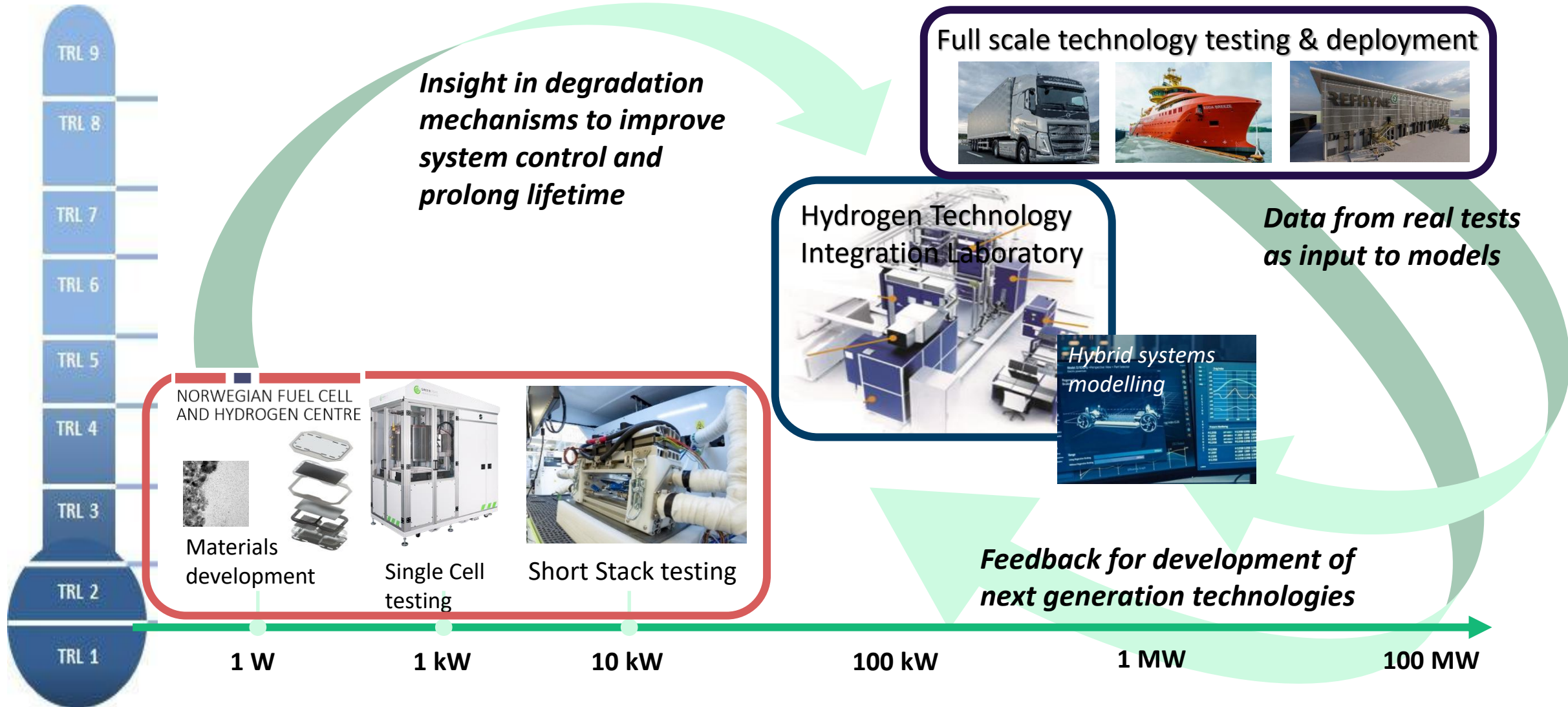




SINTEF

— 75 år —

Next generation electrolyser & FC technologies



Acknowledgements



Scan to read more
about the project!



Co-funded by
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Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
**State Secretariat for Education,
Research and Innovation SERI**



The Research
Council of Norway