

FME HyValue

Norwegian Centre for Hydrogen Value Chain Research

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US-Norway Bilateral Meeting

October 31 - November 1, 2023



Common kick-off for hydrogen research centres HyValue and HYDROGENi October 2022

HyValue – Norwegian Centre for Hydrogen Value Chain Research

Research for safe and sustainable development of value chains for hydrogen and hydrogen-based energy carriers through

- significant reduction of energy loss and emissions
- cost-efficient solutions
- solving technical challenges for the transition
- assessing and improving the strength of knowledge in risk assessment
- sustainable socio-technical systems for hydrogen
- resolving economic and regulatory barriers for implementation

HyValue in numbers

Project duration: 2022-2030

Total budget: ~370 MNOK

8 national research partners (UiB, UiS, HVL, FNI, TØI, NHH, SNF, NORCE)

4 international research partners (MIT, TNO, PIK, Jülich)

~30 PhDs/Postdocs (2022-2030)

~10 Mscs per year

4 associated projects to date

49 userpartners



Norwegian Centre for Hydrogen Value Chain Research



National Research Partners

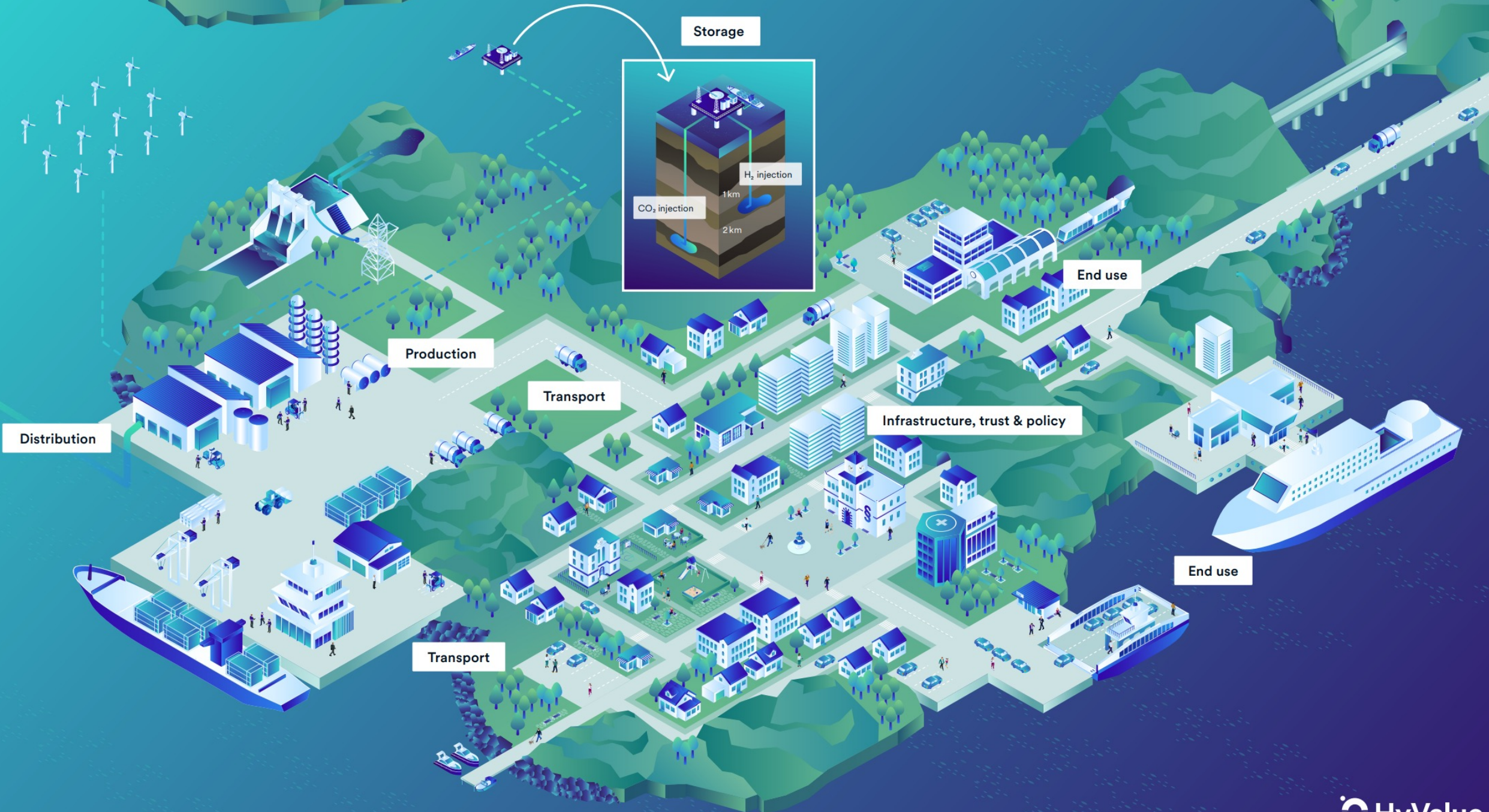


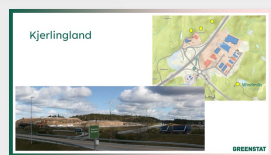
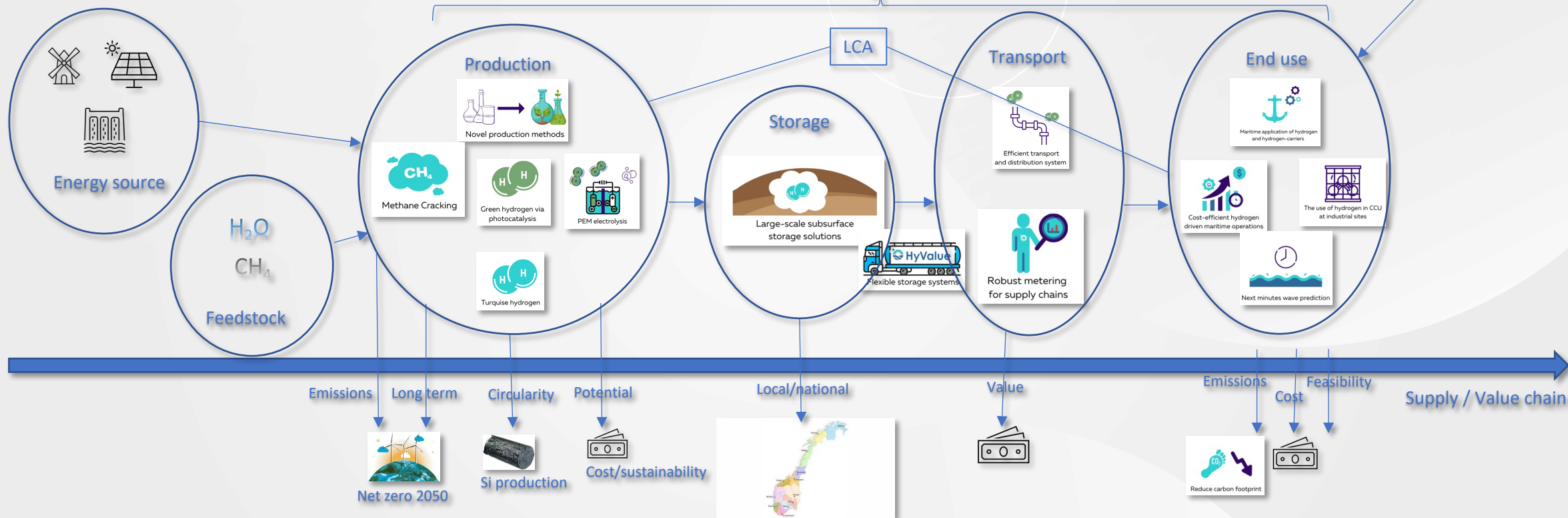
International Research Partners



Partners







Production, distribution



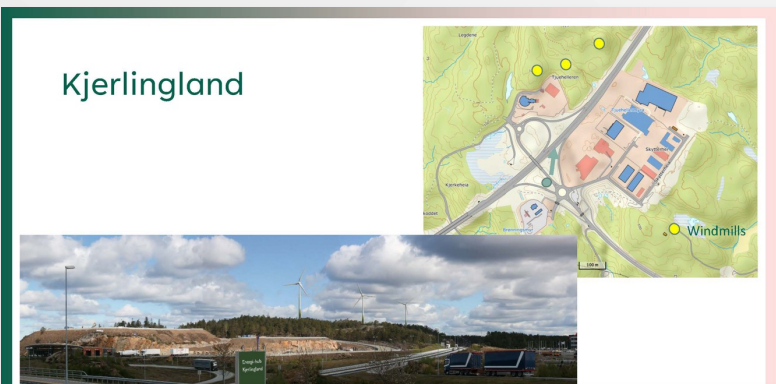
Mongstad industrial park



Øygarden municipality

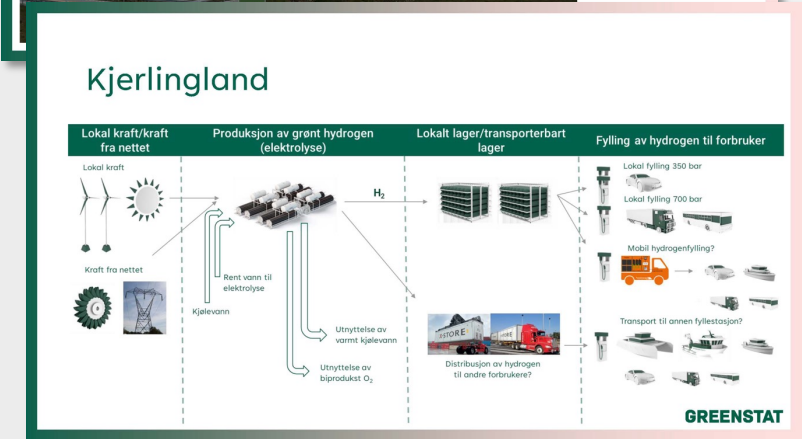
User cases

User cases



De neste 5-15 årene kan vi bygge mange nye verdikjeder i Vestland med stort eksport- og verdiskapingspotensial – Øygarden er sentral i flere av disse

- Sjømat/havbruk
- Grønne havner og skipsfart
- Havvind
- CCS
- Hydrogen
- CCU
- Mineraker og lettmetaller
- Batterier
- Bærekraftig reiseliv
- Energisystemer
- Sirkulære modeller



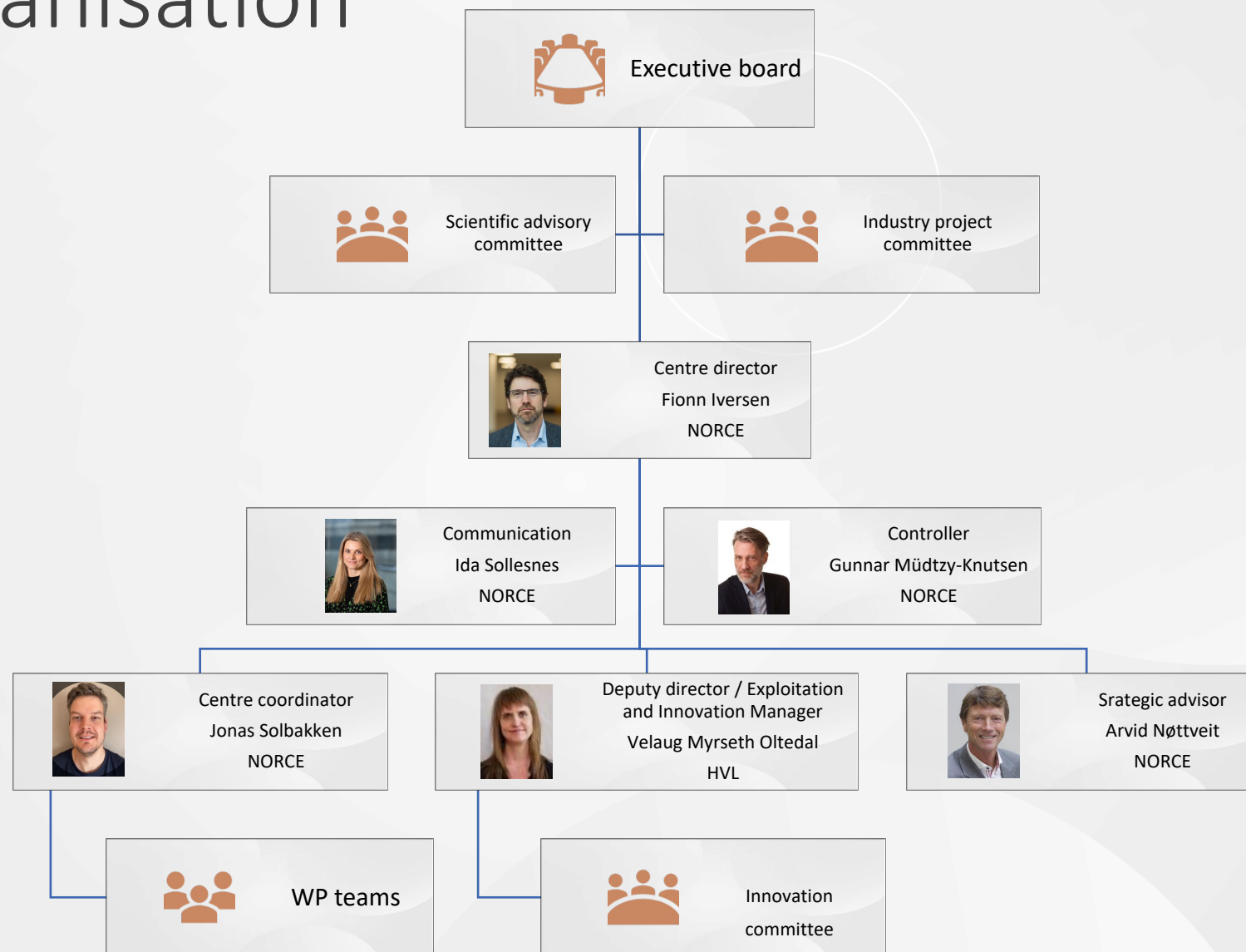
The Mongstad Gold

- 59 companies
- 2400 ship arrivals
- 105 200 sqm floor space
- 2400 Employees
- 4 900 000 sqm available land

Kombinasjonen av folk, ressurser og geografisk beliggenhet gjør at Øygarden har alle forutsetninger for å bli utstillingsvinduet for fremtidens næringsliv

- Lengste kystlinje på Vestlandet (70 km) - strategisk plassering for alle industrier innen "hav mot land"
- Sammensatt kompetansespekter, Northern Lights og ny globalt settet Øygarden er en unik sjanse til å utvikle seg til et fyrstehav mot land
- En skaperverkstatt med kapitalrike og innovative ressurser
- Stærk eide og produksjons fundamentet for å reise seg mot nye muligheter
- CO2 levert på dæren og en verdensklasse infrastruktur skaper et unikt potensial for å realisere sirkulære forretningsmodeller
- Tilsvarende areal til å skape ny industri uten å gjøre ytterligere naturinngrep
- Beliggenheten vil tett på havet og nært til kan utnytte til å utvikle nye verdikjeder
- Tett på kompetansene, miljøet og ressurser i Bergen
- Fremtidens havnerinfrastruktur og knutepunkt i vestligregionen

HyValue organisation

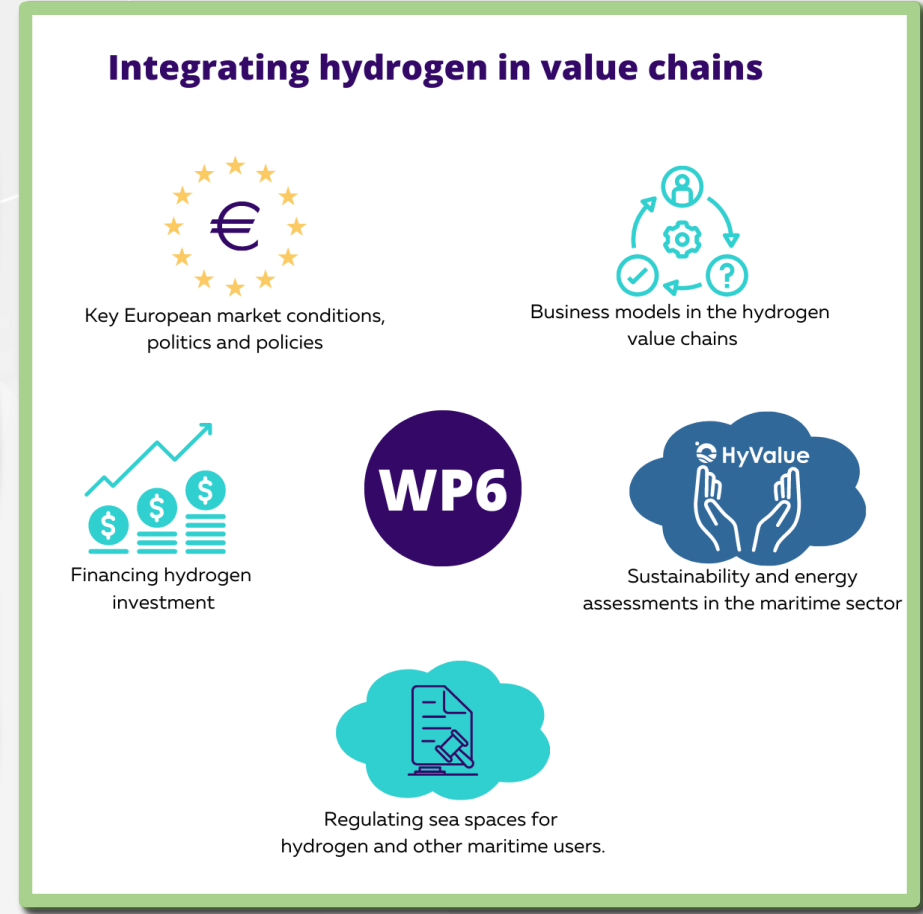
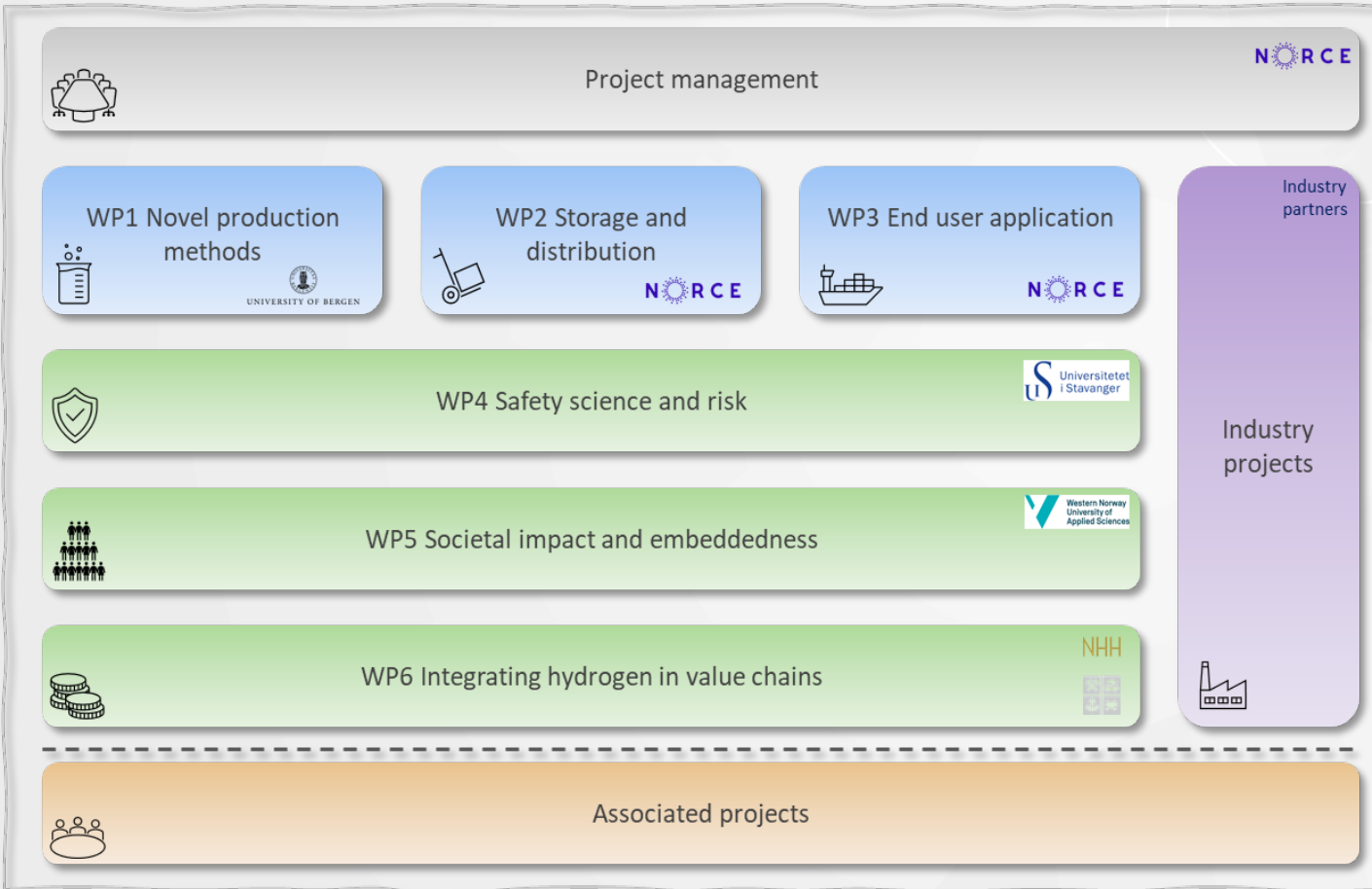


Research Activities

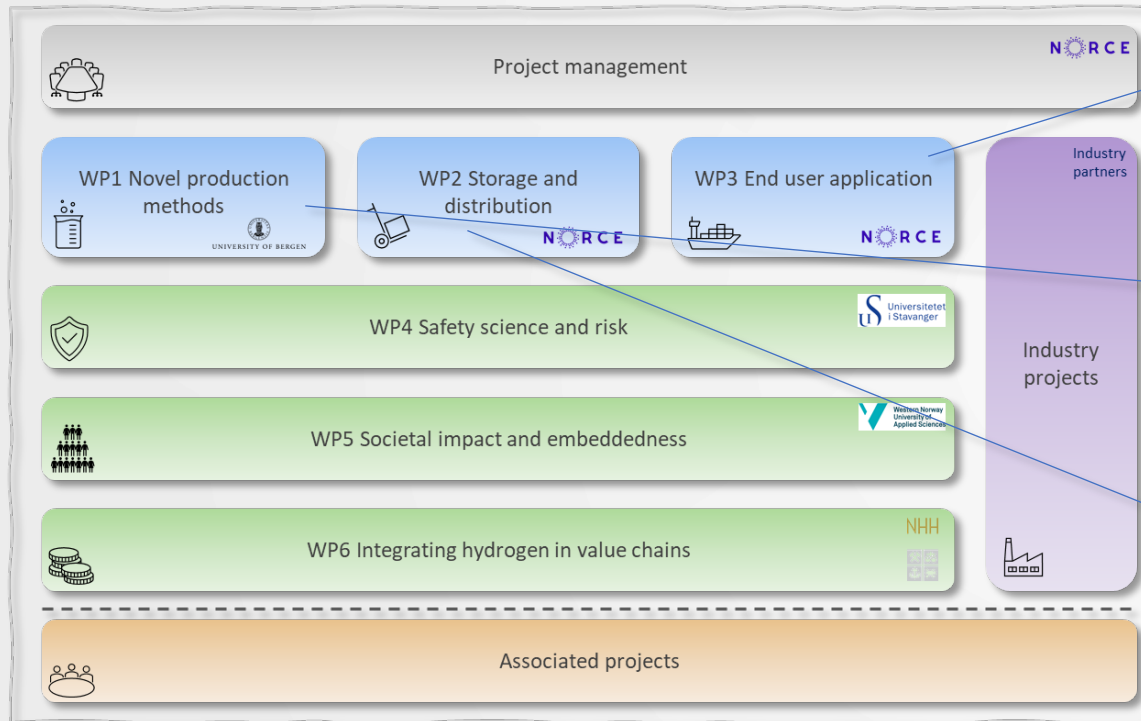
Jon T. Selvik
 Vidkun Bjørnsen
 Gunnar Eide
 Niels Østgaard
 WP1 lead
 WP2 lead
 WP3 lead
 WP4 co-lead
 UiB
 WP4 co-lead



Ove Njå
 Ulf Nordhagen
 WP4 co-lead
 WP4 co-lead
 WP4 co-lead
 WP4 co-lead
 WP4 co-lead
 WP4 co-lead
 WP4 co-lead
 WP4 co-lead



Associated projects



HyEff: Energy efficient operation of hydrogen powered vessels

Forskningsrådet

- Research Council of Norway Knowledge building project
- User partners:
 - Equinor
 - Statoil
 - Statkraft
- Recent publications
- Starting in 2022

Main Project Stages and Activities

FME: HyValue (2022-2030)
User partners relevant for eAmmonia: Statkraft, Equinor, among others.
HyValue, 2022-2025

KSP: AmPEP (2023-2027)
User partners: TotalEnergies, Equinor, NCE Maritime CleanTech.

Design, Synthesis, and Testing of Molecular Catalysts
Ligands and catalysts designed and synthesized, in HyValue, for both HyValue and AmPEP
Catalyst Immobilization

Reliable metering for the hydrogen supply chain (HyMe)

Bakgrunn:
For å etablere hydrogen som en viktig del i fremtidens energisektor er det en forutsetning at mengden og kvaliteten av hydrogen som transporteres kan måles nøyaktig og sporbart. FoU arbeid er nødvendig for å tilpasse eksisterende måleteknologi og etablere nye målesystemer som gir tilstrekkelig nøyaktighet for hydrogen.

Mål for prosjektet:

- Utvikle kunnskap, øke kompetanse og etablere metodikk som muliggjør utvikling av pålitelige og kosteffektive målere og målestasjoner for hydrogenbaserte energibærere.

HyMe KSP, NORCE lead

Ansvarlig organisasjon: NORCE Prosjektleder: Kjetil Folgerø
Partnere (ikke obligatorisk): NORCE, Universitetet i Bergen, Justervesenet, Equinor, Gassco, TotalEnergies EP Norge og Norske Shell

Prosjektperiode: 2023-2026
Prosjekttype: Kompetansebyggende prosjekt for næringslivet
Offentlig finansiering: 14 mill. kroner
Nettside: <https://www.norceresearch.no/projects/reliable-metering-for-the-hydrogen-supply-chain-hyme>
Prosjektnummer: 336565

Student collaboration and continuing education

Hy¹ School.no

- University of Tromsø
- Norwegian University of Science and Technology (NTNU)
- University of Bergen
- University of Stavanger
- University of Oslo
- Norwegian University of Life Sciences
- University of South-Eastern Norway (USN)

equinor **IFE** Institute for Energy Technology **GEXCON** CERTIFICATION

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Bergen Energy Lab is a forum for exchange of information on research results and activities related to renewable energy and energy transition.

HyValue

Through research and development in hydrogen-based energy carriers help enable a zero-emission energy economy by 2050.

Thank you

www.hyvalue.no



HYDROGENi

Norwegian research and innovation centre for hydrogen and ammonia

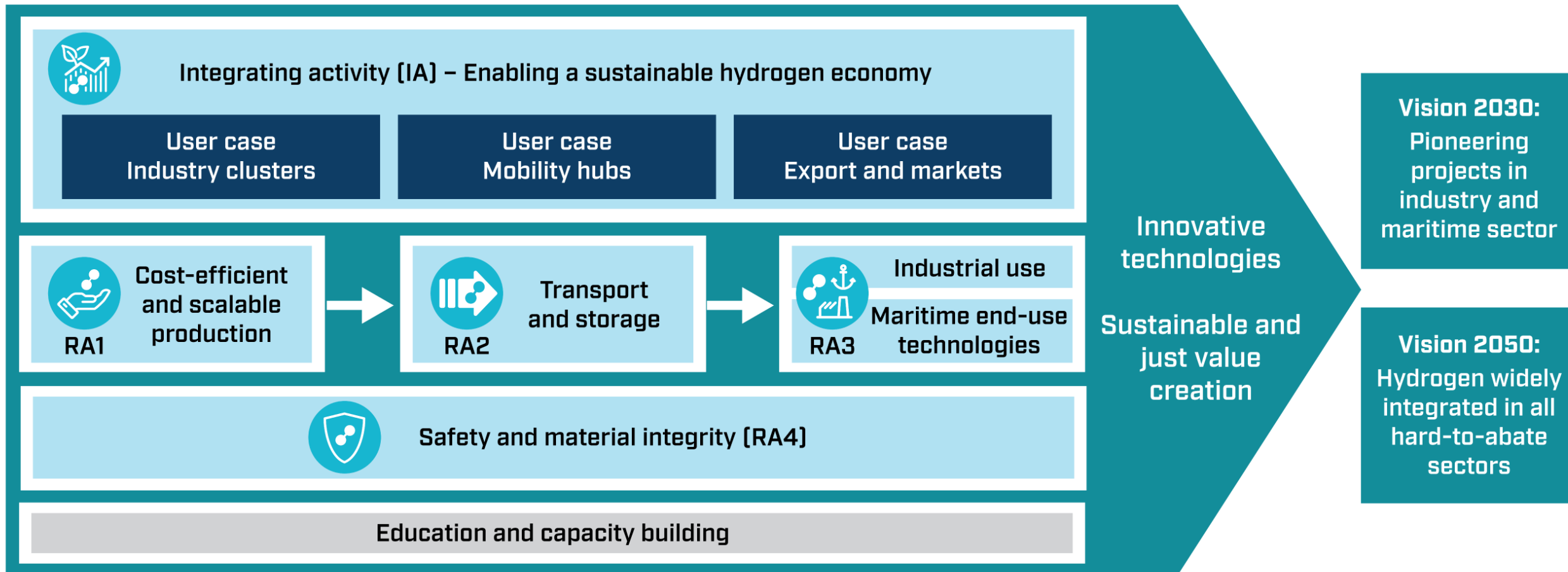
Short presentation

About HYDROGENi

- A Norwegian Centre for Environment-friendly Energy Research (**FME**)
- **8 years** (5 + 3 years) (*Kick-off: 5 October 2022*)
- Budget: **~530 MNOK** (~53 M€), 200 MNOK from RCN
- National and international partners
- Support from **>25** leading universities around the globe
- **37** PhD/postdoctoral fellowships



FME HYDROGENi – Hydrogen for net zero by 2050



For inquiries / contact-details

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