

Horizon Europe

Clean Hydrogen Partnership JU – calls 2024

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COSME – EU's programme for the **Competitiveness of Small and Medium-sized Enterprises** is part of EU's **Single Market Programme** with a €4 billion budget for the programme period of 2021-2027, of which €1 billion is allocated to COSME.

COSME will provide various forms of support to businesses in particular SMEs to:

- foster a favourable business environment and entrepreneurial culture
- facilitate access to markets
- reduce administrative burden
- support uptake of innovation
- address global and societal challenges

Approximately 40% of COSME's budget is allocated towards the **Enterprise Europe Network (EEN)**. Since its launch in 2008, EEN has played a crucial role in facilitating the access of European SMEs to the Single Market and third country markets and in providing growth-oriented, integrated business and innovation support services to help them compete.

Innovation Norway is the national coordinator and provider of EEN services in Norway.

COSME also funds the **Joint Cluster Initiatives (EUROCLUSTERS)**, around 30 cross-sectoral, interdisciplinary and transnational 'Euroclusters', that will support the implementation of EU's New Industrial Strategy and SME Strategy, by building resilience and accelerating Europe's transition to a green and digital economy.

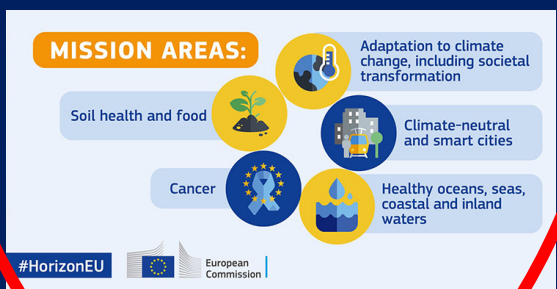
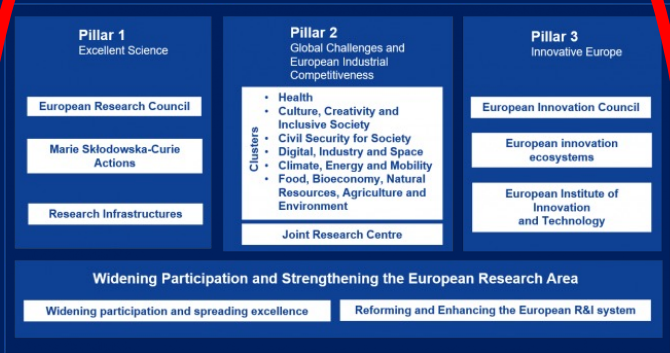


The promotion of recovery, green growth, employment and well-being across Europe, builds on the successful model of the Investment Plan for Europe, the Juncker Plan. It will bring together, under one roof, the European Fund for Strategic Investments and 13 other EU financial instruments.

Triggering more than €372 bill. in additional investment over the period 2021-27, the InvestEU Programme aims to give an additional boost to sustainable investment, innovation and job creation in Europe.

The InvestEU Programme supports the following 4 main policy areas:

- **Sustainable infrastructure**
Transport, energy, supply and processing of raw materials, tourism, digital connectivity and access including in rural areas
- **Research, innovation and digitisation**
Research, product development, innovation activities, transfer of technologies, scaling up of innovative companies
- **SMEs**
Access to and availability of finance primarily for SMEs (cultural and creative sectors), SMEs in difficulty significant risks due to the Covid-19 pandemic
- **Social investment and skills**
Social innovation, health and long-term care, microfinance, more



Horizon Europe is the EU's key funding programme for research and innovation with a budget of €95.5 bill. Funding can go to consortia, Start-Ups, SMEs, big companies, public authorities, research institutions and others, which answer specific calls from the Commission.



IPCEI are large-scale European consortia in key strategic value chains featuring tightly connected company projects. IPCEI features projects with a dedicated focus on Research and Development as well as First Industrial Deployment (FID). An IPCEI requires the approval of the European Commission under state aid law



Bringing digital technology to businesses, citizens and public administrations Digital technology and infrastructure have a critical role in EU's citizens lives. The pandemic highlighted not only how much we rely on our technology to be available to us, but also how important it is for Europe not to be dependent on systems and solutions coming from other regions of the world.

The Digital Europe Programme will provide strategic funding to answer these challenges, supporting five key capacity areas:

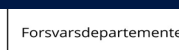
- supercomputing, artificial intelligence,
- cybersecurity, digital skills
- ensuring use of digital technologies across the economy and society, including Digital Innovation Hubs (EDIH)

A budget of €7.5 bill. aims to accelerate the economic recovery and shape the digital transformation of Europe's society and economy, bringing benefits to everyone, but in particular to SME's.

The Programme will complement the funding available through other EU programmes, such as the Horizon Europe and the Connecting Europe Facility for digital infrastructure, the Recovery and Resilience Facility and the Structural funds. It is a part of the next long-term EU budget, the Multiannual Financial Framework 2021-2027.

IPCEI ≠ EU funding
IPCEI = national funding

Upcoming topics:
Health, Solar, Cloud, Microelectronics II



The EDF is a component of the EU's Common Security and Defence Policy which aims to coordinate and increase national investment in defence research and improve interoperability between national armed force. Cooperation among companies and research actors of all sizes and geographic origin in the Union are funded. A budget of close to €8 billion for 2021-2027 is dedicated to the European Defence Fund. €2.7 billion to fund **collaborative defence research** and €5.3 billion euros to fund collaborative **capability development projects** complementing national contributions.



Demonstration of innovative **low-carbon technologies**, financed by revenues from the auction of emission allowances from the EU's Emissions Trading System. The Innovation Fund is available to individual organisation and (multinational) consortia.

Small-scale projects: (CAPEX ≤ € 20 Mio.)

Medium-scale projects: (CAPEX €20-100 Mio.)

Large-scale projects: (CAPEX > 100 Mio.)

From 2023: Competitiv bidding
-> **Green Hydrogen production, project support for those who can set a low hydrogen price, Hydrogen Bank**

Horizon Europe







Total budget: 95,5 mrd. Euro

| Pillar 1 Excellent Science (23,1 mrd. €) | Pillar 2 Global Challenges and European Industrial Competitiveness (51,3 mrd €) | Pillar 3 Innovative Europe (13,3 mrd. €) |
|---|---|---|
| European Research Council (ERC) | Clusters <ol style="list-style-type: none">1. Health2. Culture, Creativity and Inclusive Society3. Civil Security for Society4. Digital, Industry and Space5. Climate, Energy and Mobility6. Food, Bioeconomy, Natural Resources, Agriculture and Environment <hr/> Joint Research Centre - > Partnerships for all Clusters | European Innovation Council (EIC) |
| Marie Skłodowska-Curie Actions (MSCA) | | European Innovation Ecosystems (EIE) |
| Research Infrastructures | | European Institute of Innovation and Technology (EIT) |

Widening Participation and Strengthening the European Research Area
(3,2 mrd. €)

Widening participation and spreading excellence
Reforming and Enhancing the European R&I system

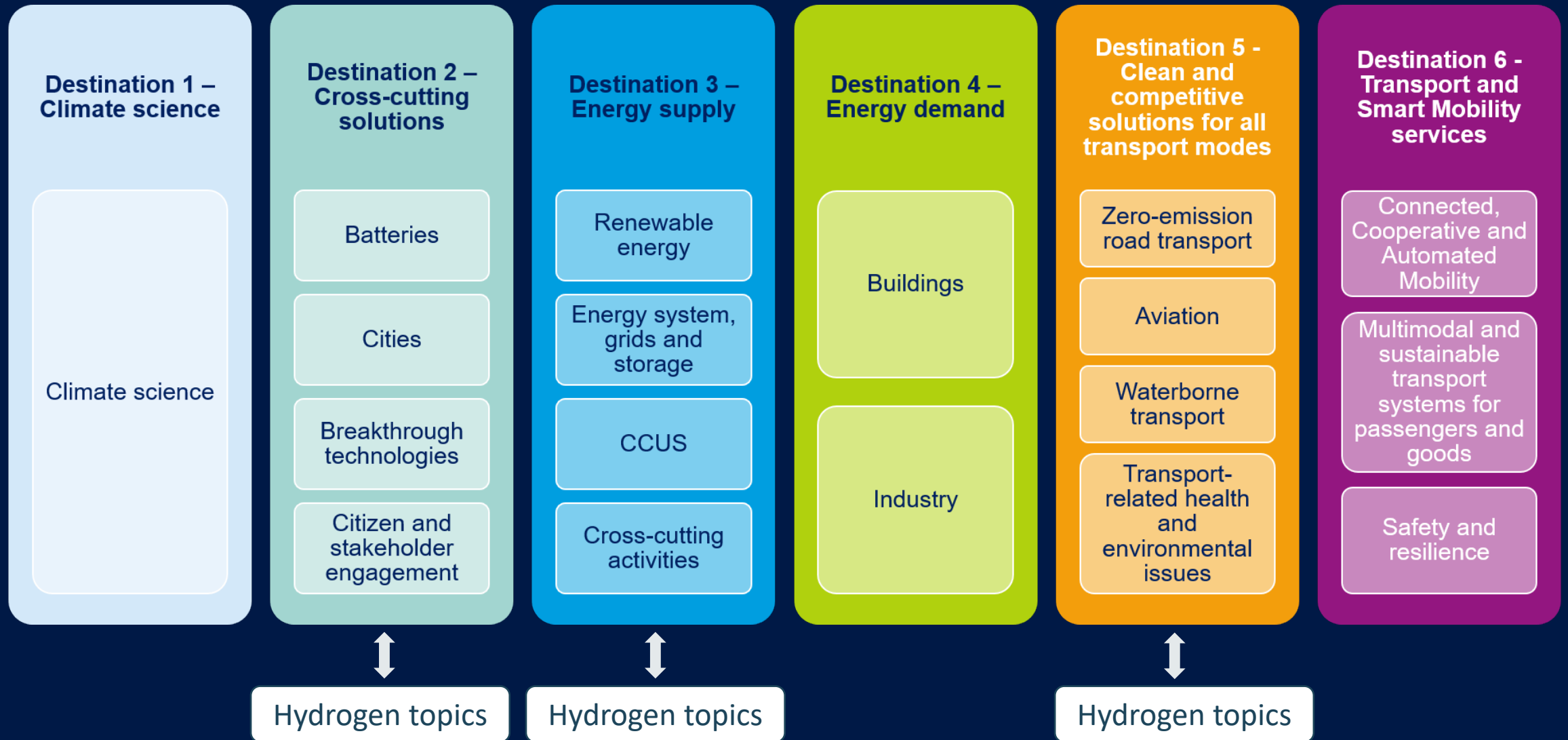
Pilar 2 – Global Challenges and European Industrial Competitiveness

|  1. Health |  2. Creativity and Inclusive Societies |  3. Civil Security |  4. Digital, industry and space |  5. Climate, Energy and Mobility |  6. Bioeconomy, food, agriculture, environment |
|---|--|--|--|--|--|
| <ul style="list-style-type: none"> • Health throughout the life course • Environmental and social health determinants • Non-communicable and rare diseases • Infectious Diseases • Tools, technologies and digital solutions for health and care | <ul style="list-style-type: none"> • Democracy and governance • Culture, cultural heritage and creativity • Social and Economic Transformations | <ul style="list-style-type: none"> • Disaster-Resilient Societies • Protection and Security • Cybersecurity | <ul style="list-style-type: none"> • Manufacturing Technologies • Key Digital Technologies • Emerging enabling technologies • Advanced Materials • Artificial intelligence and robotics • Next Generation Internet • Advanced Computing and Big Data • Circular Industries • Low-carbon and clean Industry • Space | <ul style="list-style-type: none"> • Climate science and solutions • Energy Supply • Energy systems and grids • Buildings and Industrial Facilities in Energy Transition • Communities and Cities • Industrial competitiveness in transport • Clean, safe and accessible transport and mobility • Smart mobility • Energy storage | <ul style="list-style-type: none"> • Environmental observations • Biodiversity and Natural Capital • Agriculture, forestry and rural areas • Seas, Oceans and Inland Waters • Food systems • Bio-based innovation systems in the EU bioeconomy • Circular systems |

Cluster 5 – climate, energy and mobility

- 6 destinations = undergrupper
- Calls 2023-2024 open – ca. 180 calls

€15.3 mrd



Horizon Europe

Total budget: 95,5 mrd. Euro

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|---|--|---|
| European Research Council (ERC) | Clusters <ol style="list-style-type: none">1. Health2. Culture, Creativity and Inclusive Society3. Civil Security for Society4. Digital, Industry and Space5. Climate, Energy and Mobility6. Food, Bioeconomy, Natural Resources, Agriculture and Environment <hr/> Joint Research Centre - > Partnerships for all Clusters ca. 50% of budget | European Innovation Council (EIC) |
| Marie Skłodowska-Curie Actions (MSCA) | | European Innovation Ecosystems (EIE) |
| Research Infrastructures | | European Institute of Innovation and Technology (EIT) |

Widening Participation and Strengthening the European Research Area
(3,2 mrd. €)

Widening participation and spreading excellence
Reforming and Enhancing the European R&I system



Co-funded by the
European Union

| Call Identifier | Budget (EUR mill) | Publication | Deadline |
|----------------------------|----------------------|-----------------|---------------|
| HORIZON-JTI-CLEANH2-2024-1 | 113.5 | 17 January 2024 | 17 April 2024 |

*Note: calls are occurring yearly

1.

| | | |
|--------------------|--------------|----------|
| RENEWABLE HYDROGEN | Electrolysis | 3 Mio.€ |
| RENEWABLE HYDROGEN | Electrolysis | 4 Mio.€ |
| RENEWABLE HYDROGEN | Electrolysis | 4 Mio.€ |
| RENEWABLE HYDROGEN | Electrolysis | 4 Mio.€ |
| RENEWABLE HYDROGEN | Electrolysis | 10 Mio.€ |

2.

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|-----------------------------------|--|---------|
| HYDROGEN STORAGE AND DISTRIBUTION | Hydrogen Storage | 3 Mio.€ |
| HYDROGEN STORAGE AND DISTRIBUTION | Hydrogen Storage | 4 Mio.€ |
| HYDROGEN STORAGE AND DISTRIBUTION | Compression, Purification and Metering Solutions | 6 Mio.€ |
| HYDROGEN STORAGE AND DISTRIBUTION | Compression, Purification and Metering Solutions | 6 Mio.€ |
| HYDROGEN STORAGE AND DISTRIBUTION | HRS | 8 Mio.€ |

3.

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|---|-------------------------|---------|
| HYDROGEN END-USES: TRANSPORT APPLICATIONS | Building blocks | 4 Mio.€ |
| HYDROGEN END-USES: TRANSPORT APPLICATIONS | Building blocks | 4 Mio.€ |
| HYDROGEN END-USES: TRANSPORT APPLICATIONS | Building blocks | 5 Mio.€ |
| HYDROGEN END-USES: TRANSPORT APPLICATIONS | Waterborne Applications | 6 Mio.€ |

4.

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|---|-------------------------------|---------|
| HYDROGEN END-USES: CLEAN HEAT AND POWER | Fuel Cells | 5 Mio.€ |
| HYDROGEN END-USES: CLEAN HEAT AND POWER | Turbines, boilers and burners | 4 Mio.€ |

5.

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|----------------------|--|-----------|
| CROSS-CUTTING ISSUES | Sustainability, LCSA, recycling and eco-design | 1,5 Mio.€ |
| CROSS-CUTTING ISSUES | Sustainability, LCSA, recycling and eco-design | 3 Mio.€ |

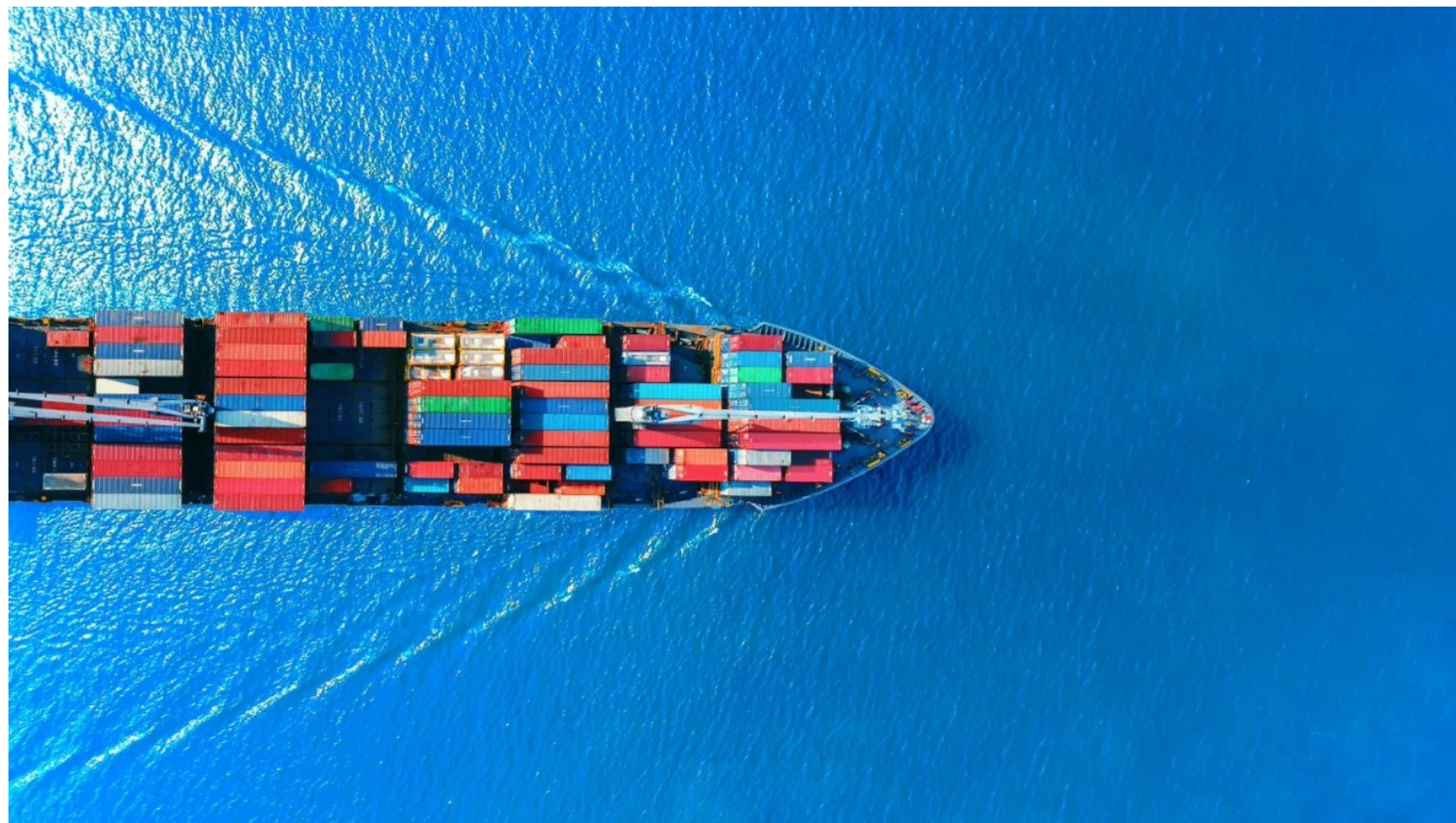
6.

| | | |
|------------|-------------------------|----------|
| H2 VALLEYS | H2 VALLEYS -Large scale | 20 Mio.€ |
| H2 VALLEYS | H2 VALLEYS- Sall scale | 9 Mio.€ |

Maritime calls

Synergies: *use and build on!*

- *Previous funded EU projects (e.g. RH2IWER, FLAGSHIPS, H2Ports or EVERYWH2ERE)*
- *Other partnerships (e.g. Zero Emission Waterborne Transport Partnership (ZEWT), Clean Aviation, Zero Emission Road Transport, a.o.)*



| | | | | | |
|--------------------------------|--|-----|--------------|------------|----------|
| HORIZON-JTI-CLEANH2-2024-02-05 | Demonstration and deployment of multi-purpose between road and application for airports, railways, and/or harbours | IA | TRL Start: 5 | TRL End: 7 | 8 Mio. € |
| HORIZON-JTI-CLEANH2-2024-03-03 | Next generation on-board storage solutions for hydrogen-powered maritime applications | RIA | TRL Start: 4 | TRL End: 6 | 5 Mio. € |
| HORIZON-JTI-CLEANH2-2024-03-04 | Demonstration of hydrogen fuel cell-powered inland or short sea shipping | IA | TRL Start: 5 | TRL End: 7 | 6 Mio. € |

Demonstration and deployment of multi-purpose between road and application for airports, railways, and/or harbours

HORIZON-JTI-CLEANH2-2024-02-05

IA / Max. 8 Mio. € / Deadline 17. Apr. 2024 / TRL up to 7



The aim of this topic is to demonstrate a **multipurpose HRS** able to supply a combination of aviation, rail and/or heavy-duty road applications. Combining these mobility ecosystems will stimulate the development of a regional hydrogen economy, creating a **synergy with public and private actors across** the hydrogen value chain (production, distribution, storage, and end-use). It is fundamental to develop and optimise HRS (**especially for trains, marine and airport applications**), **situated on depots**, with corresponding captive demand for large-scale hydrogen. This concept assumes the provision of **pressurised gaseous and/or liquid hydrogen** together with the development of appropriate and reliable systems for lifetime prediction.

The project results are expected to contribute to the following outcomes:

- The deployment of hydrogen **refuelling facilities for vehicles** (ground support equipment and heavy-duty vehicles fleets) and captive fleets (buses, trains, etc.);
- High public visibility with a growing number of **trial and demonstration projects**;
- The development of new services and the **HRS delivery platform**;

Project results are expected to contribute to the following objectives and KPIs of the Clean Hydrogen JU SRIA:

- **Reduction of CAPEX:** 1.5–4k€/((kg/d) (700bars), 0.65-2.5k€/((kg/d) (350bars), 1.5-4k€/((kg/d) (LH2);
- **Increased availability:** 98% (700bars), 98% (350bars), 97% (LH2);
- **Hydrogen price:** 3€/kg (700bars), 2€/kg (350bars), 3€/kg (LH2);
- **Annual maintenance cost:** 0.5€/kg (700bars), 0.35€/kg (350bars), 0.5€/kg (LH2) ;
- **Increased reliability** (mean time between failures): 72 days (700 bars), 144 days (350 bars), 216 days (LH2).

Cont.

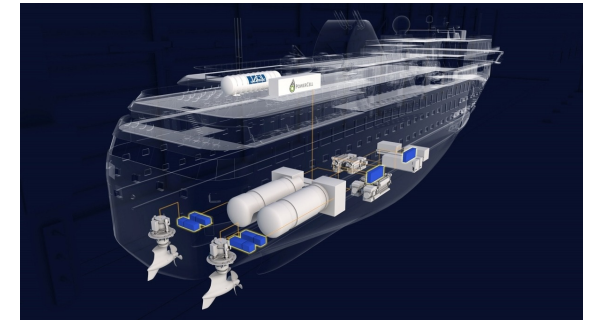
Proposals should respond to the following technical requirements: *(more requirements in original document!)*

- Develop **high throughput stations** for heavy duty vehicles fleets (trains, buses or trucks, aircrafts, **maritime vessels**, and associated ground support equipment), including **1 to 3,000kg/day capacity** and individual fills of more than **200 kg** (demonstration actions only, large-scale rapid filling remains a big challenge), expected in **less than 20 minutes**; more generally the station capacity should depend on filling station profile (e.g. hourly peak demand is usually around 7% of the daily mass dispensed (for trucks).
- Develop **digital models** that capture refuelling data in aim to anticipate load curves in the HRS.
- **Reduce CAPEX and OPEX** by implementing innovative technological components (e.g., compressors, cooling systems, dispensers) and optimising their integration into the design and operation of the HRS.
- Facilitate the **use of locally produced green hydrogen**, e.g., by enabling low inlet pressure and flexible operation for intermittent renewable energies, or production by electrolysis or biomass;
- Develop a **pressurised and/or liquid hydrogen supply strategy**;
- Aim to **standardise and industrialise HRS equipment** and components while developing protocols for safe and reliable refuelling in **partnership with OEMs and distributors**;
- Address **technical certification** and levels of education and awareness amongst regulators and other stakeholders
- Support **improved efficiency**, with the goal of zero boil-off for LH2 and losses during hydrogen transfer, distribution, and, ultimately, across the whole hydrogen supply chain;
- **Quantify the costs** incurred when operating an HRS.

Next generation on-board storage solutions for hydrogen-powered maritime applications

HORIZON-JTI-CLEANH2-2024-03-03

RIA / Max. 5 Mio. € / Deadline 17. Apr. 2024 / TRL up to 6



This topic centres around **maritime transport**, with a view on a **spill-over to rail and road applications** of similar energy storage needs. The critical issues to be addressed for candidate fuel(s) for **supplying pure hydrogen (5.0 fuel cell grade)** on board of maritime vessels shall contribute to the following outcomes:

- Contribute to the selection of most appropriate fuels for maritime transport across the widely differing operation requirements from short to deep sea shipping, thereby consolidating Europe's leading role in decarbonising maritime transport;
- **Ease the end-users' challenge** of selecting the most suitable fuel for their **new and retrofitted ships** so that they can take well-informed decisions in the green energy (and fuel) transition.
- Define optimal fields of application of the proposed storage technology considering the logistics and the mission of each category of maritime transport by the end of the project; additionally, the pathways **to spill-over to heavy-duty rail and road transport systems must be elaborated**;
- Improve the operational capacity of storage systems to achieve performance according to the **KPIs listed below**;
- Deployment of **cost-effective hydrogen or hydrogen carrier fuel storage system for maritime**, and if applicable, also other heavy-duty applications by 2030.

Project results are expected to contribute to the following objectives and KPIs of the Clean Hydrogen JU SRIA:

- **Hydrogen bunkering rate:** 20 tonH₂/h in 2030;
- **Tank volumetric Capacity system:** 45 gH₂/L (system) in 2030;
- **Tank CAPEX** lower than 245 €/kgH₂ in 2030.

Cont. *(more requirements in original document!)*

Projects are expected to **focus on below-deck innovative inland and sea waterborne transport hydrogen storage systems** beyond the State-of-the-Art in any of the well-established physical states and chemical compositions (CH₂, LH₂, NH₃, LOHC, solid state carriers) as well as potential novel hydrogen carriers or combinations of technologies with the following characteristics:

- Supply of **pure hydrogen (5 point) to the propulsion system**;
- Vessel propulsion and auxiliary power systems requiring a **hydrogen supply flow of minimum 30 kgH₂/h** with a **modular approach capable of achieving MW scale capacities**;
- **Bunkering/refuelling** expected during adequate and suitable timeslots within daily operation or at the beginning or end of daily service;
- Below-deck, integrated onboard **tanks to be filled directly** (excluding exchangeable mobile tank systems (i.e., tank swapping)). The **whole bunkering system needs to be addressed** which means that the system boundary is on one side the feeding pipe for refueling and on the other one the pure hydrogen output to the conversion unit. Thus, everything in between is part of the system to be designed and trialed (i.e., LOHC+ and LOHC- tanks).

Proposals must elaborate on potential technology **spillovers to other heavy duty means of transportation** (road, trains, special vehicles, etc.), through scaling and/or adapting the proposed solutions or using parts (modules) of the larger system.

Projects should provide supporting evidence concerning:

- **Measures to deal with fuel spills** and safety (fire, explosion, toxicity);
- **Energy efficiency** and fossil carbon footprint from total fuel supply concept (well to hydrogen supply) based on the chosen hydrogen carrier and on-board storage solution;
- The **HAZID analysis** as input to an Approval in Principle.

Cont. *(more requirements in original document!)*

The scope of the topic is to provide a **full conceptual study** of the proposed solution to storing hydrogen or a hydrogen carrier below deck of a vessel with **high power propulsion needs (>500 kW)** and **high frequency operation**. The scope further entails **building a reference prototype for validating the concept, or several concepts in comparison, under real-world operating conditions**.

The project should propose a storage technology which will be **able to go beyond the state of art for on-board hydrogen storage** with respect to the amount of energy stored, the space occupied per MWh of stored chemical energy, and the reduced shipping space (passengers/vehicles/containers), moving closer to current fuels properties and bunkering rates.

The project should provide a **prototype suitable** in principle for **supplying a harbour vessel, short-sea vessel, offshore service vessel, or inland waterway propulsion module**:

- **minimum 30 kg/hr** of pure hydrogen supply;
- storage capacity of **minimum 200 kg hydrogen**;
- **bunkering/refuelling** time of less than 10 minutes per 100 kgH₂.

The prototype is to be tested and validated under **real-world operating conditions**, including proof of safe handling and refilling over a meaningful number of cycles. The whole bunkering system needs to be addressed where the system boundaries are the feeding pipe for refueling and the pure hydrogen output:

- **Test duration** of at least **300 h**;
- **Minimum number of 50 cycles** in a meaningful range of charge and discharge ratio complying with typical operating conditions;
- Testing under **relevant maritime operating conditions**, including start-up from lower temperatures and peak power demand situations;
- Evaluation of the thermal management requirements with regard to operating conditions;
- Assessment of storage prototype lifetime/aging

The following activities are considered **to be out of scope** for this topic:

- Technology and design developments concerning **tank swap and mobile tank concepts; compression and liquefaction technologies; technologies which produce the hydrogen**, such as electrolyzers or ammonia synthesis; **technologies that use the hydrogen**, such as fuel cells, gas turbines, or internal combustion engines; **technologies only aimed at terrestrial heavy-duty utilisation**.

Demonstration of hydrogen fuel cell-powered inland or short sea shipping

HORIZON-JTI-CLEANH2-2024-03-04

IIA / Max. 6 Mio. € / Deadline 17. Apr. 2024 / TRL up to 7



This topic aims to demonstrate in its operational environment a broad hydrogen based waterborne transport ecosystem, showing the feasibility and benefits of integrating hydrogen and hydrogen carriers into this hard to abate sector. The overarching goal is to address the ability **to safely bunker hydrogen** (pure or in terms of a hydrogen carrier), **to store it on board and to consume it for propulsion in a waterborne environment**. Such solutions should address bunkering, on-board storage, power conversion and propulsion and as well consider, the current industrial standards in manufacturing, transportation, storing and safe handling of hydrogen or the hydrogen carrier involved. **The use of Internal Combustion Engines is excluded.**

The demonstration project should contribute to:

- Reducing GHG and local emissions from waterborne transport in line with prevailing targets;
- Enabling and facilitate further deployment in **hydrogen-powered shipping, ensuring safety** underpinned by the necessary onshore norms and regulations (protocols and standards);
- **Developing a European supply chain** and thereby consolidating the European industry's competitiveness in zero emission waterborne transport;
- If possible, integrating into the demonstrator a prototype developed in previous project related to the application of FC modules to heavy duty applications such as e.g. Standard-Sized Heavy-duty Hydrogen (StaSHH)

Project results are expected to contribute to the following objectives and KPIs of the Clean Hydrogen JU SRIA:

- **In-ship system CAPEX [€/kW]:** 2,000 in 2024 and 1,500 in 2030;
- **Expected system lifetime [h]:** 40,000 in 2024 and 80,000 in 2030;
- **NO_x emissions** not exceeding 25 ppm of the exhaust gas stream and 30 mgNO_x/MJ_{fuel};

Cont. *(more requirements in original document!)*

Moreover, the results are expected to comply with the following requirements:

- Demonstration under realistic end user **operation of at least 1000 h, preferably longer**;
- **Minimal on-board energy storage** for operational autonomy of **48h (2 days)**;
- **Documentation** of safe, efficient on-board storage and integration of hydrogen /hydrogen carrier;
- Integration of the chosen on-board storage solutions below the vessel deck, or swappable fuel tank containers on deck **appropriate for a scale of several hundreds of kilos to tons**;
- Installing the associated high-capacity refuelling **infrastructure into ports**.

Project proposals should address **demonstration of fuel cell** (internal combustion engines are excluded) of hydrogen powered **inland or short sea vessels** utilising Fuel Cells under the following considerations:

- Development and demonstration of a hydrogen ecosystem with **at least one port including hydrogen (carrier) logistics**, and suitable integrated refuelling/bunkering solution;
- Provision of zero-carbon fuels (hydrogen or its carriers), **shore-based infrastructures**;
- Selection of a **suitable ship segment** and technical concept for the demonstration activity, including an adequate propulsion power level for the application;
- Secure the **port(s) approval processes** for hydrogen / hydrogen-based fuels bunkering and construct the bunkering infrastructure solution;
- Establish the **technical and economic feasibility** for replication and scale up in European ports.

Small + Large-scale Hydrogen Valley

HORIZON-JTI-CLEANH2-2024-07-02 + HORIZON-JTI-CLEANH2-2024-07-01

IA / Max. 9 Mio€ (small) & 20.Mio € (large) / Deadline 17. Apr. 2024 / TRL up to 8

A Hydrogen Valley typically require a **multi-million EUR investment** and cover all necessary steps in the **hydrogen value** chain, from production (and often even dedicated renewable electricity production) to subsequent storage and its transport & distribution to various end-uses. **It serves more than one end sector or application in transport, industry and energy.**

Aim: deploying 100 Hydrogen Valleys worldwide by 2030.

Proposals should respond to the following technical requirements:

- The proposed solution should provide energy flexibility and improve the regions' system resilience through the **use of renewable hydrogen**
- **Produce at least 4,000 tonnes** of renewable hydrogen per year using new hydrogen production capacity
- **At least two hydrogen applications from at least two different sectors should be part of the project**, with a clear focus on energy, industry and transport sectors.
- Production of hydrogen with a LCA GHG intensity ratio **lower than 3.38 tCO₂e for each ton produced**
- Demonstration of how **financial viability** is expected to be reached after **two years of operation**.



Draft: 20x calls 2024

[EU's Funding & Tender portal: klikk her](#)

| | |
|--------------------------------|--|
| HORIZON-JTI-CLEANH2-2024-01-01 | Innovative proton conducting ceramic electrolysis cells and stacks for intermediate temperature hydrogen production |
| HORIZON-JTI-CLEANH2-2024-01-02 | Advanced anion exchange membrane electrolyzers for low-cost hydrogen production for high power range applications |
| HORIZON-JTI-CLEANH2-2024-01-03 | Development of innovative technologies for direct seawater electrolysis |
| HORIZON-JTI-CLEANH2-2024-01-04 | Development and implementation of online monitoring and diagnostic tools for electrolyzers |
| HORIZON-JTI-CLEANH2-2024-01-05 | Hydrogen production and integration in energy-intensive and speciality chemical industries in a circular approach to maximise total process efficiency and substance utilisation |
| HORIZON-JTI-CLEANH2-2024-02-01 | Investigation of microbial interaction for underground hydrogen porous media storage |
| HORIZON-JTI-CLEANH2-2024-02-02 | Novel large scale aboveground storage solutions for demand-optimised supply of hydrogen |
| HORIZON-JTI-CLEANH2-2024-02-03 | Demonstration of hydrogen purification and separation systems for hydrogen-containing streams in industrial applications |
| HORIZON-JTI-CLEANH2-2024-02-04 | Demonstration of innovative solutions for high-capacity, reliable, flexible, and sustainable hydrogen compression technologies in commercial applications |
| HORIZON-JTI-CLEANH2-2024-02-05 | Demonstration and deployment of multi-purpose between road and application for airports, railways, and/or harbours |
| HORIZON-JTI-CLEANH2-2024-03-01 | BoP components, architectures and operation strategies for improved PEMFC system efficiency and lifetime |
| HORIZON-JTI-CLEANH2-2024-03-02 | Scaling up Balance of Plant components for efficient high-power heavy-duty applications |
| HORIZON-JTI-CLEANH2-2024-03-03 | Next generation on-board storage solutions for hydrogen-powered maritime applications |
| HORIZON-JTI-CLEANH2-2024-03-04 | Demonstration of hydrogen fuel cell-powered inland or short sea shipping |
| HORIZON-JTI-CLEANH2-2024-04-01 | Portable fuel cells for backup power during natural disasters to power critical infrastructures |
| HORIZON-JTI-CLEANH2-2024-04-02 | Improved characterisation, prediction and optimisation of flame stabilisation in high-pressure premixed hydrogen combustion at gas-turbine conditions |
| HORIZON-JTI-CLEANH2-2024-05-01 | Guidelines for sustainable-by-design systems across the hydrogen value chain |
| HORIZON-JTI-CLEANH2-2024-05-02 | Development of non-fluorinated components for fuel cells and electrolyzers |
| HORIZON-JTI-CLEANH2-2024-07-01 | Large-scale Hydrogen Valley |
| HORIZON-JTI-CLEANH2-2024-07-02 | Small-scale Hydrogen Valley |

Criteria and information:

General for Horizon Europe and partnerships:

- Minimum three partners from three countries – Norway = «country»
- Check TRL level- both start and expected end
- Look at the bigger picture – think outside the box reg. partners, customers, project angel, a.m.
- Crossover competencies needed?
- Show synergies with other EU projects or programmes
- Check policies, strategies and guidelines
- Role in a consortium: leader vs participant
- Research Innovation Action and Innovation Action – coverage for companies = 70%, coverage for NGO's, clusters, R&D institutes = 100%

Specific for EU's partnerships:

- Max funding per call – lump sum: Applications exceeding the funding budget will not be evaluated
- Minimum one consortium partner must be member in Hydrogen Europe or Hydrogen Europe Research (same accounts for other partnerships)
- Equipment and material costs: *Purchases of equipment, infrastructure or other assets used for the action must be declared as depreciation costs. However, for the following equipment, infrastructure or other assets purchased specifically for the action (or developed as part of the action tasks): electrolyser, its BoP, hydrogen pipeline network, and any other hydrogen related equipment essential for the implementation of the project (e.g. hydrogen storage), costs may exceptionally be declared as full capitalised costs.*



Clean Hydrogen Partnership



Members



Industry grouping

400+ companies & national associations

ExCo:

- Jon André Løkke, NEL (chair)
- Hege Rognø, Equinor

Members:

Equinor, Hydrogenpro ASA, Hystar AS
Møre og Romsdal fk., NEL (DK),
Norwegian Hydrogen Forum,
Scatec ASA, Fortsecue, Norwegian Hydrogen,
Stavanger Region European Office
TECO2030, YARA, Innovasjon Norge...

[check members](#)

Research grouping

500+ scientists

131 univ. & RTOs, 29 countries
Steffen Møller-Holst, Sintef, TC chair

Members:

Sintef,
IFE
NORCE,
NTNU,
Sintef Ocean

[check members](#)

Governing board

- 6 industry grouping
- 1 research grouping
- 1 EC

States Representative Group (SRG)

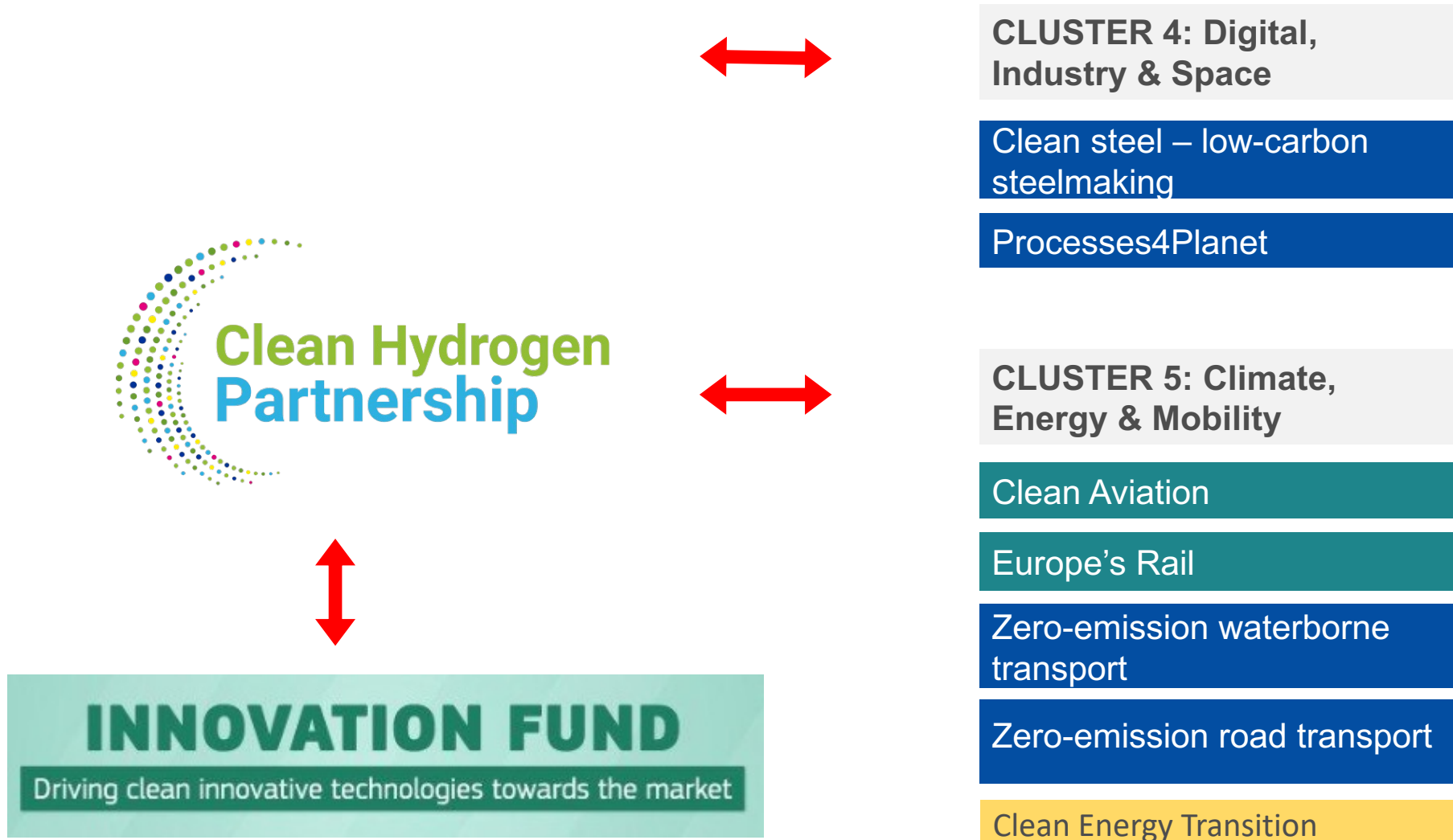
- Åse Slagtern, RCN (member)
- Tore Grunne, OED (alternate)




Stakeholders Group

[Clean Hydrogen Partnership- webpage](#)

- Strategic Research and Innovation Agenda (SRIA)
- Annual Work Programme

Clean Hydrogen – synergies & collaboration



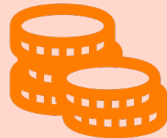
 Institutionalised Partnerships (Art 185/7)
 Co-Programmed
 Co-Funded

Support from Innovation Norway and the Norwegian Research Council

- Use the NCP network (IN & RCN) and EU advisors in your cluster
 - big network + remember: has foreign offices in Europe
- Prosjektetablerningstøtte (PES) + PNO services – The Norwegian Research Council [link](#)
- EU's Funding & Tender portal [link](#)
- PIC – nummer (Participant Identification Code) [link](#)



**COURSES AND
ADVISORY**



NATIONAL FUNDING



**NCP'S IN NORWAY AND
NETWORK**



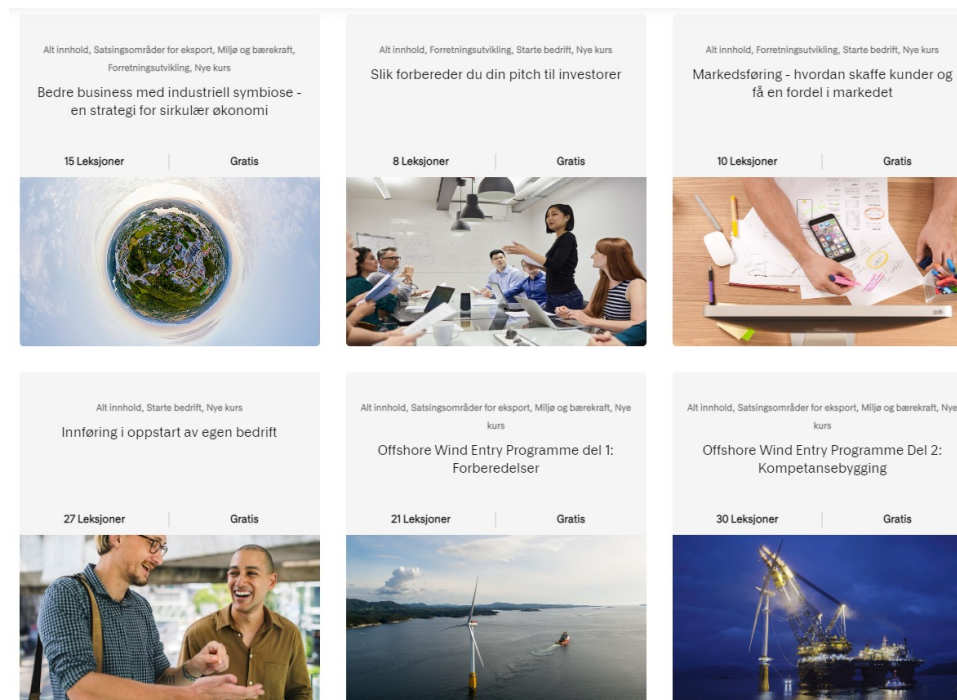
**COMMUNICATION AND
SOCIAL MEDIA**



Courses from IN and RCN

Over 2000 x participants yearly:

- Introduction to Horizon Europe
- Application writing
- Consortium contracts and advisory
- Project management of EU projects
- Financial audits
- Innovation Norway Competence Center
 - Digital courses with different topics. e.g. IP-Strategy, Growth & Scaling, Businessmodelling Internationalization, a.m.



RCN courses - [here](#):
IN's Competence Center - [here](#):



Økonomiske støtteordninger

PES - Støttegrensermaksimum kr 1 000 000 (bagatellmessig støtte)

- Prosjektetableringsordningen (PES) skal bidra til at søknader med norsk deltakelse i Horisont Europa har høy kvalitet slik at norsk potensial blir tatt ut så godt som mulig
- Søk så tidlig som mulig – helst så snart et prosjektforslag begynner å ta form – og seinest fire uker før EU-fristen. Skal du koordinere et samarbeidsprosjekt, må du ta kontakt med en NCP seinest 12 uker før EU-fristen
- Krav til prosjektansvarlig: Den prosjektansvarlige organisasjonen som står som prosjektansvarlig i søknadsskjemaet, må ha godkjent at søknaden sendes inn. Det forutsettes at prosjektansvarlig oppfyller formelle krav som stilles for å delta i EU-prosjektforslag.
- Krav til prosjektleder: Prosjektleders faglige kompetanse og egnethet til å gjennomføre prosjektet vil bli vurdert. Det er ingen formelle krav til prosjektleders kvalifikasjoner.
- Midlene kan gå til å dekke kostnader knyttet til reiser, deltakelse på møteplasser, til posisjonering og timer og innkjøp av tjenester for å utarbeide prosjektforslag. Alle støttebeløpene er maksimumsgrenser. Støtte til hver PES-søknad vurderes individuelt.
- EU-prosjektforslaget må oppnå en karakter som tilsvarer terskelverdi ("threshold") eller bedre.

PNO –gratis konsulenthjelp- avtale med NFR

- hjelp til utvikling av Horisont Europa-strategi
- mentorhjelp og ideutvikling til best mulig Horisont Europa søknad
- hjelp med å finne riktige partnere til prosjektet
- gjennom individuelle møter avdekke spesifikke behov, ambisjoner og forventninger
- identifisere utlysninger og finansieringsmuligheter som passer med ditt prosjekt
- gjennomlesning og kommentering av søknaden

IN virkemidler som forberedelse/supplement

- Innovasjonstilskudd, innovasjonskontrakt o.a. kan være risikoavlastende og forbedre prosjektet/selskapet
- Søknader til IN og EU kan gå i parallell
- EU trumfer IN
- Kan samkjøres dersom ikke samme aktiviteter er finansiert av norsk og europeiske skattepengene



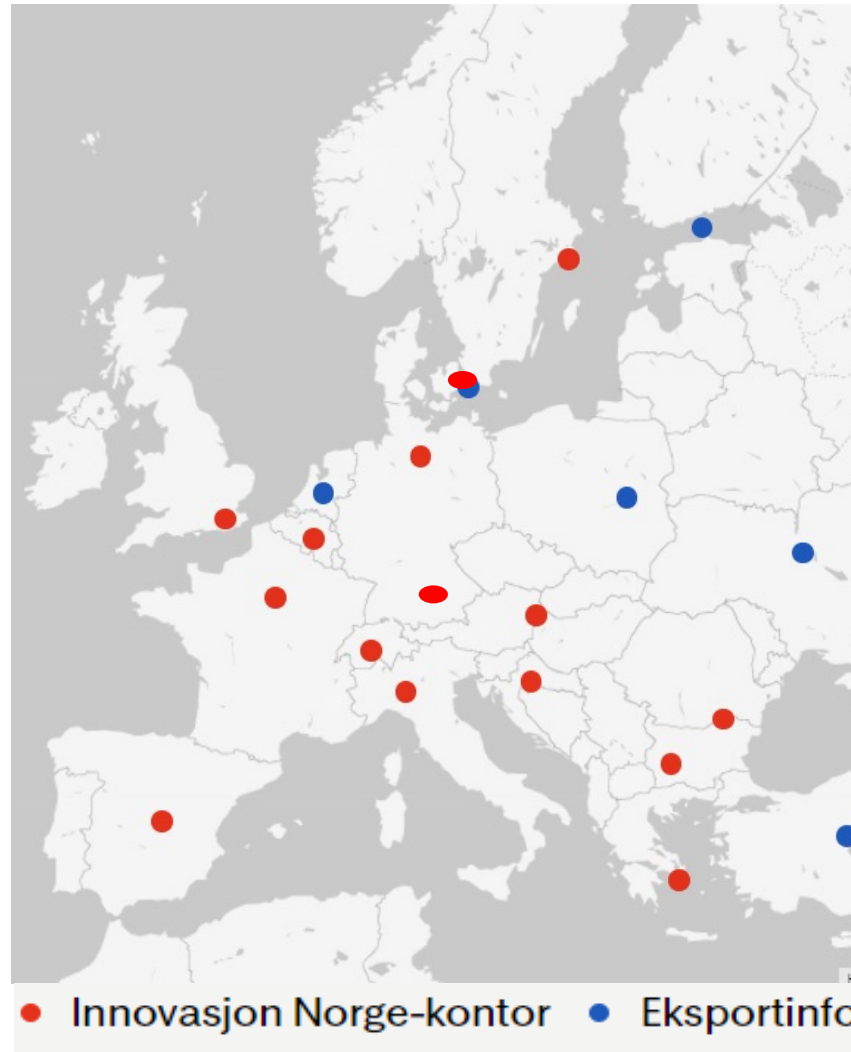
NCP's and consortium building

NCP's are working for you

- NCP's in RCN and IN work both top down and bottom up
- «Spies» and networkers
- Sparringspartner on call text
- Support building consortias

Innovation Norway services as supplement

- IPR advisory, businessmodelling, foreign offices, customer and partner search, market reports, internationalisation, a.m. can be building the foundation towards EU success



- Network towards sister organisations
- Network towards R&D insitutions and companies in Europe



- Dialog with government and officals (Norway and EU)
- Dialog with programme committees
- Dialog with working groups in the EU system



Communication



TJENESTER TEMASIDER OM INNOV

Forsiden - Innovasjon Norge → Våre tjenester

Norske batteriprosjekter skal være m blant de beste

16.3.2023 14:00:00 CET | [Innovasjon Norge](#)



Vil gjøre shipping

Norge går med i den tunge, europeiske fellessatsingen på bat
gir norske virksomheter tilgang på finansiering, kompetanse
Innovasjon Norges administrerende direktør Håkon Haugli



FOTO: NCE MARITIME CLEANTECH

EU gir 100 millioner kroner i støtte for å gjøre Viking
offshoreskip som seiler med null utslipp.

Publisert 27 jan 2020

Næringsminister Jan Christian Vestre sammen med lederne i de fem bedri
venstre: Svein Kvernstuen i Beyonder, Lars Christian Bacher i Morrow, Anders Fort
Vatne i Hydro. Foto: Yngve Angvik, Nærings- og fiskeridepartementet

TECO 2030 er i ferd med å utvikle verdens første brenselceller som er optimalisert f
deres i Narvik. FOTO: TECO 2030 ASA

Verdens første utslippsfrie offshorefartøy blir
norsk. EU og Innovasjon Norge er med på laget.



Energikrise? Det er de nye EU-reguleringene norsk
næringsliv må ha blikket på



Administrerende direktør Håkon Haugli i Innovasjon Norge. FOTO: ANITA ARNTZEN

Utenfor politikernes kontorvinduer i Brussel står kontinentet i en
energiklemme: Gass- og kraftprisene har nådd rekordnivåer, det er mangel på
drivstoff, og strømprisene er høye.



Search funding & tenders

Search Clear all

hydrogen

Match whole words only

Type

Grants 29

Tenders

Submission status

Forthcoming

Open for submission 29

Closed

Programming period

Select...

Programme / Programme group

Select...

29 item(s) found

Submission status

Innovative proton conducting ceramic electrolysis cells and stacks for intermediate temperature hydrogen production

HORIZON-JTI-CLEANH2-2024-01-01 Call for proposal
Horizon Europe (HORIZON)

Open for submission Grant

Demonstration of hydrogen fuel cell-powered inland or short sea shipping

HORIZON-JTI-CLEANH2-2024-03-04 Call for proposal
Horizon Europe (HORIZON)

Open for submission Grant

Hydrogen production and integration in energy-intensive or specialty chemical industries in a circular approach to maximise total process efficiency and substance utilisation

HORIZON-JTI-CLEANH2-2024-01-05 Call for proposal
Horizon Europe (HORIZON)

Open for submission Grant

Novel large-scale aboveground storage solutions for demand-optimised supply of hydrogen

HORIZON-JTI-CLEANH2-2024-02-02 Call for proposal
Horizon Europe (HORIZON)

Open for submission Grant

Investigation of microbial interaction for underground hydrogen porous media storage

HORIZON-JTI-CLEANH2-2024-02-01 Call for proposal
Horizon Europe (HORIZON)

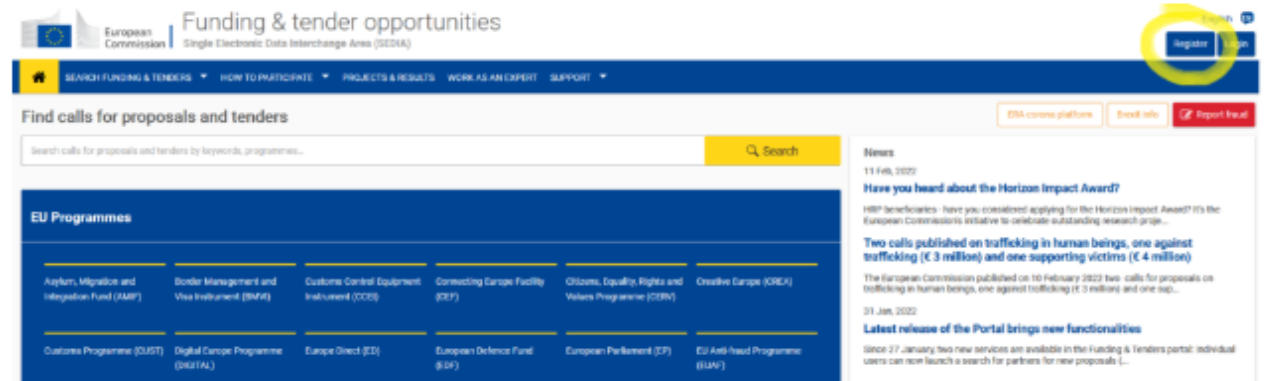
Open for submission Grant

How to get a PIC number on the Funding & Tenders Portal?

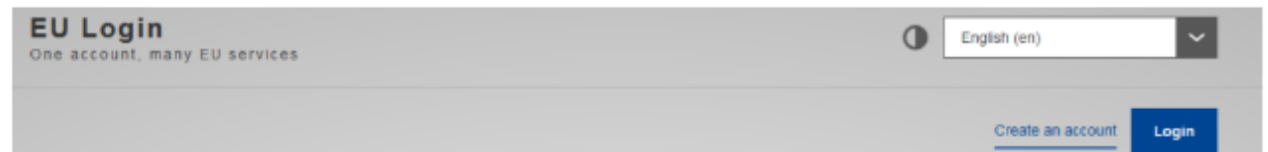
👤 EU Funds - 🕒 February 22, 2022 - 📁 Administration

To get a PIC (Participant Identification Code) number on the [Funding & Tenders Portal](#) of the European Commission, you first have to register on the Portal and create an EU Login. It is a 9-digit number that serves as a unique identifier for legal entities participating in European funding programmes. A PIC number has no expiry date. The PIC number is necessary for the participation in any EU grant such as [Horizon Europe](#) or EIT.

The validation of your PIC number is necessary only when your proposal or tenders are successfully evaluated.



It will redirect you to a page to create an EU Login Account.



- PIC – number (Participant Identification Code) [link](#)

National calls for funding of R&D and commercialisation activities for hydrogen actors



Takk



IN PARTNERSHIP WITH:



Tim Genge
tim.genge@innovasjon norge.no

EU rådgiver
NCP- National Kontaktpunkt CL5
– klima, energi og mobilitet
Innovasjon Norge

www.businessnorway.com

