



XIII SIMPOSIO EMPRESARIAL INTERNACIONAL - BARCELONA, 3 FEBRERO 2025

EUROPA: CAMINO HACIA LA SOSTENIBILIDAD ENERGÉTICA



3 de febrero de 2025

The Role of H₂ Infrastructure in the Energy Transition

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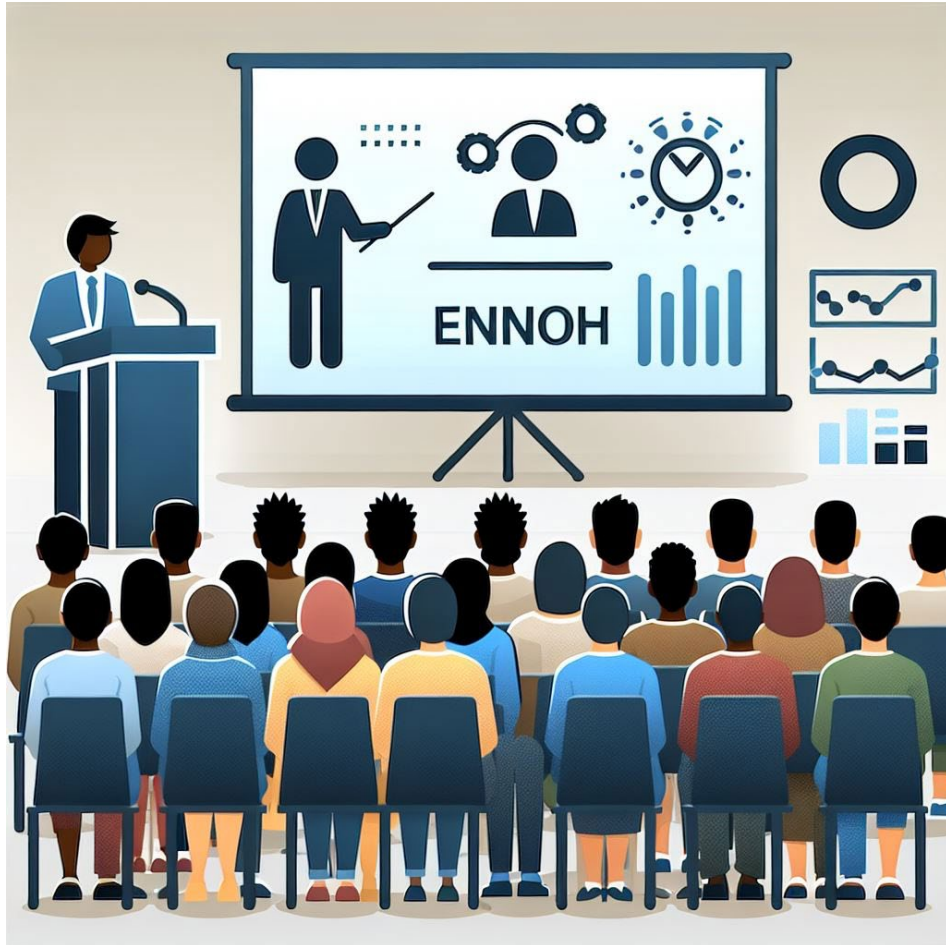


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*XIII International Business Symposium
3rd of February, Barcelona*



1. Introducing Pre-ENNOH/ENNOH



2. The Role of H₂ Infrastructure in the Energy Transition

1. Introducing Pre-ENNOH/ENNOH

1. ENNOH: Mission and Scope



ENNOH will be the **organisation for the cooperation** of the EU Hydrogen Transmission Network Operators (**HTNOs**).

ENNOH's primary mission is

- to promote the **development** and proper **functioning** of the **internal H₂ market**
- **ensure** the **cross-border trade** of H₂
- **support** the **optimal management**, coordinated operation and **sound technical evolution** of the European **H₂ transmission network**.



ENNOH shall **cooperate closely with ENTSOE and ENTSOG** (and EU DSO Entity) to

- identify **synergies**
- foster **system integration across energy carriers**
- facilitate overall energy **system efficiency**



ENNOH Tasks and Deliverables



TYNDP and related tasks

- Union-wide Ten-Year H₂ Network Development Plan
 - TYNDP 2026 by ENTSOG
 - ENNOH to take over TYNDP process in 2027
- Infrastructure Gaps Identification Report
- Single-sector Methodology
- Annual Supply Outlook and Assessment of System's Resilience
- Repurposing guidelines
- Cooperate closely with ENTSOE and ENTSOG on fostering system integration and overall energy system efficiency (Union-level Integrated Network Planning)
- Joint Scenarios with ENTSOG and ENTSOE
- Inter-linked/Integrated Market and Network Model



Network Codes

- Participate in the preparation of the Priority List
- Network Codes development:
 - Energy efficiency in H₂ networks
 - Interoperability (data exchange, transparency, H₂ quality, ...)
 - Financial compensation for cross-border investments
 - Capacity allocation (CAM), Congestion management (CMP)
 - Tariffs
 - Value of Transferred Assets and dedicated charge
 - Balancing rules
 - Inter-temporal cost allocation
 - Cybersecurity
- Monitor Implementation, Amendment of Network Codes



System Operation and Transparency

- H₂ quality monitoring
- H₂ leaks/emissions
- Cybersecurity and Data Protection
- Recommendations for technical cooperation between
 - HTNOs, HDNOs, TSOs, DSOs
 - Union and 3rd countries' HTNOs
- Transparency Platform



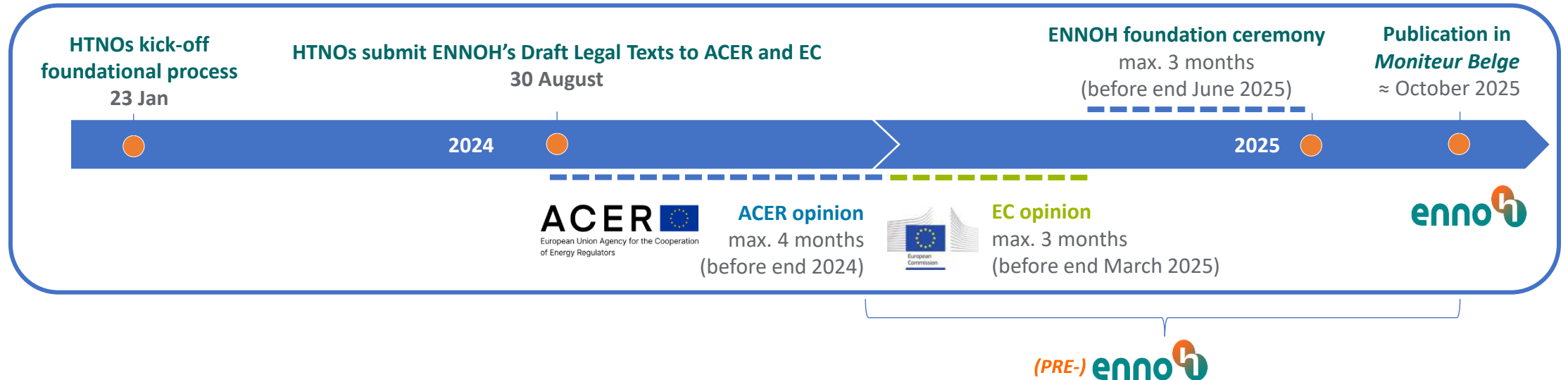
Cross-cutting (input from/to other areas)

- Annual Work Program
- Annual Report
- Regional Cooperation
- Provide ACER with the information ACER require to fulfil tasks described in the Regulation.
- Answer Public Consultations from EC and ACER on different aspects

ENNOH Foundational Process



- ENNOH – European Network of Network Operators for Hydrogen
 - entity to be established according to the EU H₂ and Decarbonised Gas Market
- Submission of Statutory documents to ACER and DG ENER on the 30th of August.



- Gas/H₂ Regulation EU/2024/1788 imposes multiple tasks and deliverables for 2025 and 2026, which require preparatory work in 2025 to meet the given deadlines.
- Some tasks have a significant impact on the future development of the hydrogen market
- There are also additional tasks/activities following the Energy Infrastructure Forum
- Pre-ENNOH was launched as a voluntary cooperative structure to develop preparatory works for ENNOH, so that ENNOH can hit the ground running at the end of 2025.

Pre-ENNOH Members



26 EU Countries

36 Members

1 Associated Partner

PRE-ENNOH

ENNOH

Tasks

- **Establishment of ENNOH** (prepare final statutes and founding ceremony, work program, etc.)
- **Integrated Market Model with the ENTSOs**
- **Single-Sector Draft Methodology**
- **TYNDP process**
- **Tasks from the Energy Infrastructure Forum**
- **Coordination with ACER and DG ENER**
- **External representation**

- **ENNOH Infrastructure:** Office, IT, logistics infrastructure, Staff, Corporate Image
- **Market Economics and Regulatory tasks related to the Regulation**
- **Engagement with key Stakeholders, external communication and implementing consultation platform**

- **Preparatory work on Network Codes**
- **ENNOH Annual Work Program 2026**
- **Hydrogen Quality Monitoring Report**
- **Transparency Platform**

2. The Role of H₂ Infrastructure in the Energy Transition

According to EU Hydrogen and Decarbonised Gas Market Package, hydrogen networks (and storages) would:

- constitute an important means of efficient and sustainable transport for hydrogen, both onshore and offshore
- advance Energy System Integration
 - enable a quicker deployment of renewable electricity (solar, wind, etc.)
 - provide large storage capacity for the short, medium and long-term
- build partially on repurposing existing gas infrastructure
- interconnect national markets and ensure market integration
- facilitate the integration of growing volumes of hydrogen
- transport hydrogen across borders and at the national level, from low-cost production areas to high-consumption areas.
- enable trading of hydrogen from third countries
- be an important building block of the Union's hydrogen economy

- Developing an EU-wide H₂ network based on trans-European corridors is the best way to ensure a liquid, competitive, interconnected and integrated energy market.
- When building infrastructure, additional demand, on top of the already identified demand, will also emerge.

Future Major Hydrogen Infrastructure



hydrogen



Spanish hydrogen infrastructure included in the European Commission's PCI list, published on 8 April 2024



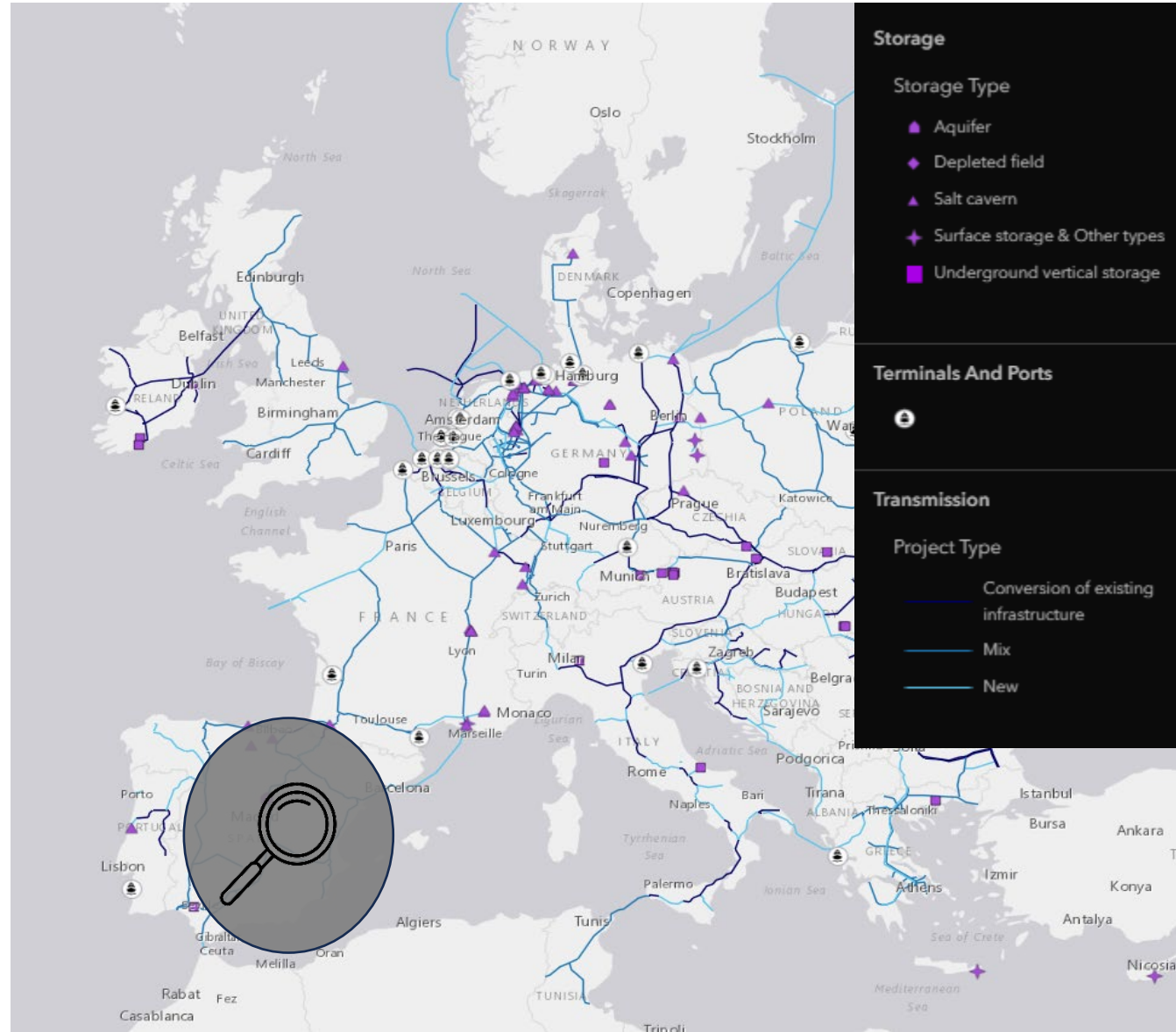
Spanish hydrogen infrastructure submitted to PCI call for proposals in November 2024



H2med (included in the European Commission PCI list on 8 April 2024)

- 1 Guitiriz - Zamora hydrogen pipeline
- 2 Huelva - Algeciras hydrogen pipeline

- 3 Northern Plateau transversal hydrogen pipeline
- 4 Southern Plateau transversal hydrogen pipeline, connected to Madrid



Storage

Storage Type

- ▲ Aquifer
- ◆ Depleted field
- ▲ Salt cavern
- ✦ Surface storage & Other types
- Underground vertical storage

Terminals And Ports



Transmission

Project Type

- Conversion of existing infrastructure
- Mix
- New

More Info at: <https://www.h2inframap.eu/>

Hydrogen Network Front Runners



- On 22.10.2024, the Federal Network Agency (BNetzA) approved the construction of the Germany-wide hydrogen core network.
- Europe's largest hydrogen network will be created by 2032, making it an important pillar of the climate-neutral energy system of the future.
- The total length of the approved core network is **+9,000 km**.
- The investment costs amount to **€ 18.9 billion**.
- The core network consists mainly of **converted natural gas pipelines (approx. 60%)**.
- The feed-in and exit capacities amount to **around 101 GW and 87 GW respectively**.
- In addition to the TSO measures, infrastructure from ten DSO core network operators was also approved (468 km).



*gem. Genehmigung vom 22.10.2024

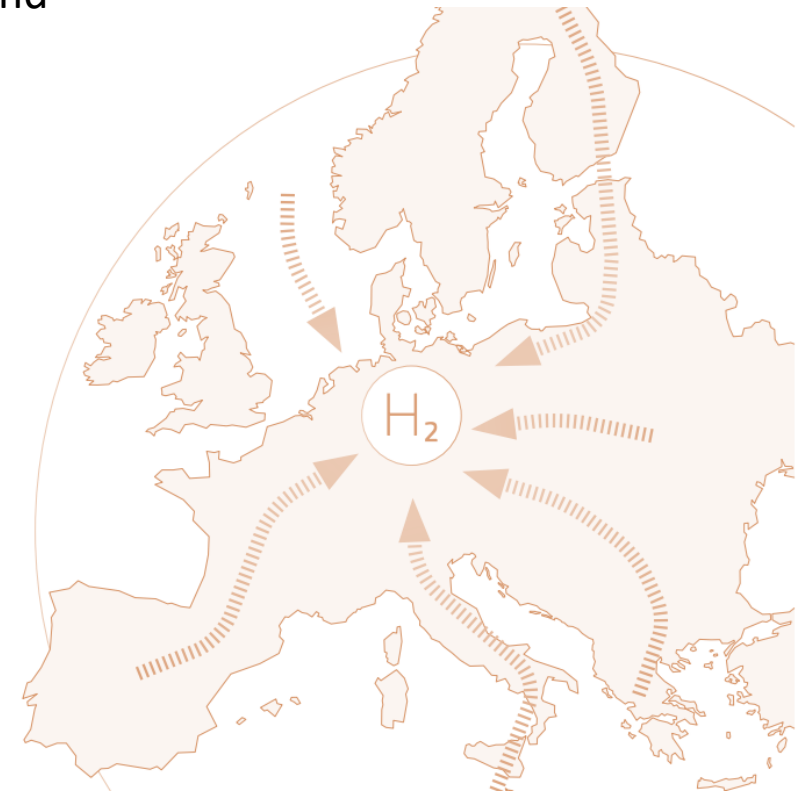
De-Risking H₂ Infrastructure

1. Creation of a **new EU-wide H₂ market: uncertainties about its ramp-up** and development
2. Major H₂ Infrastructure needs to be developed, based on EU corridors and valleys
 - Building H₂ infrastructure (pipelines, storage, terminals) helps to build the EU H₂ market → de-risk investments on the supply and demand side



3. How to de-risk large H₂ infrastructure projects?

- Risk management and risk allocation is fundamental;
- Which measures are on top of the HTNO's assumed risk?
 - long-term contracts
 - inter-temporal cost allocation
 - grants/subsidies/socialisation
 - exemptions
 - ...



30/01/2025



💰 1,250 M€ have been allocated (up from 850 M€ initially foreseen) → the Commission recognises the relevance and urgency of #energy infrastructures

⚡ 750 M€ to #electricity

💚 250 M€ to hydrogen

♠️ 250 M€ to #CO₂



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