Launch Event

IMPLEMENTATION AND TRANSPOSITION OF HYDROGEN REGULATIONS IN THE EU MEMBER STATES

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ERCST
Roundtable on Climate Change and Sustainable Transition

Topics

- EU hydrogen framework
- Country Studies

  - Implementation and transposition of H2 policies

  - Financing instruments

- Cooperation among Member States
- Conclusions/Recommendations

Member States selected as case study:

1. Germany
2. France
3. Spain
4. The Netherlands
5. Sweden
6. Austria
7. Ireland
8. Czech Republic
9. Hungary
10. Poland

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EU HYDROGEN FRAMEWORK

- EU Hydrogen Strategy
- EU Taxonomy
- Fit for 55 package
  - H2 and Decarbonized Gas Market package
    - Delegated Act low-carbon H2 method.
  - Renewable Energy Directive
    - RED II delegated Acts
    - RED III
  - Carbon Border Adjustment Mechanism (CBAM)
  - EU ETS Revision
  - Alternative fuels infrastructure regulation (AFIR)
  - FuelEU maritime
  - RefuelEU aviation
- REPowerEU Plan
- Green Deal Industrial Plan
  - Net Zero Industry Act

Components of H_2 Market	**Policies (communications, directives, regulations, delegated acts)**
Supply	EU Hydrogen Strategy, RED II Delegated Acts, Hydrogen and Decarbonised Gas Market package, EU Taxonomy, Net Zero Industry Act, REPowerEU Plan, RefuelEU Aviation, Critical Raw Materials Act
Industrial and Transport Demand	EU Hydrogen Strategy, recast Renewable Energy Directive (RED III), REPowerEU Plan, Carbon Border Adjustment Mechanism (CBAM), FuelEU Maritime, RefuelEU Aviation, EU ETS
Infrastructure	EU Hydrogen Strategy, Hydrogen and Decarbonised Gas Market package, Net-Zero Industry Act, Alternative Fuels Infrastructure Regulation (AFIR), Trans-European Transport Network (TEN-T), Trans-European Networks for Energy (TEN-E), Critical Raw Materials Act

Source: 2024 State of the European Hydrogen Market Report (Link)

- Complex framework
- Clear Targets for renewable H2 only

EU HYDROGEN FRAMEWORK

Role of the EU Member States in implementing and transposing EU Directives

National Energy and Climate plans (NECPs)

- Scope: The NECPs outline how the EU countries intend to address the 5 dimensions of the energy union: decarbonisation, energy efficiency, energy security, internal energy market, research, innovation and competitiveness

- Period covered by the NECPs: 2021-2030

Most of the EU Member States published a National hydrogen Strategy

FINANCING MECHANISMS AND TOOLS AT MEMBER STATE LEVEL TO SUPPORT H2

State aid	Regulation
Important Project of Common European Interest (IPCEIs)	IPCEI State aid Guidelines
Hydrogen Bank "Auctions-as-a-Service" scheme	Guidelines on State aid for Climate, Environmental Protection and Energy (CEEAG)
Contracts for Difference (CfDs) and Carbon Contracts for Difference (CCfD)	
State aid for Climate, Environmental Protection and Energy (CEEAG)	
State aid for research and development and innovation (RDIF)	State aid for research and development and innovation (RDIF)
State aid for energy infrastructure, R&D, environmental protection, energy efficiency, renewable electricity for new installation waste recycling/re-utilization	General Block Exemption Regulation (GBER)
State aid - national plans	Recovery and resilience facility (RRF) guiding templates
MS State aid schemes to tackle energy crisis, foster energy security, support the transition to a net-zero economy	State aid Temporary Crisis and Transition Framework

Other instruments:

- **Grants**
- **Tax incentives**
- **Guarantees**

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The EU provides financing and co-financing for hydrogen projects through various funding programs

Fund	Support specifics	EU wide	MFF Financing
Innovation Fund • Hydrogen Bank	Grants Fixed premium	YES YES	NO
Development and Cohesion (ERDF, REACT-EU, CF)	Grants	YES	YES
Connecting Europe Facility – Transport	Grants – guarantees – bonds	YES	YES
Horizon Europe • Clean Hydrogen Partnership	Grants Grants	YES YES	YES
Modernisation Fund	The Modernisation Fund leaves the beneficiary EU countries the freedom to decide on the form of support	NO	YES
Just Transition Fund	Grants	YES	YES
Connecting Europe Facility – Energy	Grants – guarantees – bonds	YES	YES
Invest-EU	Guarantees	YES	YES
LIFE	Grants	YES	YES

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COUNTRY	2030 H2 Ambition	Implementation and transposition of H2 regulations and directives (insights)	Key Projects	Financing (some instruments)
Germany	10 GW	• RED: 'draft transposition of RED III' into national law is currently under parliamentary procedure • H2 and Decarbonized Gas Market Package: H2 core network	Refhyne II, Clean Hydrogen Coastline, GET H2 Nukleus, Oberhausen project, H2 Core Network	• H2 Global • KSV, CCfDs • H2 AaaS
France	6.5 GW	• RED: - Industry: CfD (tbc), PPAs - Transport: TIRUERT tax incentive to be adapted • H2 and Decarbonized Gas Market Package: pipelines development	Lhyfe, H2 Valleys (e.g. Dijon Métropole , Bourgogne-Franche-Comté region Normandy Hydrogen, ZEV)	• France Relance • Plan France 2030 • PPAs • CFDs
Spain	12 GW	• RED - Industry**:** Minimum renewable hydrogen use quotas (≥25% by 2030) for hard-to-electrify sectors and support for hydrogen clusters ("Hydrogen Valleys") in key industrial zones. The NECP considers a scenario of 74% of the H2 used by industry to be green by 2030 - Transport**:** Targets for heavy-duty vehicles, hydrogen-powered rail, aviation, and maritime, including e-fuels and hydrogen-based port operations • H2 and Decarbonized Gas Market Package: Enagas Infraestructuras de Hidrógeno was authorized by the Council of Ministers to develop the Spanish hydrogen backbone (PCI)	Castellón Project Hydrogen Valleys (e.g. Basque Hydrogen Corridor, Green Hysland)	• PERTE ERHA • IDAE investment plan

COUNTRY	2030 H2 Ambition	Implementation and transposition of H2 regulations and directives (insights)	Key Projects	Financing (some instruments)
The Netherlands	4 GW	Dual approach of supply-side subsidies and demand-side quotas, particularly in sectors like aviation and mobility, where there is a higher willingness to pay • RED: targets for renewable (biological and synthetic) fuels in aviation, specifying a 14% share by 2030 and 100% by 2050. • H2 and Decarbonized Gas Market Package: Gasunie, through its subsidiary Hynetwork Services, has taken an FID to develop the first section of a national hydrogen network	Holland Hydrogen I, Eemshydrogen project, ELYgator	• OWE • SDE++ • DEI+
Sweden	5 GW (draft Strategy)	• RED: Sweden offers favourable conditions for RFNBO production – no specific targets for industry and transport • H2 and Decarbonized Gas Market Package: Energy Market Inspectorate in charge of draft a report and a proposal for new natural gas and hydrogen legislation	HYBRIT, H2 Green Steel, Ovako project	• Industrial Leap
Austria	1 GW	• RED - industry ambition of replacing 80% of fossil-derived hydrogen with climate-neutral hydrogen by 2030 in particular industry sectors such as steel and chemicals. - transport: comprehensive transposition of RED III targets and achieve higher shares of renewables than the RED III minimum requirements. • H2 and decarbonized gas market package : leverage on Austria's already well-developed gas infrastructure	Styria project, OMV Schwechat refinery project	• Decarb.of industrial production processes, CfDs • H2B AaaS

COUNTRY	2030 H2 Ambition	Implementation and transposition of H2 regulations and directives (insights)	Key Projects	Financing (some instruments)
Czech Republic	20,000 tons of renewable hydrogen per year	• RED: to meet the hydrogen demand from the industry and transport sectors, the country plans to install 400 MWe of electrolyser capacity • H2 and Decarbonized Gas Market Package: repurposing of two gas pipelines for hydrogen transport. Amendment to the Czech Energy Act (Jan 1, 2024) includes hydrogen in the legal framework for gas distribution	Napajedla project	Modernization Fund (GreenGas Programme, Programme ENERG ETS)
Ireland	2 GW of offshore wind capacity for green H2 production	• RED: focus on transposing the transport targets	H2 valley (SH2AMROCK project)	Zero Emissions Heavy Duty Vehicle Purchase Grant Scheme
Hungary	240 MW	• RED: - Industry: H2 identified as a key decarbonization tool for energy-intensive industries; imports needed to meet RFNBO targets. - Transport : Hungary targets 25% renewable share in transport fuels by 2030. • H2 and Decarbonized Gas Market Package: investments in H2-compatible pipelines and underground storage.	Százhalombatta electrolyzer, Akvamarin, Bükkábrány	Funding scheme for sectors strategic for the net-zero economy
Poland	2 GW	• RED: Poland estimates it will need over 300,000 tonnes of RFNBO hydrogen by 2030 to meet industry and transport demand. H2 Strategy will be updated. In November 2024, Poland enacted legislation introducing key definitions such as low-emission H2 and renewable H2 • H2 and Decarbonized Gas Market Package: TSO to prepare plans for developing the country's hydrogen infrastructure	Hydrogen Valleys (E.g. Greater Polish Hydrogen Valley), HYDROGEN EAGLE	New Technologies in the Field of Energy

COOPERATION AMONG MEMBER STATES

- **Important Project of Common European Interest (IPCEIs)**
  - Hy2Tech
  - Hy2Use
  - Hy2Infra
  - Hy2Move

- **Projects of Common Interest (PCIs)**
  - H2Med Project
  - Baltic Sea Hydrogen Collector (BHC)
  - SoutH2 Corridor
  - Czech-German Hydrogen Interconnector (CGHI)
  - Central European Hydrogen Corridor (CEHC)
  - Northern Hydrogen Backbone (NHB)
  - Hydrogen Baltic Pipeline (HBP)

- **Bilateral or Multilateral cooperation among Member States**
  - North Seas Energy Cooperation (NSEC)
  - European Hydrogen Backbone (EHB) Initiative

- **Memorandum of Understandings**
  - EU Commission - France, Portugal and Spain to strengthen cooperation on cross-border energy infrastructure in South-West Europe
  - NSEC - UK

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RECOMMENDATIONS/CONCLUSIONS

- Hydrogen should be a means to enable decarbonization, not an end in itself. The regulatory framework, including financial incentives, should be designed in a technologically neutral manner to maximize efficiency and allow for the most effective decarbonization pathways.

- A swift implementation of the EU framework is key to give the required regulatory visibility to the EU industry to make investments.

- EU Member States have adopted different approaches to support hydrogen. This diversity reflects the need for a degree of flexibility in transposing and adapting the EU hydrogen framework at the national level. At the same time, coordinated efforts to harmonize key aspect will be essential to ensure a level playing field in Europe.

RECOMMENDATIONS/CONCLUSIONS

- Green hydrogen's high prices still represent a significant obstacle to the uptake of the hydrogen market and the creation of a solid business model. Mechanisms at the Member State level can play a crucial role in addressing the price gap.

- The EU Hydrogen Bank is seen as an opportunity for supporting the EU hydrogen market uptake. However, the current structure of the European Hydrogen Bank may disadvantage smaller Member States. Regional windows within the Hydrogen Bank could promote a more balanced distribution of funding.

- Global policy shifts, particularly in the United States, along with the rapid advancement of emerging technologies like artificial intelligence, may lead to a reassessment of the EU Member States strategic priorities. However, the publication of the EU Clean Industrial Deal reinforces Europe's commitment to promoting the uptake of renewable and low-carbon hydrogen as a pillar of industrial decarbonization. The challenge lies in ensuring that hydrogen development remains aligned with broader industrial competitiveness goals.

THANK YOU!

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