



European Commission policy on 'Hydrogen'

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EUROPEAN COMMISSION
Directorate General Regional and Urban policy
REGIO G4 – Petr Votoupal

Focus of presentation

- What is hydrogen ?
- How is hydrogen produced, stored, transported ?
- What are the main needs and challenges ?

SORRY – THERE ARE PEOPLE BETTER QUALIFIED!

- What is the EC policy framework on hydrogen?
- What is the legal framework for hydrogen in cohesion policy?

The EU hydrogen strategy

2025

- **6 GW** of renewable hydrogen electrolyzers
- Replace **existing hydrogen production**
- Regulation for liquid hydrogen markets
- Planning of hydrogen infrastructure

2030

- **40 GW** of renewable hydrogen electrolyzers
- New applications in **steel and transport**
- Hydrogen for electricity balancing purposes
- Creation of “Hydrogen Valleys”
- Cross-border logistical infrastructure

2050

- Scale-up to **all hard-to-decarbonise sectors**
- Expansion of hydrogen-derived **synthetic fuels**
- EU-wide infrastructure network
- An open international market with € as benchmark

REPower EU

Adopted on 8 March 2022

European Clean
Hydrogen Alliance



Hydrogen Accelerator

- Seven Actions to replace 25-50 bcm Russian gas by 2030

Reserve 80GW renewable power generation capacity to produce the 10m tons of renewable hydrogen in EU



Strengthening supply and demand for hydrogen

- Sub-targets for renewable hydrogen consumption in industry (50% of hydrogen) and transport (2.6% of energy) in the **Renewable Energy Directive**
- **ReFuelEU Aviation Initiative**: Obligation on fuel suppliers to aircraft carriers
- **FuelEU Maritime Initiative**: Greenhouse gas emission intensity thresholds for ships calling at European ports
- Inclusion of all **hydrogen production facilities** (>25t/day) under the **EU Emissions Trading Scheme**
- Revision of the **Energy Taxation Directive** with lowest tax levels for renewable and low-carbon hydrogen
- **European Clean Hydrogen Alliance**: [Project pipeline](#)





European Clean Hydrogen Alliance

- Set up in July 2020 with adoption of Hydrogen Strategy
- Brings together 1600 hydrogen stakeholders: industry, civil society etc.
- Six roundtables focussing on different value chain segments (production; transmission & distribution; industry offtake etc) & working groups on permitting and standardisation
- Issues report on barriers to large-scale hydrogen deployment (October 2021)
- Published pipeline of over 750 projects that its members are undertaking to roll out hydrogen on large scale by 2030 (December 2021)
- Organised European electrolyser summit & joint declaration (May 2022)



Main Features of Project Pipeline

- ✓ **Size:** 750+ projects; estimated 52 GW electrolyser capacity (2030)
- ✓ **Dynamism:** almost 600 projects are planned to enter into operation by 2025
- ✓ **Focus:** 87% of hydrogen production projects are electrolysers potentially producing clean hydrogen
- ✓ **Coverage:** projects cover all identified types and applications, especially in mobility, industry and energy sectors
- ✓ **Scope:** projects located in all but 2 Member States, plus neighbouring countries
- ✓ **Financing:** working with financial institutions (EIB, EBRD, national investment promotion banks) & private investors to facilitate access to finance

Hydrogen Valleys

- A Hydrogen Valley is a defined geographical area, city, region or industrial area where several hydrogen applications are combined together and integrated within an FCH ecosystem.
- Hydrogen Valleys have started to form first regional "hydrogen economies".
- Mission Innovation: Mission on hydrogen - [H2Valleys | Mission Innovation Hydrogen Valley Platform](#)
- **3SP Platform on Hydrogen Valleys** - [Hydrogen valleys - Smart Specialisation Platform \(europa.eu\)](#)

60 Regions involved today (from 4 three years ago).

Hydrogen in ERDF/CF/JTF- Regulations

- ‘Hydrogen’ not mentioned in 21-27 CPR
- ‘Hydrogen’ mentioned in Art. 7 ERDF/CF regulation on ‘*Exclusion from the scope of the ERDF and the Cohesion Fund*’:
 - 1. *The ERDF and the Cohesion Fund shall not support:*
 - *(h) investment related to production, processing, transport, distribution, storage or combustion of fossil fuels, with the exception of:*
 - *(ii) investment in the expansion and repurposing, conversion or retrofitting of gas transmission and distribution networks provided that such investment makes the networks ready for adding renewable and low carbon gases, such as **hydrogen**, biomethane and synthesis gas, into the system and allows to substitute solid fossil fuels installations;*
- ‘Hydrogen’ not mentioned in JTF regulation but possibility (under conditions) to support ‘*investments to reduce GHG emissions from ETS activities*’, which could include hydrogen
- No direct legal frame within CPR & ERDF/CF regulations on hydrogen

Hydrogen in ERDF/CF/JTF– policy lines

- Note on fossil fuels (Board 12.07.2021) includes a section (3.1) on H2:
- Production of H2:
 - renewable hydrogen can be supported
 - any other type of hydrogen falls under the fossil fuel exclusion and cannot be supported
- Transport, storage, end use of H2:
 - investments in construction of networks for distribution of pure H2 & repurposing existing natural gas networks to transport pure H2 = possible under ERDF/CF and JTF
 - Investments to make existing natural gas networks ready for adding (i.e. blending) H2, into the system = possible with ERDF/CF (within limits set for investments in fossil fuels). Under the JTF, such investments are not possible

Hydrogen in cohesion policy programmes

- H2 part of number of programmes already in 2014-2020 period especially in the RD&I aspects and some pilots/testing of production, transport, storage and end use solutions
- For 2021-27, H2 more largely part of programmes across EU in all stages of the H2 value chain
- Support to H2 under smart specialization/innovation:
 - [Hydrogen Valleys](#)
 - Interregional Innovation Investments (I3)

Supporting documents

- REGIO internal background note on implementing the fossil fuels exclusion under Cohesion Policy (2021-2027)

[https://myintracomm-collab.ec.europa.eu/dg/REGIO/BoardOfDirectorMeeting/Shared%20Documents/3.%20REGIO%20internal%20background%20note%20on%20implementing%20the%20fossil%20fuels%20exclusion%20under%20Cohesion%20Policy%20\(2021-2027\).pdf](https://myintracomm-collab.ec.europa.eu/dg/REGIO/BoardOfDirectorMeeting/Shared%20Documents/3.%20REGIO%20internal%20background%20note%20on%20implementing%20the%20fossil%20fuels%20exclusion%20under%20Cohesion%20Policy%20(2021-2027).pdf)

- IQ00717 - Eligibility under the ERDF of investment in a system to transfer electricity generated from renewable energy into storable hydrogen, to be used in a steel mill

<https://webgate.ec.europa.eu/regiokm/pages/viewpage.action?pageId=108528411>

- IQ00883 - ERDF support for underground gas storage facilities for hydrogen use

<https://webgate.ec.europa.eu/regiokm/display/NOTESINTERPRETATION/IQ00883+-+ERDF+support+for+underground+gas+storage+facilities+for+hydrogen+use>

Thank you for your attention



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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

A hydrogen strategy for a climate-neutral Europe

