

Hydrogen in Europe's Energy Transition: EU Collaborations, National Ecosystems, and the Skills Development Pipeline



PROFESSIONS AND THEIR SKILLS IN THE HYDROGEN SECTOR

BRUSSELS 28.10.2025



PROJECT COLLABORATORS:

SUFFERING INITIATIVE

West Pomeranian Chemical Cluster Green Chemistry Consortium

PROJECT NO.: 2023-1-PL01-KA220-VET-159821

PROJECT EXECUTED DURING THE PERIOD:

2023-11-01 to 2025-10-31

PARTNERS

**European Chemical Regions Network
Foundation for Education, Development, and
Innovation Edu Smart Training Centre Limited
Team**

Entity administering the subsidy:

**National Agency for the Erasmus+ Program and
the European Solidarity Corps**



PROJECT ASSUMPTIONS

1. Creation of a map detailing hydrogen competitions.
2. Outline the five competency frameworks for the newly defined professions illustrated in the map.
3. An e-learning training program designed for specific professional competencies within the newly established professions.

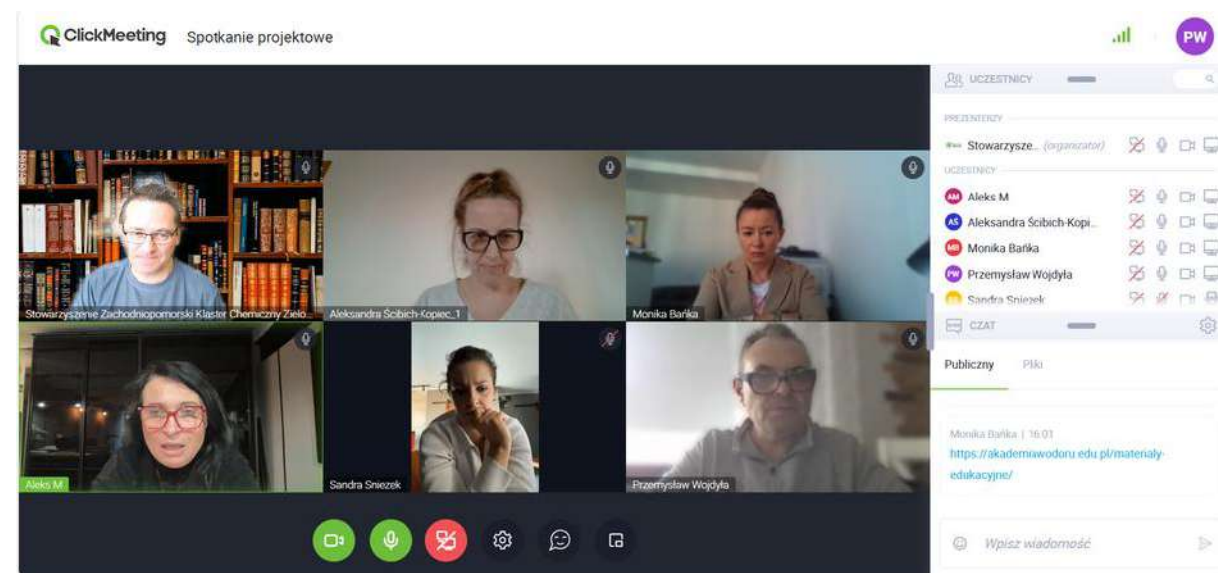


Hydrogen is pivotal in advancing the EU towards a secure, environmentally friendly, and sustainable economy. However, the achievement of this goal hinges on the availability of adequately trained personnel, especially within the SME sector, along with their professional competencies.

The necessity to enhance competencies associated with hydrogen utilization is imperative, given the outlined trends and projections of the European Commission, as well as the evolving dynamics of this technology.



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Working groups

Specialized teams





Desk Research

Assessment of the Current State of the Hydrogen Economy and Its Technologies in the European Union, Illustrated by Selected Member States

<https://zielonachemia.eu/kompetencje-i-kwalifikacje-w-sektorze-wodorowym/>



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**PRZEGLĄD AKTUALNEGO
STANU GOSPODARKI WODOROWEJ
I JEJ TECHNOLOGII W UNII
EUROPEJSKIEJ NA PRZYKŁADZIE
WYBRANYCH KRAJÓW
EUROPEJSKICH**

Szczecin, 2024

Desk Research Principal Assertions

In 2024, Poland is in the nascent phase of establishing and advancing the hydrogen economy, particularly in comparison to other European Union nations.

Poland ranks as the third largest producer of "gray" hydrogen in Europe, following Germany and the Netherlands. This hydrogen is generated within the petrochemical and chemical sectors, predominantly through the steam reforming of hydrocarbons.

Poland represents a promising market for hydrogen, driven by substantial potential demand stemming from its large population, reliance on fossil fuels for energy, heating, and transportation, as well as its advanced industrial sector.

The absence of suitable regulations in Poland pertaining to renewable hydrogen and its derivatives presents challenges in executing investments, particularly at the administrative and environmental levels.

Neglecting to consider the requirements of the Polish economy regarding hydrogen technologies within the guidelines of the Polish Qualifications Framework.

Significant competence disparity



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Hydrogen Competitive Landscape

The hydrogen sector in Europe is presently experiencing substantial growth. The anticipated changes in the forthcoming years will profoundly influence the sector regarding employment and the related professions and skills. Research suggests that, for nearly all professions, there is a demand for multiple areas of expertise:

In the course of their collaborative efforts, interdisciplinary expert teams involved in the PROFFESIONS AND THEIR SKILLS IN HYDROGEN SECTOR project identified ten professions prevalent in the reference regions across Europe.



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Identified occupations within the hydrogen economy sector in Europe:

1. *Process Engineers*
2. *Chemical Engineers*
3. *Mechanical Engineers*
4. *Maintenance Technicians*
5. *Hydrogen Safety Specialists*
6. *Hydrogen Refueling Station Technicians*
7. *Hydrogen Market Regulation and Policy Analyst*
8. *Hydrogen system designer*
9. *Logistician specializing in hydrogen storage and transportation*
10. *Research and Development Scientists*





The project partners identified five professions for the competency framework descriptions.

- 1. Hydrogen Installation Safety Specialist*
- 2. Logistician for hydrogen transportation and storage*
- 3. Analyst of Hydrogen Market, Regulation, and Policy*
- 4. Hydrogen Production and Maintenance Engineer (Process)*
- 5. Hydrogen System Designer*



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As part of the executed work packages, the partners attained the following outcomes:

1. E-learning platform
2. A training program featuring educational resources focused on specific professional competencies for employees within the hydrogen economy sector, including:
 - collection of learning outcomes accompanied by verification criteria and assessment methods,
 - a self-assessment tool for professional competencies for employees in the sector,
 - Four module scenarios,
 - Four introductory lectures (including multimedia presentations),
 - Four educational films,
 - 8 informative podcasts
 - Four packages of multimedia materials, comprising exercises, tasks, worksheets, and case studies,
 - 10 supplementary materials,
 - Thirty participants of the training program were evaluated.



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Thank you for your consideration

Przemysław Wojdyła



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