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H2CE

Empowering H2-ready regions in Central Europe

CE0100055
H2CE project

H2CE Final Conference
Berlin, 25 March 2026

Pedro Brosei, **Joint Spatial Planning Department Berlin-Brandenburg (Gemeinsame Landesplanungsabteilung), Lead Partner Project Manager**

Empowering H2-ready regions in Central Europe

- Transitioning to green energy is key to tackling climate change and creating sustainable economies.
- Green hydrogen holds significant promise but accounts for less than 2 percent of Europe’s current energy consumption.

Common challenge

- The common challenge H2CE is tackling was a **smart integration of hydrogen solutions & renewable energies into the regional energy transition to reduce GHG emissions from different sectors.** **The project focused on transferable energy planning at local & regional levels for EU regions.**

Mission

- The H2CE project **helped regions in Central Europe to boost the integration of hydrogen in their local and regional energy planning.**

- The project developed and tested new planning tools for public authorities and created a network of hydrogen-ready regions for good practice exchanges.

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H2CE in numbers

2,38 m €
Project Budget

80%
of the Budget is funded by ERDF

7
Countries

9
Regions

12
Partners

2
Pilots

Duration: 04.2023-03.2026

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Project Partnership

- Joint Spatial Planning Department Berlin-Brandenburg
- Regional Development Agency Northwestern-Brandenburg
- City and Regional Utilities Lübben

- Foundation “Dumni z Lubina”, Lower Silesia
- The Pomorskie Voivodeship, Marshal’s Office, Energy Dep.

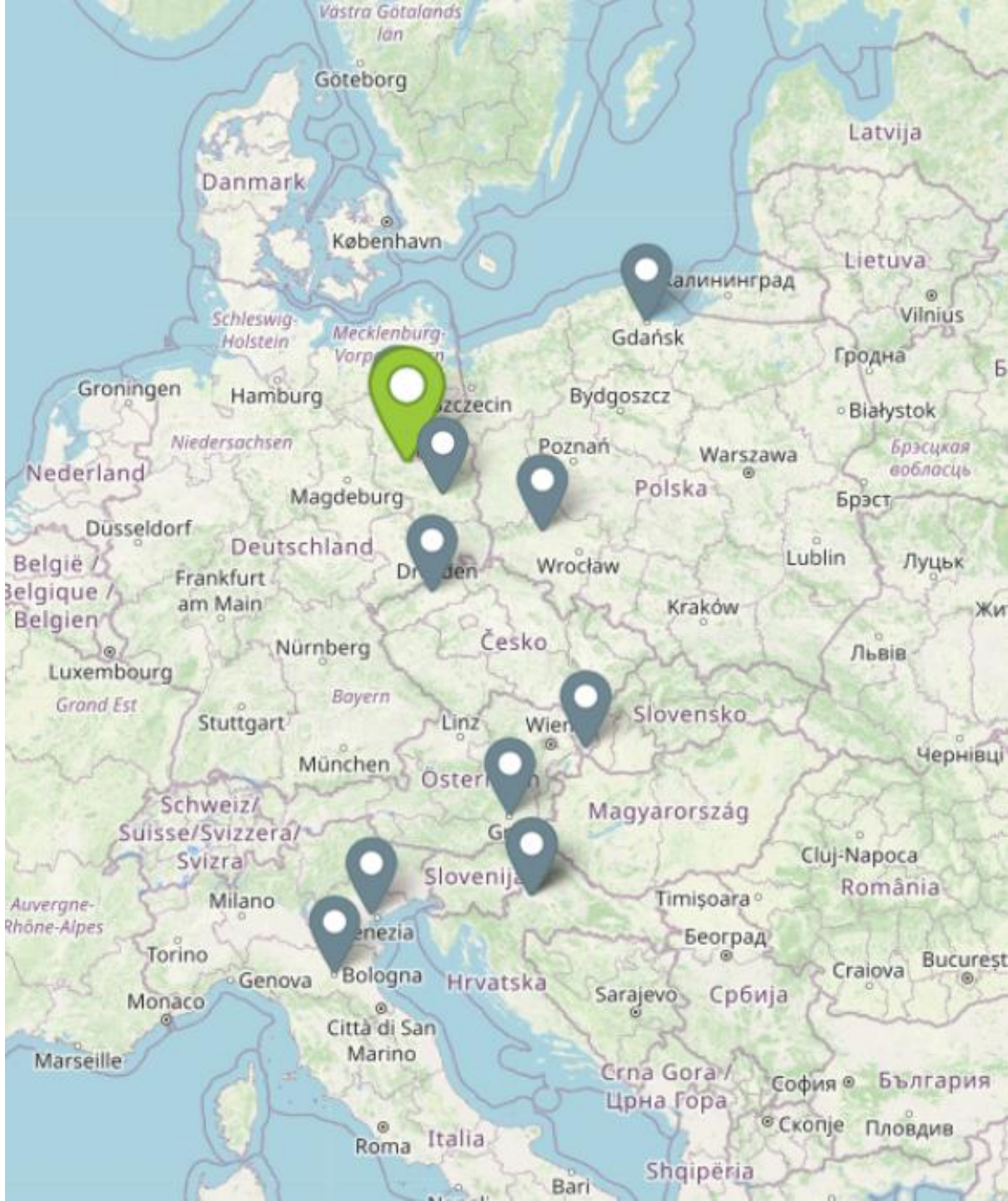
- City of Zagreb
- North-West Croatia Regional Energy and Climate Agency

- Institute for Transport and Logistics Foundation, Emilia-Roma.
- Regional Union of Chambers of Commerce of Veneto Region

- Energy Agency of Styria

- Economic and Social Council of the Ústí region

- Institute for Public Service Development



H2CE activities and outputs

H2-ready for European and regional spatial planning and development

- **Activities**: Planning the transition, challenges and solutions through common indicators and regional analysis; Guidelines for Strategies and Action Plans, Development of Strategies on different levels and regional action plans
- **Outputs**: **Transnational, interregional and regional strategies, Regional Action Plans**

H2-ready regions: Support mechanisms for energy system transition and participation

- **Activities**: Development and testing of Support Mechanisms for a development of cost-efficient hydrogen infrastructure, Handbook, Peer Reviewing
- **Outputs**: **Tool for strategic decision support and planning and Testing of regional Competence Centres**

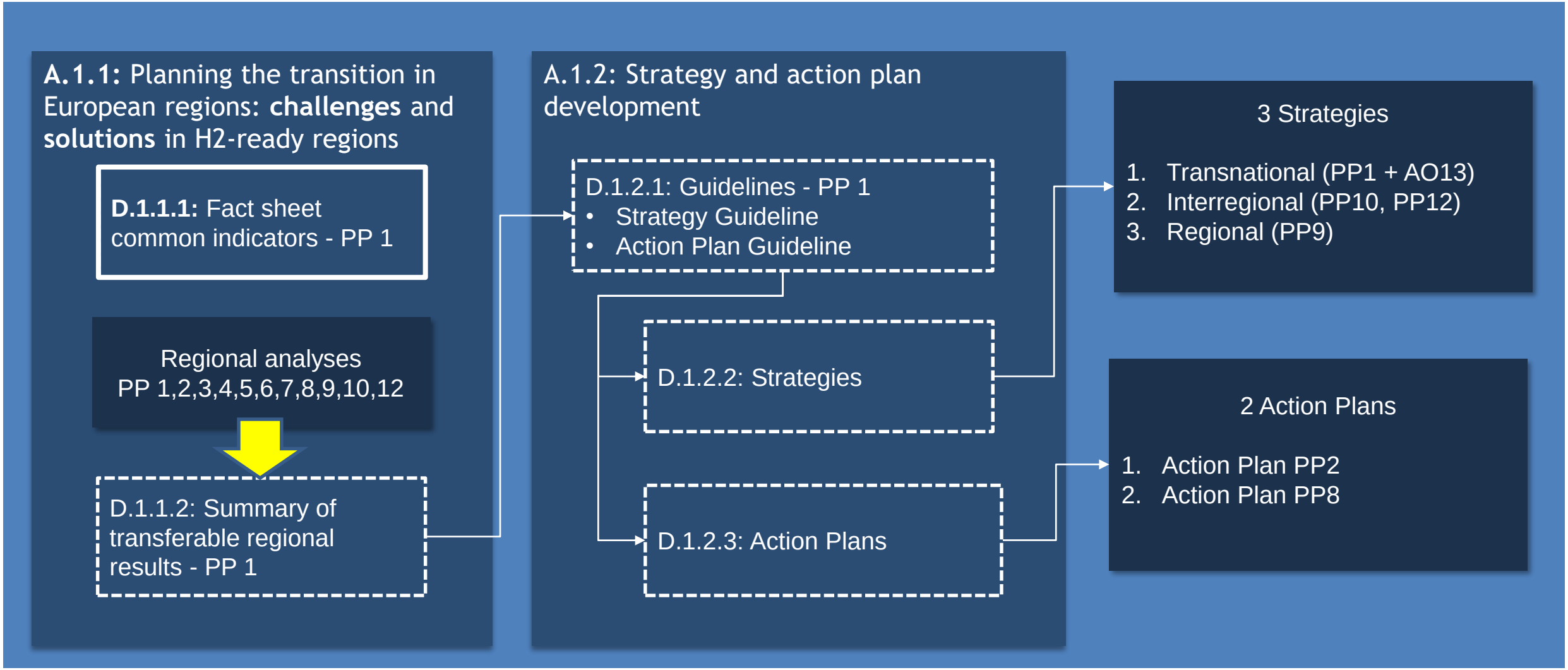
Developing Central Europe Hydrogen network and Collaboration Platform

- **Activities**: Developing a transnational H2CE Network; Uptake of H2CE Solutions and Collaboration Platform
- **Outputs**: Transnational H2CE Network (28 Organisations cooperating across borders); H2CE Solutions: Handbook for strategic-decision making; Regional Competence Centres – both integrated in the Collaboration Platform

WP1: H2-ready for European and regional spatial planning and development

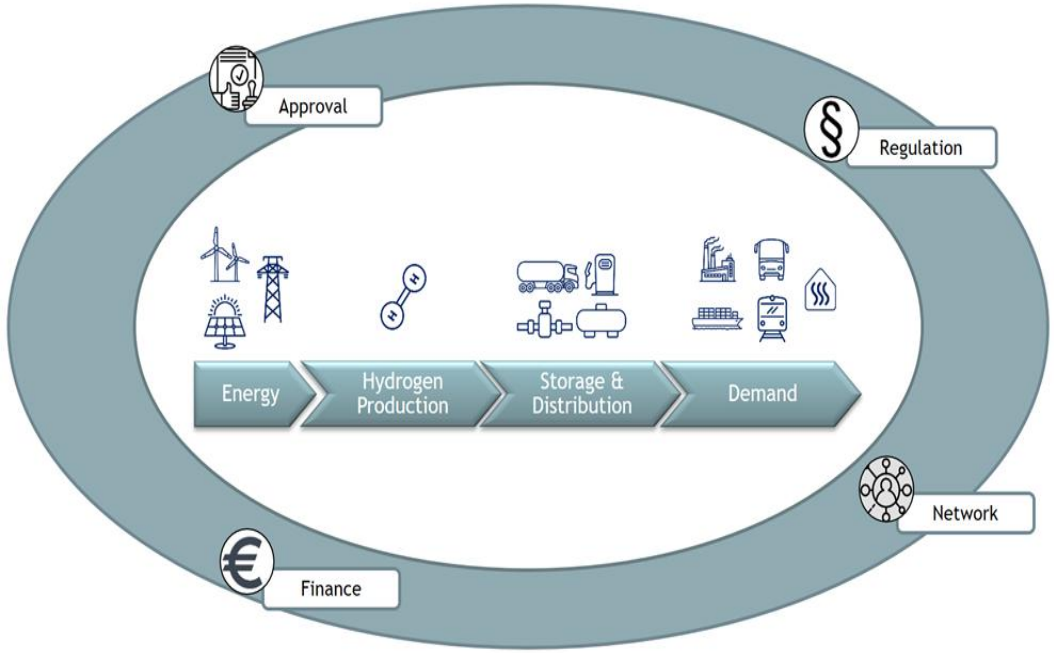
<u>Main goal</u>: Analysis and identification of common challenges & solutions in planning and governance processes for “H2-readiness” from a **regional, transregional & transnational perspective** to **develop joint strategies and action plans.**

WP1 - Overview



WP1: Development of common indicators for „H2-readiness“ in planning and development processes

Indicator	*Sub-Indicator*	*Explanation*
Production	Production Pathways	Existing production pathways
	Renewable Energies Capacity	Regional installed capacity and future potential
	Electrical Infrastructure	Grid capabilities and expansion plans
	Water	Conflicts, Stress, Desalination, public debate
	Landuse	Conflicts regarding landuse for renewables/electrolysers
	Existing Stakeholders	Active stakeholders in RE/hydrogen Production
Storage	Existing Storage methods	Implemented storage methods and plans to build up
	Local Stakeholders	Active stakeholders from the storage sector
Distribution	Existing Hydrogen distribution methods	like pipelines, trailers
	Existing distribution methods for natural gas	like pipelines, trailers
	Import/export possibilities	Part of long distance distribution network
	Existing gas stations	Existing regional gas stations for distributing fuels/gas
Demand mobility	Regional Transportation Systems	Existing Transportation Systems like Bus lines, Trains, harbours or airports
	Regional fuel demand	Regional fuel demand in transportation sector (air/shipping/street)
Demand Industry	Regional Industries	Existing of temperature intense (e.g. steel) or chemical industry
	Current hydrogen demand in industry	Already existing hydrogen demand e.g. chemical industry
	Natural gas Demand	Gas Demand in temperature intense, or chemical industries
Demand Heat	Existing heat Infrastructure	Existing heating grids (local or district)
	Possibilities to include waste heat	Possibilities to include electrolysers waste heat in heating infrastructure



Governance	Key Actors	Local actors in hydrogen
	Strategies/Action Plans	Existing strategies/action plans on hydrogen (national and regional)
	Decarbonisation Targets	Targets for decarbonisation
	National Funding Schemes	Funding for companies, regional actors and projects
	Existing Stakeholder Network	Network to connect stakeholders from different sectors and parts of the hydrogen value chain
	Knowledge in approval authorities	Knowledge about approval for planning and construction of hydrogen plants.

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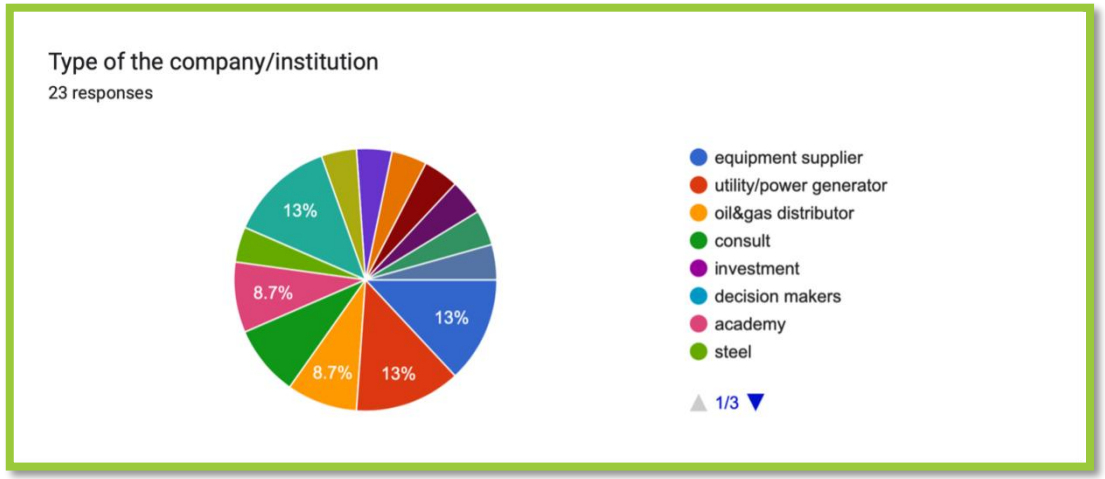
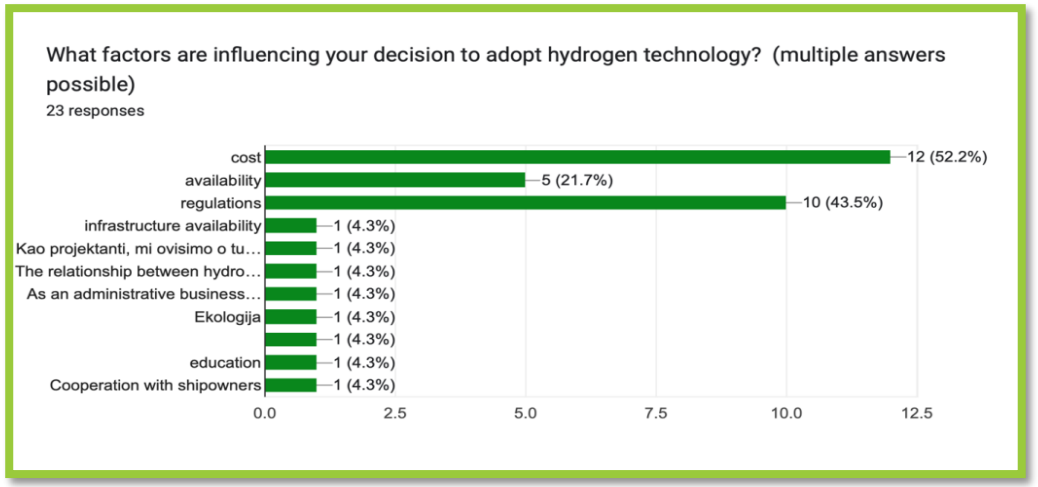
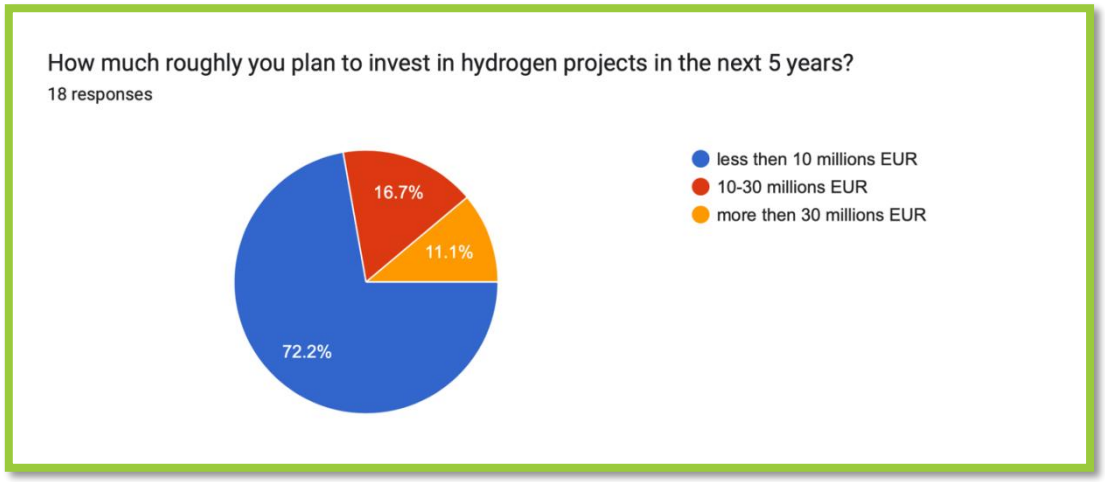
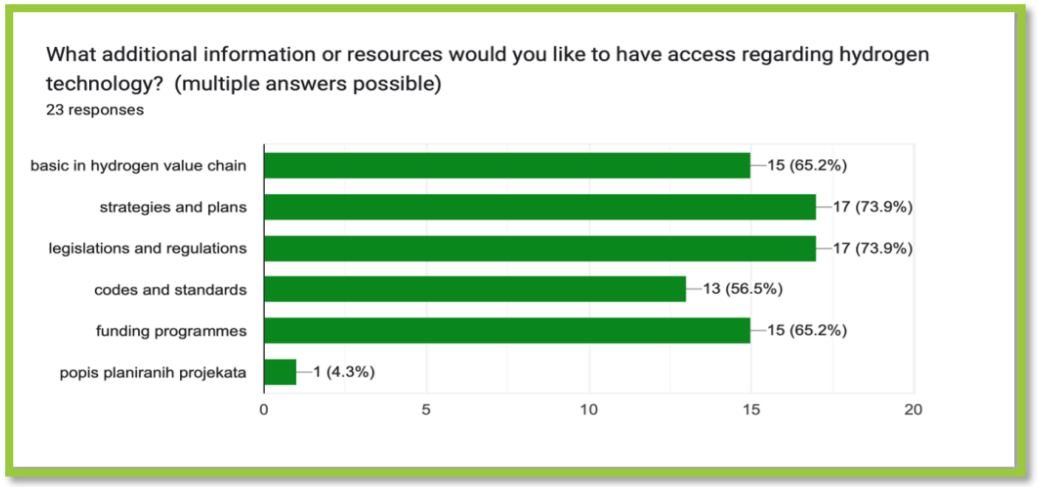
WP1: Mapping Hydrogen Potential on a regional level

Example for results of the analysis: City of Zagreb, Zagreb County, and Krapina-Zagorje County









WP1: Summary of the regional analysis

What is the preferred sector for using hydrogen?

Due to its wide range of potential applications, hydrogen can be utilized across various sectors. To optimize infrastructure development, it is important to prioritize certain sectors. However, this prioritization should not neglect other sectors. Furthermore, the decision should be based on the regional availability, the environmental benefits, and the technological maturity of the respective applications.

Mobility	Industry	Heating	Energy
50 %	40 %	0 %	10 %

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How Infrastructure Development Influences Regional Hydrogen Uptake

In the **first draft of the German national hydrogen pipeline network**, the region of **North-West Brandenburg** was part of the initial network. In the **final plan, the part passing through the region was canceled** due to a lack of bigger production or demand. To not to be left behind in the ramp-up of the hydrogen economy, **H2 projects** in the region must be **planned independently** of the pipeline. For those projects, the **whole hydrogen value chain must be planned together**, since there is no access to the national hydrogen market via the pipeline to deal with over- or underproduction.

Lower Silesia - regional specifics demand regional strategies

The **region of lower Silesia** is home to the **biggest copper and silver mine** in Europe. The mine and the accommodating infrastructure make the region unique. While Poland has a national strategy, the region wants to **develop a regional strategy**. The aim is **not to replace the national hydrogen strategy** but to set a strategic pathway to fit the unique needs and assist the target-oriented transition towards renewable energies and hydrogen. This example shows that national strategies sometimes are not meant to reflect a very specific regional need but to give a direction for the development of the hydrogen economy on a national scale. Participation in both directions is a key factor for successful strategy development.

Opportunities

Hydrogen offers various advantages for a region. Therefore, the motivations for its adoption vary from one region to another.

What are the biggest opportunities that you see in a hydrogen economy?

Reduction of Barriers

Removing barriers is one of the main challenges facing public administrations. Based on the responses of the H2CE partners, the biggest obstacles are the price of hydrogen technologies and the availability of infrastructure.

What are the biggest obstacles to establishing a regional hydrogen economy?

WP1: Developing Guidelines for Strategies & Action Plans

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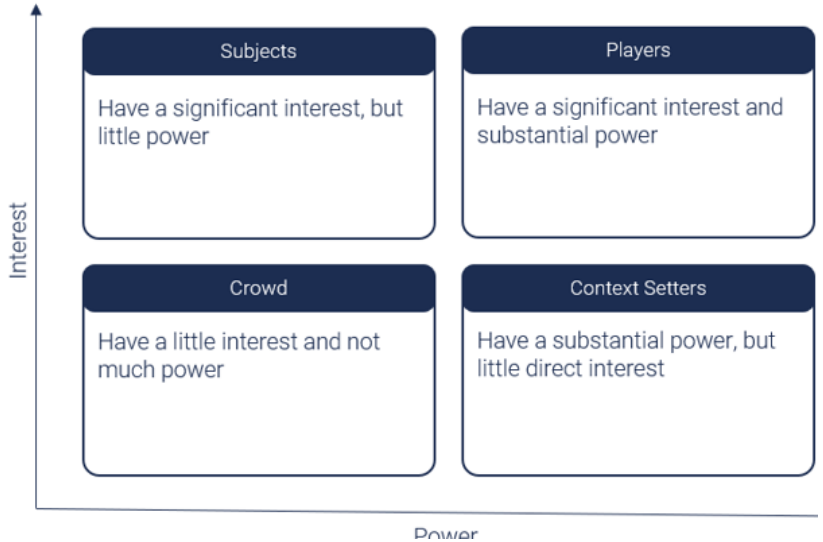

Phase 1 - Preparation and Analysis
- Stakeholder engagement
- Analysis of the regional framework
- Initial kick-off workshop

Phase 2 – Strategy Development
- Drivers and motivation
- Define targets and derive indicators
- Clarify potential conflicts

Phase 3 - Measure Planning and Action Plan
- Creating and evaluating measures
- Identify conflicting objectives
- Create an action plan

Phase 4 – Implementation and Monitoring
- Coordinate stakeholders
- Check indicators
- Review the outcomes

- Adapting indicators
- Learning from the outcome
- Adjusting if necessary

WP1: Developing Guidelines for Strategies & Action Plans

Best-Practice Example Prignitz-Oberhavel

One best-practice example comes from the Prignitz-Oberhavel region in Brandenburg, Germany. The region conducted a focused **workshop to discuss the key issues** related to the hydrogen economy. The workshop was organized in collaboration with a research institute (Reiner Lemoine Institut), the local hydrogen network (PrOOH2V Netzwerk), and the regional planning department (Regionale Planungsgemeinschaft Prignitz-Oberhavel). The goal was to **provide thematic input and identify opportunities and challenges** for the regional hydrogen economy and infrastructure to create an action plan.

At the beginning of the workshop, the Reiner Lemoine Institute provided thematic input on the current legal framework, the developments of the Hydrogen Core Network, and the Network Development Plans for Gas and Hydrogen. In particular, the presentation focused on the current infrastructure development and network expansion. The amendment of the German Energy Industry Act (EnWG), which introduces integrated planning for gas and hydrogen networks for the first time, was discussed, focusing on how regional demands can be incorporated.

Another key point was the decision to exclude the "Doing Hydrogen" pipeline from the final Hydrogen Core Network and its implications for regional infrastructure planning. The "Doing Hydrogen" Pipeline was included in the draft of the Hydrogen Core Network and was supposed to connect the region with the national network.

Following this introduction, an interactive workshop session was held, during which key questions regarding regional hydrogen infrastructure were discussed. The discussions focused on the aspects below:

- **Hydrogen Core Network and Regional Connectivity**: Participants examined how hydrogen

Best-Best Practice Example European Union [11]

The European Union provides a strong example of how regions can formulate a clear and ambitious hydrogen vision. In its Hydrogen Strategy, the EU defines hydrogen as a key driver of **decarbonization in industry, transport, power generation**, and **buildings**. It highlights hydrogen's role in addressing sectors where emission reductions are particularly urgent and difficult to achieve and securing the supply with renewable energies by enabling storage solutions for seasonal fluctuations. The EU's vision extends toward 2050, with renewable hydrogen expected to be deployed at a large scale across all hard-to-abate sectors.

This example demonstrates how regions can set long-term goals, identify lead markets and priority sectors. A formulated vision serves as the foundation for defining concrete, measurable targets.

The European Union demonstrates this approach by **translating its hydrogen vision into specific milestones**:

- By **2024**: at least 6 GW of electrolyzer capacity and up to 1 million tonnes of renewable hydrogen produced annually.
- By **2030**: expansion to at least 40 GW of electrolyzer capacity, production of 10 million tonnes of renewable hydrogen per year, and an additional 10 million tonnes imported.
- By **2050**: full integration of renewable hydrogen into all hard-to-abate sectors, with hydrogen growing to 13-14% of total EU energy mix.

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7.2. Creating a measurement catalogue

The following sub-chapter lists potential measures as examples. They are derived from *Germany's National Hydrogen Strategy* [13] and serve as inspiration for regional implementation across Europe. All measures are to be understood as examples and must always be assigned to responsible stakeholders for concrete realization.

Production

Measure	Description	Push/Pull	Responsibility
CO2 pricing for fossil fuels in transport and heating	Improved framework conditions for the efficient use of renewable electricity	Push	Policymakers
Support for pilot projects	Exploration of new business and cooperation models between electrolysis operators and grid operators	Pull	National and regional funding
Promotion of electrolyzer deployment	Support through targeted innovation and decarbonization funding programs	Pull	Economic development institutions
Identification and designation of suitable areas for offshore hydrogen production	Offshore wind energy is ideal for hydrogen production due to high full-load hours	Pull	Spatial planning authorities
Support for offshore wind parks for hydrogen production	Creates investment incentives and increases production capacity for green hydrogen	Pull	Permitting authorities
Cooperation with grid operators to develop flexible business models	Enables grid relief and increases efficiency through coordination of electrolysis and electricity grids	Pull	Policymakers & network operators

Transport & Storage

Measure	Description	Push/Pull	Responsibility
Planning of import terminals and	Supports international hydrogen imports and efficient regional	Pull	Port authorities transport planning

WP1: Development of Strategies: Transnational, interregional, regional

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Transnational Strategy for H_2-ready Regions

Joint Spatial Planning Department Berlin Brandenburg

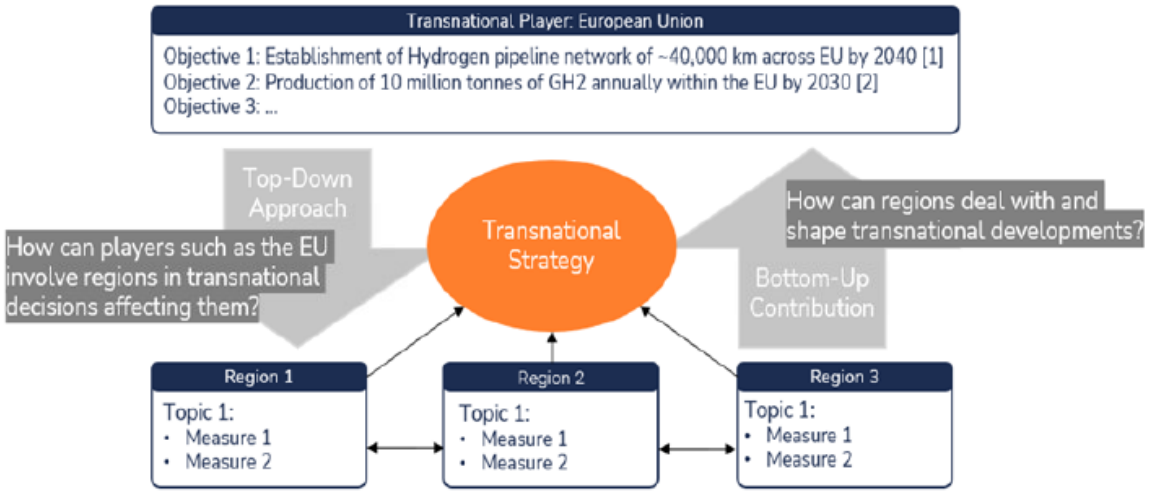


Figure 2: Structure and Logic of the Transnational Hydrogen Strategy

Work Package (WP1): H2-ready for European and regional spatial planning and development

Ver
December

H2CE - Deliverable 1.2.2 - Interregional strategy for H2-ready regions

submitted by City of Zagreb (PP10 - ZG)
North-West Croatia Regional Energy and Climate Agency (PP12-REGEA)

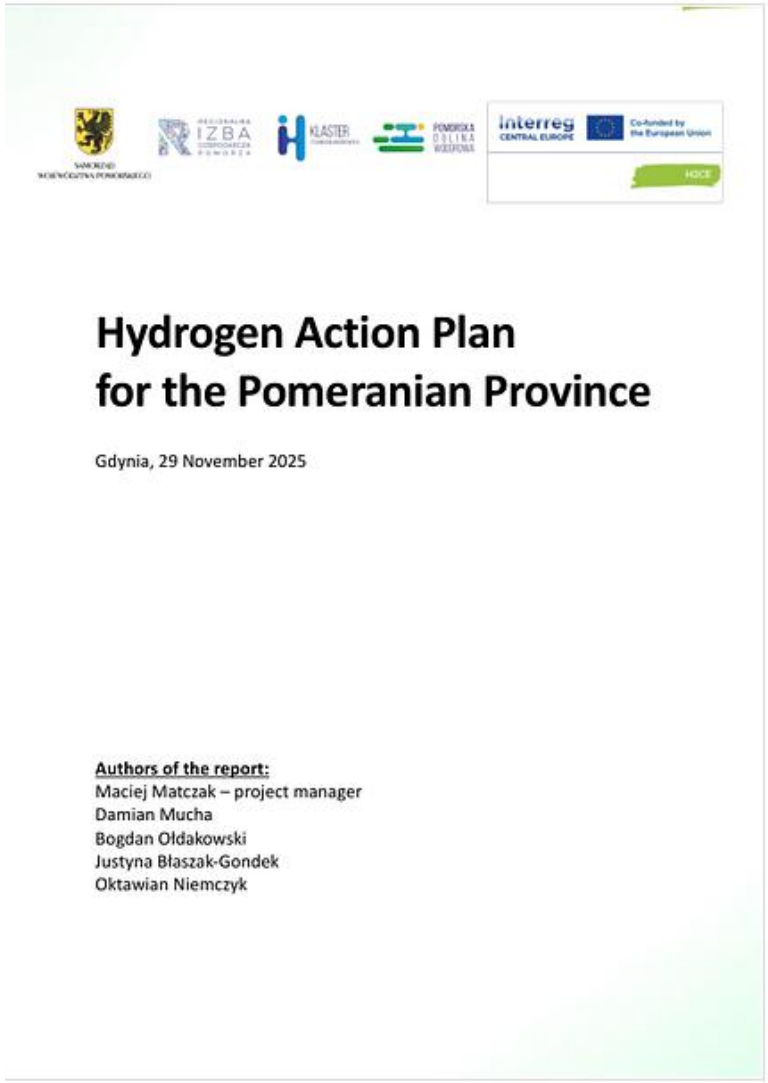
3. Interregional Hydrogen readiness in Croatia

Croatia is generally most suited for hydrogen development in regions with high industrial demand, plenty of potential for Renewable Energy Sources (RES), and convenient access to markets and infrastructure. A coordinated interregional plan that links inland industrial demand and innovation hubs with coastal RES power plants is necessary to maximise the benefits of the hydrogen economy for the entire country. Hydrogen may play a significant role in Croatia's transition to a low-carbon economy. Opportunities for the creation of a hydrogen value chain tailored to each region are presented by the country's diverse regional energy profiles, which range from industrial areas to areas abundant in RES like solar and wind energy both inland and along the coast. Assessing regional readiness involves analysing the availability of RES, industrial demand, infrastructural readiness, research and innovation capabilities, and regional policy support mechanisms.

3.1. Identification of regions with the highest potential

Croatia's ability to establish a competitive and resilient hydrogen economy is influenced by significant regional variations in natural resources, industrial composition, and energy infrastructure. These disparities

WP1: Regional Action Plans



Hydrogen Action Plan for the Pomeranian Province

Gdynia, 29 November 2025

Authors of the report:
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Regionale Inselnetze:
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Januar 2026

Im Auftrag von: REG

gefördert durch: Interreg Central Europe – Co-funded by the European Union – H2CE

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Version 1
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Work Package (WP) 1:
H2-ready for European and regional spatial planning and development
Regional Development Agency Northwestern-Brandenburg

H2CE - Deliverable 1.2.3

submitted by Regional Development Agency Northwestern-Brandenburg (PP2 - REG)

March 2026

Action-plan_final_english.pdf

Posted by Sven G. · March 19, 2026 · 717 KB

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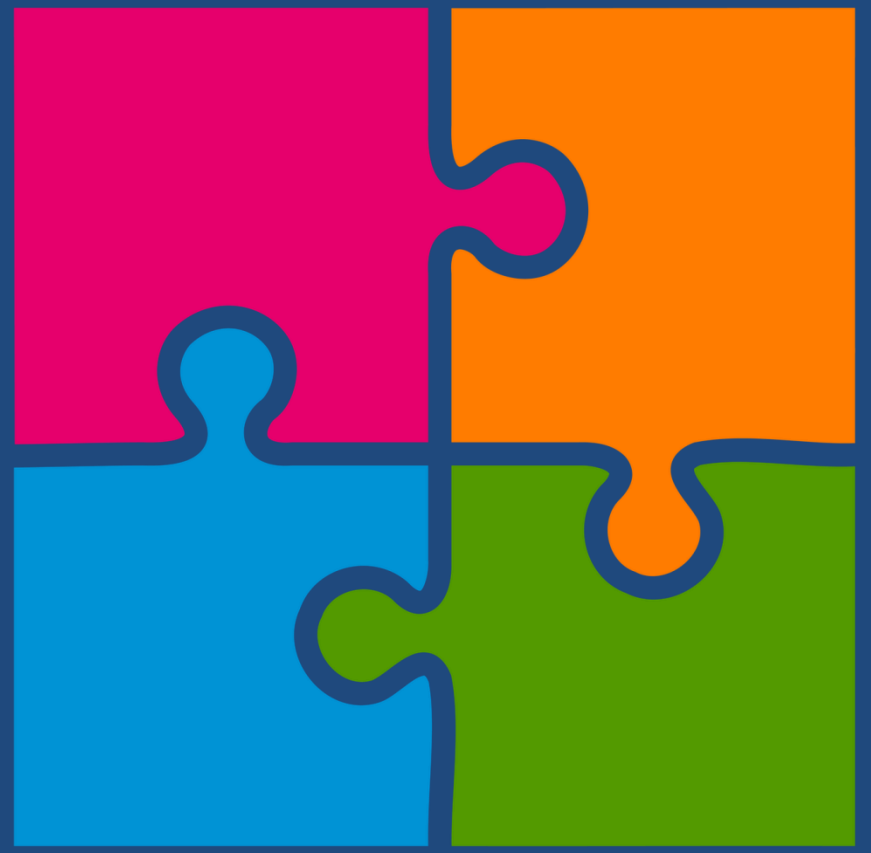
WP2: H2-ready regions: Support mechanisms for energy system transition and participation



WP2 H2-ready regions: Support mechanisms for energy system transition and participation

Overview

The main goal is to **develop an energy system model to identify a cost-efficient hydrogen infrastructure set-up and link it to a GIS-based tool** aligning cross-regional hydrogen transition projects and activities to identify gaps and avoid overcapacities.

Additionally, we will identify a common framework for **setting up regional H2 competence centres for capacity building of regional and local public and private stakeholders** to accompany the hydrogen-based energy transition in each region.

Developed **H2 vouchers** will represent a possible “ready-to-use” option for financial support of projects related to the hydrogen economy / hydrogen value chain.

WP2: Support mechanisms

A.T2.1 Support mechanisms I: mapping and modelling regional H2 energy systems

2.1.1 Digital GIS database: methodology, prototype and evaluation results

2.1.2 Energy cells model: results of modelling and evaluation

2.1.3 Report on the testing of a strategic decision-support tool

A.T2.2. Support mechanisms I: regional capacity building

2.2.1 Report on the testing of training course capacity building at public & private organisations

2.2.2 H2 voucher mechanism for hydrogen utilisation in Usti

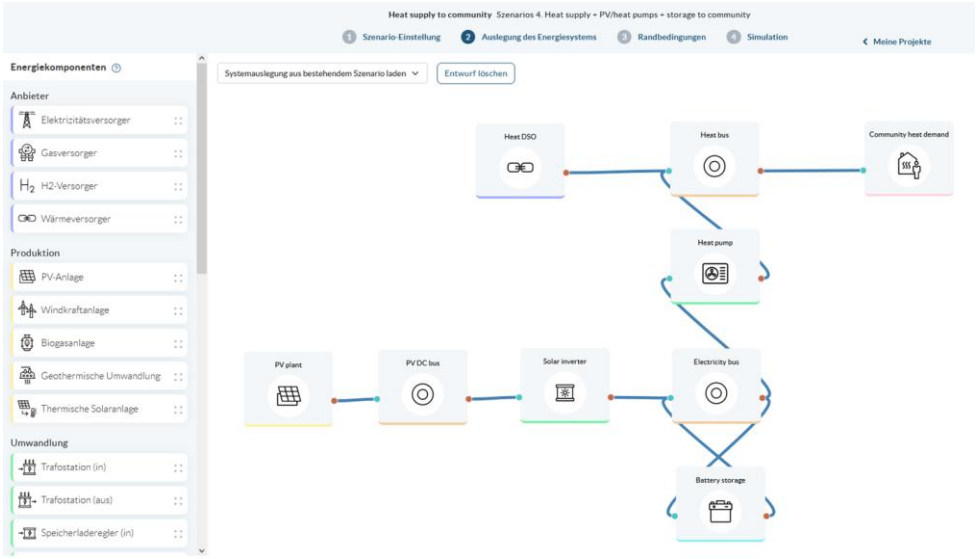
2.2.3 Report on the testing of regional H2 Competence Centres

2.2.4 Peer review document of pilots' results and mainstreaming at the EU and national levels

WP2: Strategic decision support tool: Regional GIS databases/Tools & Energy Cell Modelling

Main Goal: To support public decision makers in making choices to plan and monitor investments in the field of production, distribution, and consumption of hydrogen as an energy source

- **Veneto (IT) and Styria (AT) GIS tools**
- **Lübben (DE) Energy Cell Model**



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WP2: Regional Capacity building

Training material from Styria, Austria:

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HYDROGEN IN REGIONAL DEVELOPMENT

Applications: Agriculture

- Often more **areas** available **for PV** than can be directly utilised and fed into the grid
- Willingness to take long-term / **intergenerational action**
- High **follow-up costs** in the event of **blackouts**
- High degree of **self-sufficiency** possible
- Alternative production from **biomass** possible
- In the future, also **farm fuelling station** and **tractors** for H_2 (see e.g. FCTRAC project in Griffen/Carinthia)

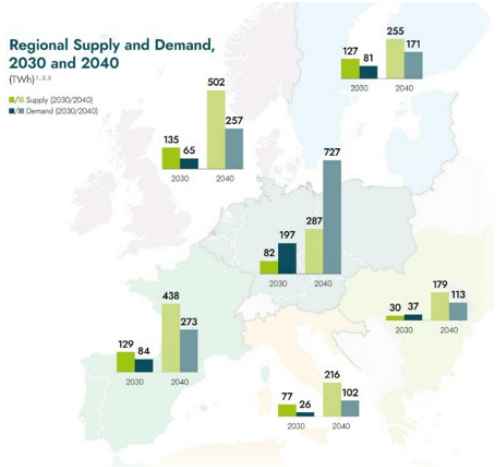
	Today	2030
Technical maturity	*	
Costs		
Priority		

Source: Carinthian Chamber of Agriculture

FUTURE PROSPI

Supply and demand in Europe

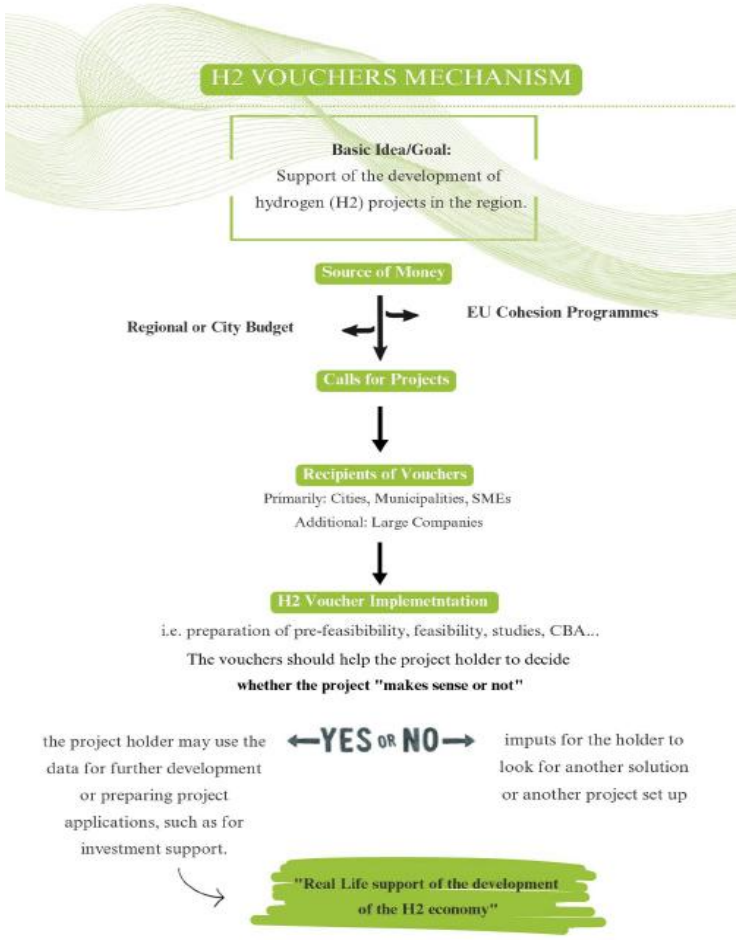
- Forecast demand for renewable hydrogen in Europe significantly exceeds regional supply
- **Central Europe with the greatest (unmet) demand**
- **Redistribution** within **and import** from outside Europe necessary to meet demand



Source: European Hydrogen Backbone. Five hydrogen supply corridors for Europe in 2030

WP2: Incentives for regional capacity building

H2 voucher mechanism developed in Ustí Region, CZ:



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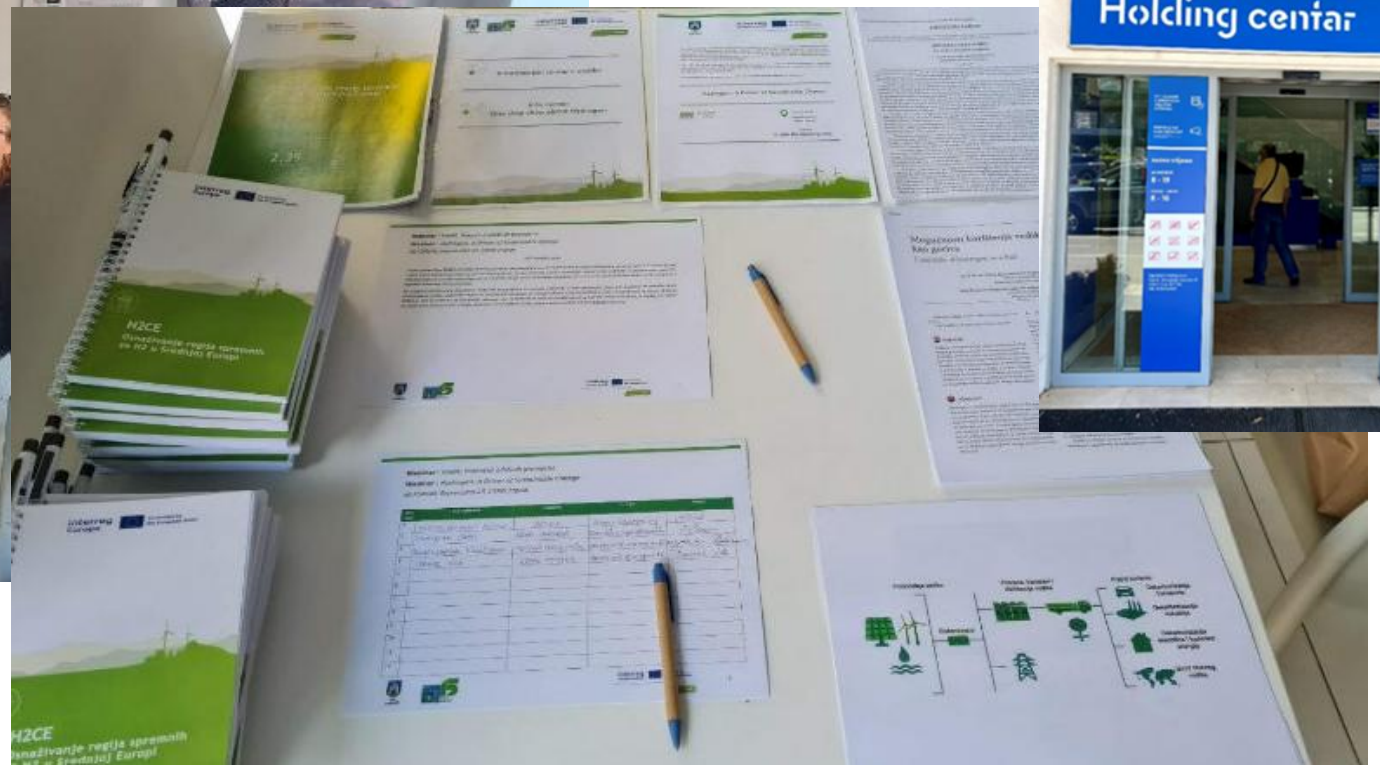
WP2: Regional Capacity building

Zagreb (HR) H2- Competence Center „One-stop-shop“



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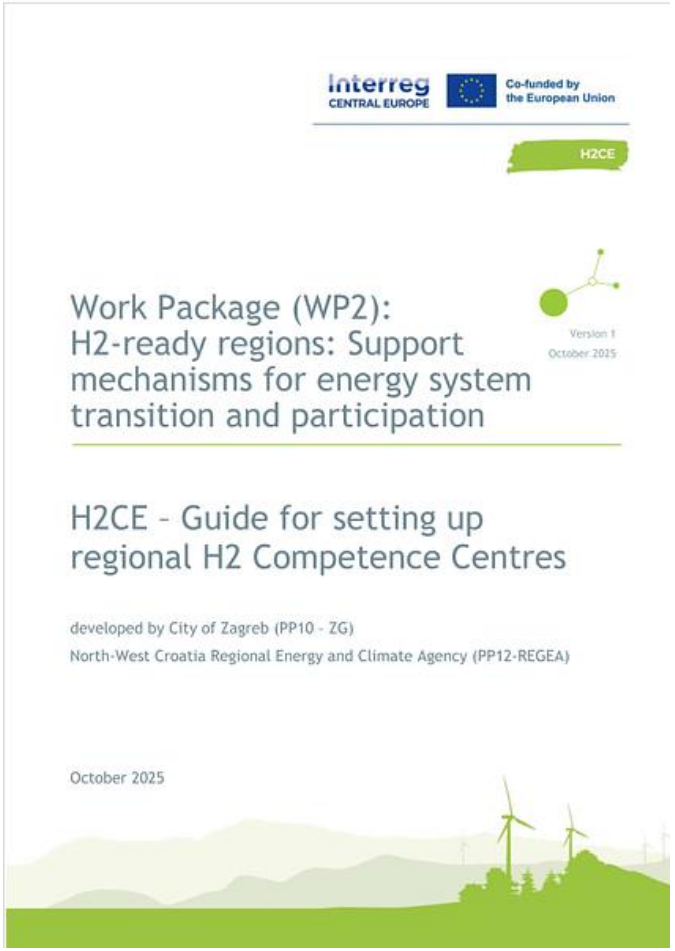
WP2: Joint Competence Center approach as Pilot Action



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Version 1
Oktober 2024

Work Package (WP) 2:
(H2 ready regions: Support mechanisms for energy system transition and participation)

H2CE - Deliverable 2.2.4 - Peer review document of pilots' results and mainstreaming at the EU and national levels

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WP3: Developing Central Europe Hydrogen network and collaboration Platform

WP3 Developing Central Europe Hydrogen network and Collaboration Platform

Main Goal: to establish a **network of key public and private stakeholders at local, regional and transregional levels** in Central European to establish H2-ready regions, including an **online interactive Collaboration Platform.**

Memorandum of Understanding
Strengthening the H2CE Hydrogen-Ready Regions Network

Subject of the MoU:

The purpose of this Memorandum of Understanding (MoU) is to strengthen the pivotal role of regions in advancing the hydrogen energy transition in Central Europe. It is building on the successful collaboration during the Interreg "Empowering H2-Ready Regions in Central Europe" (H2CE) project.

This MoU is a statement of intent to set forth a shared vision, principles, and sustaining a cooperative framework without creating any legally binding obligations or financial commitments. It reflects a mutual commitment to sustain and deepen collaboration on hydrogen integration beyond the duration of the H2CE project.

The MoU on Strengthening the H2CE Hydrogen-Ready Regions Network focuses on:

- **Continuing Collaboration**: To maintain an active forum for exchange among the partner regions on all aspects of hydrogen deployment, ensuring that the knowledge, relationships, and momentum developed during H2CE are preserved and expanded.
- **Promoting Hydrogen Integration**: To proactively support the integration of hydrogen solutions into regional energy and development plans across Central Europe, by sharing best practices, aligning strategies where feasible, and identifying opportunities for joint initiatives.
- **Mutual Support and Capacity Building**: To provide mutual assistance and peer learning, whereby each region can benefit from the others' expertise, lessons learned, and technical know-how in developing "H2-ready" policies, projects, and infrastructures.
- **Common Voice**: To amplify the collective voice of H2-ready regions in broader discussions – advocating for supportive policies, funding, and recognition of regional needs in the hydrogen sector at national and European levels.
- **Sustainability of Efforts**: To ensure the long-term continuation of efforts initiated under H2CE, including upkeep of shared tools (e.g. the H2CE Collaboration Platform) and ongoing engagement of key regional stakeholders in the hydrogen ecosystem.

Duration and Continuation:

This Memorandum of Understanding shall enter effect on the date of the last signature by the parties and remain in force indefinitely period thereafter. Any partner may withdraw from the Network and this MoU by providing a written notification to the H2CE project leader (i.e. the Joint Spatial Planning Department Berlin-Brandenburg).

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THANK YOU