



Interreg

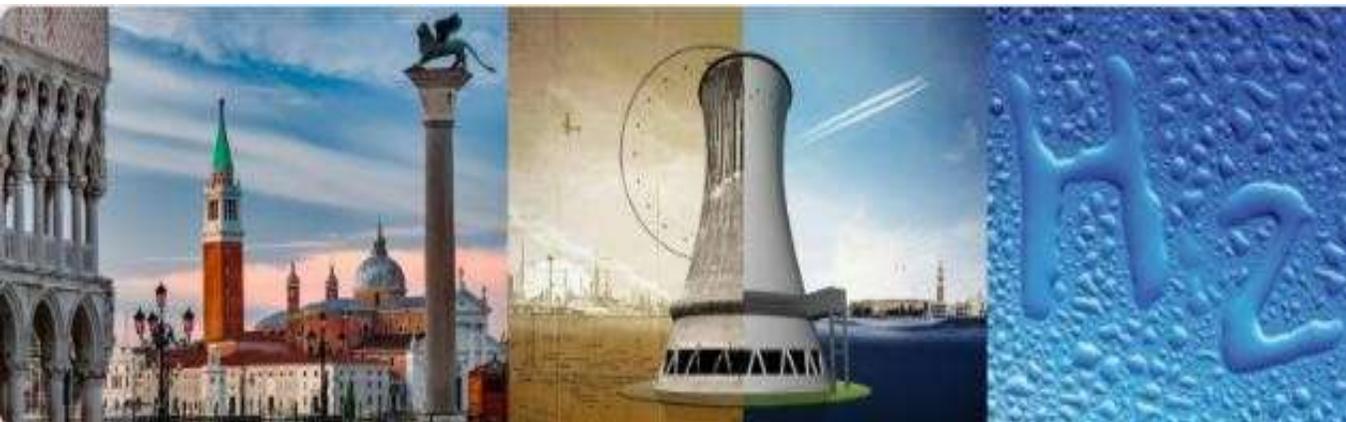
Alpine Space



Co-funded by
the European Union

H2MA

The evolution of CLEAN HYDROGEN



Perspectives from
production to use
in mobility and
industry

29th of October 2025
Venezia Heritage Tower
(Marghera, Venice)



„H2MA approach“

Matevž Šilc (KSSENA), Project coordinator



About H2MA?

- Project acronym: **H2MA**
- Project title: **Green Hydrogen Mobility for Alpine Region Transportation**
- **H2MA works to accelerate the transnational roll-out of green hydrogen mobility infrastructure in the Alpine region, to curb CO₂ emissions and foster the transition to low-carbon transport. Through the joint development of cooperation mechanisms, strategies, tools, and resources, the project aims to increase the capacities of territorial public authorities and relevant stakeholders to collaboratively plan and pilot test zero-emission hydrogen routes across the Alps.**



About H2MA?

Program: **Interreg Alpine Space Program**
Program priority: 2: **Carbon neutral and resource sensitive Alpine region**

Specific objective: **2.1 Promoting energy efficiency and reducing greenhouse gas emissions**

Budget cumulative: **€ 2,273,154.69**
ERDF: **€ 1,704,866.01**
Co-financing level: **up to 75%**

Project duration:
1st November 2022 – 31st October 2025

H2MA partership



LP1	Zavod Energetska agencija za Savinjsko, Šaleško in Koroško	SLOVENIA
PP2	BSC, Business Support Centre, Ltd, Kranj	SLOVENIA
PP3	EUROMETROPOLE DE STRASBOURG	FRANCE
PP4	Lombardy Foundation for the Environment	ITALY
PP5	Cluster Pole Vehicule du Futur	FRANCE
PP6	Turin Metropolitan City	ITALY
PP7	Climate Partner Upper Rhine Valley	GERMANY
PP8	4ward Energy Research Ltd	AUSTRIA
PP9	Lombardy Region	ITALY
PP10	Codognotto Austria	AUSTRIA
PP11	Italian German Chamber of Commerce Munich-Stuttgart	GERMANY

Alpine countries: 5

Number of partners: 11

Public organizations: 3

Sectoral agencies: 5

Research organizations: 2

Logistics company: 1

Why H2MA – key drivers



30 % of GHG emissions in the Alpine macro-region are attributed to freight and urban transport

Transportation is one of the major contributors to the noise and air pollution in the Alpine space



Green H2 infrastructure was poorly mapped & infrastructure was not integrated with the H2 routes

The EU Hydrogen strategy, as a legislative baseline, has set highly ambitious green H2 KPIs



EU H2 legislation and KPIs – EU Hydrogen Strategy

KPI / Area	Target 2030	Current Level (2024/2025)	Field-Confirmed Status (2025)
Electrolyzer Capacity (EU)	40 GW installed	~600 MW installed, 1 GW FID; >9 GW/yr. prod. cap	Well behind target. Rapid increase in manufacturing capacity but <2 GW deployed. Pace needs acceleration .
Green Hydrogen Production	10 million tons/year	<1 million tons/year (mainly pilots)	Way behind. Most H2 still fossil-based. True green H2 is pilots/demos .
Hydrogen Imports	10 million tons/year	~0.9 Mt contracted, mostly pilot or demo import	No major imports. Negotiations and pilot contracts started, volume minimal .
Hydrogen Refueling Stations	HRS every 200 km	294 in Europe, 113 in Germany, expanding	Growing faster due to new EU/national funds, but still very limited coverage .
FCEV Fleet Vehicles	No explicit target	~6,000 across EU, mostly in GER & NL	Slow growth. New states joining, but market impact minimal; very small share .
Hydrogen Pipelines	1,581 km now; 2040+	Planning, few thousand km (mostly GER, BEL)	Early construction. Projects announced, but just starting .
RFNBO Share in Industry	50% by 2030	Well below target—just beginning	Implementation started. Real uptake is low; only in early projects.
RFNBO/Biofuel Share Transport	5.5% by 2030	Well below target—initial phase	Early beginnings. Biofuels are dominant, H2 tiny; legislation in progress.

Source: Perplexity

EU H2 legislation and KPIs – EU Hydrogen Strategy

Legislation / Regulation	Focus Area	Key Provisions / Targets	Achievements/Field Reality (2025)
RED II/RED III Directives	Renewable Energy, RFNBO	RFNBO criteria, targets 50 in industry/5.5% in transport	Adopted/transposed in most states, but enforcement & uptake are slow .
Delegated Acts (2023)	H2 Certification	Renewable energy sourcing, GHG calc.	Fully adopted, slow industry adaptation .
AFIR	Hydrogen Mobility Infrastructure	HRS every 200 km, capacity: 1 t/day	National plans/funds boost new stations, but actual coverage limited .
H2 & Decarbonized Gas Market Package	H2 Market & Networks	Market separation, certification	In force since mid-2024; implementation at starting line .
State Aid & Investment Rules	Support/Funding, Infrastructure	Project acceleration	Multiple IPCEIs, grants, and national projects active; most projects in early rollout and not as initially planned .
REPowerEU	EU Strategy	10 Mt domestic, 10 Mt imported	Lagging: Current production capacity and imports are far below 2030 targets

Source: Perplexity

H2MA approach



H2MA approach

WP1



Joint strategic planning for green H2 mobility

WP1 was used to **track down different policy instruments in force** on the EU level and in the partner territories, **and check already enforced (12) mobility plans and regional hydrogen strategies**. The most important workload of the WP1 was to **map the H2 infrastructure on field and archive different levels of data to develop „H2MA tool“** (Nr. existing/planned HRSs, nr of registered FCEVs (focus: HDVs), Electrolyzer capacity, storage capacity, H2 production units, available RES resources, existing legislation on the national, regional, and local level, etc).

WP2



Pilot testing green transalpine H2 mobility routes

The focus of WP2 was on engaging stakeholders of the regional green H2 value chain and setting up LWGs (Local Working Groups). LWG mechanism was used **to update regional policy instruments** (by setting up policy recommendations and tracking down the progress) and produce regional development scenarios (for 2030 and 2050 milestones), **which were combined in the „Green Hydrogen Route Masterplan for the Alpine space“**

WP3



Capitalisation and ecosystem development

The plan for WP3, currently under development, is **to foster synergies and matchmakings between different H2MA players coming in from different EU regions and setting up the „H2MA alpine collaboration framework“ by signing MOUs and MOCs**, which will be presented to the wider audience on the **„matchmaking“ and development workshops**, organised in May and June (2025) in partner territories.

Main H2MA outputs & results

1. **Green Hydrogen Routes**: Mapped Alpine transportation routes that integrate current and planned green H2 infrastructure.
2. **MoUs and MoCs**: Signed collaboration agreements between partners and businesses to facilitate public and private investments.
3. **Hydrogen Strategies**: 12 national and territorial Hydrogen Strategies in the Alpine area will be updated, integrating H2MA results.
4. **„H2MA tool“ and other resources**: Transfer-ready studies, resources, and tools that can be employed to improve green H2 mobility infrastructure and governance.

H2MA Outcomes – organized events

6 physical events

+50 consortium meetings in the past 3 years of the H2MA implementation

+20 online dissemination events

+30 local events focused on engaging local stakeholders

+20 3rd party events

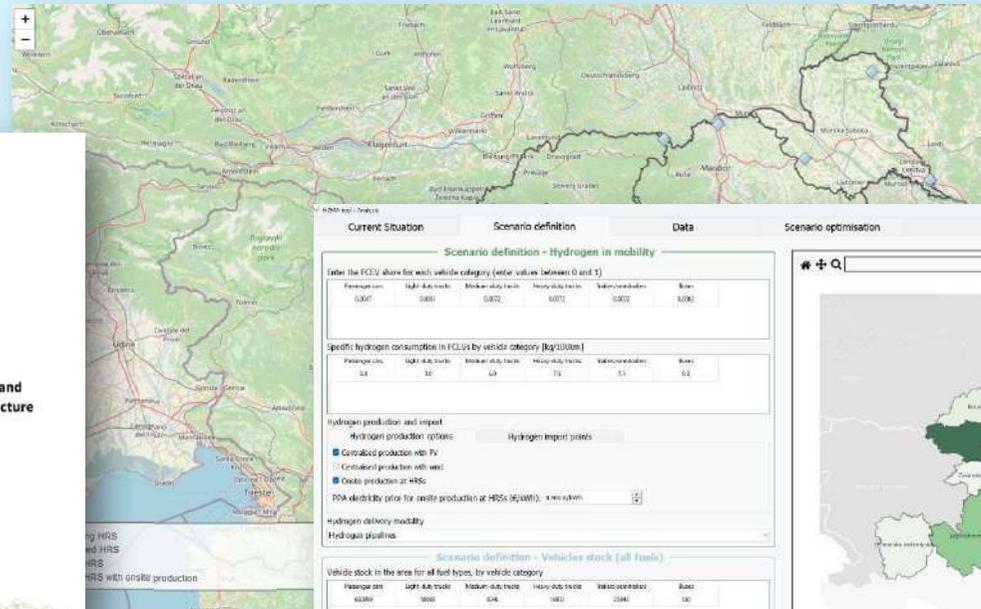
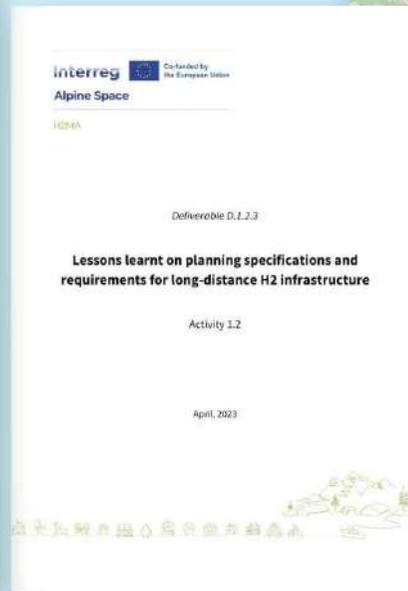
3 dedicated study visits

+10 EUSALP coordination meetings



H2MA Outcomes – Tools and resources

+30 resources and documents produced within the project lifetime



Current Situation Scenario definition Data Scenario optimisation

Scenario definition - Hydrogen in mobility

Enter the FCEV share for each vehicle category (enter values between 0 and 1)

Passenger cars	LGH-4x4 trucks	Medium-duty trucks	Heavy-duty trucks	Subtractors	Bus
0.000	0.000	0.000	0.000	0.000	0.000

Specific hydrogen consumption in FCEV by vehicle category [kg/100km]

Passenger cars	LGH-4x4 trucks	Medium-duty trucks	Heavy-duty trucks	Subtractors	Bus
3.0	3.0	6.0	7.5	5.5	6.0

Hydrogen production and import

Hydrogen production options

- Centralised production with PV
- Centralised production with wind
- Onsite production at HRS

HRS electricity price for onsite production at HRS (€/MWh):

Hydrogen delivery mobility

Hydrogen pipelines

Scenario definition - Vehicle stock (all fleets)

Vehicle stock in the area for all fleet types, by vehicle category

Passenger cars	LGH-4x4 trucks	Medium-duty trucks	Heavy-duty trucks	Subtractors	Bus
60000	5000	500	500	2000	100

Average mileage per vehicle [km/y], by vehicle category

Passenger cars	LGH-4x4 trucks	Medium-duty trucks	Heavy-duty trucks	Subtractors	Bus
20000	2000	1000	2000	0	10000

Confirm scenario

Total hydrogen demand for mobility: 1 kt/y

Average hydrogen daily demand [t/d]



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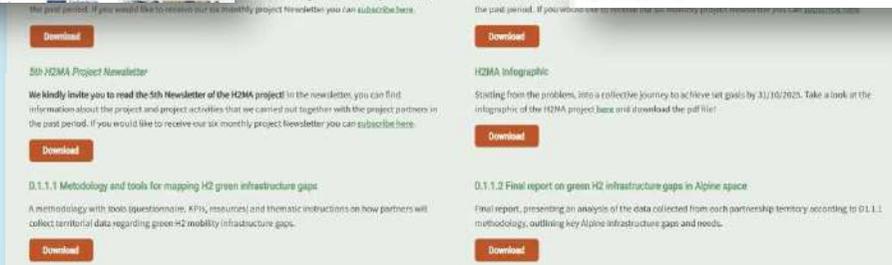
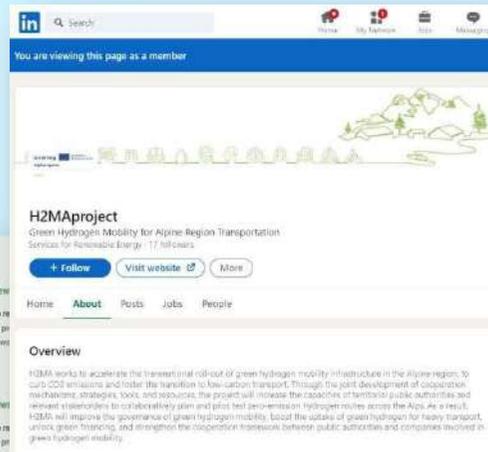
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H2MA



Check our webpage and social media!

Webpage: <https://www.alpine-space.eu/project/h2ma/>



Grazie per l'attenzione
Thank you for your attention!

