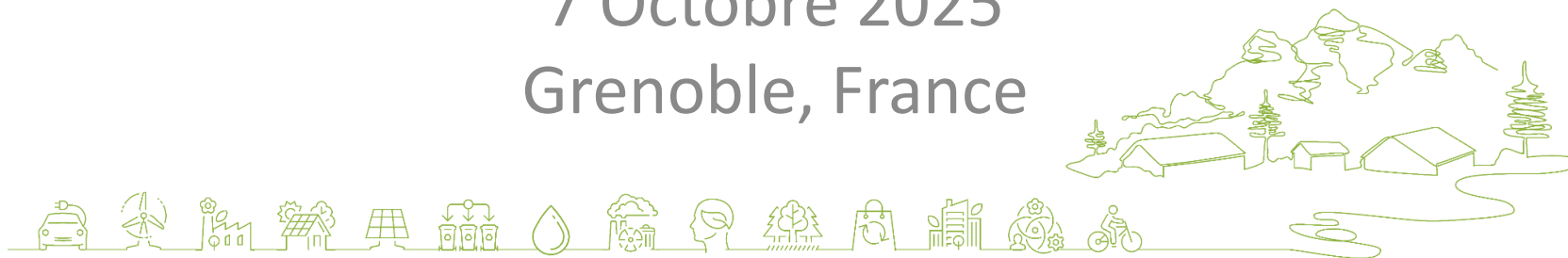


Restitution publique du projet AMETHyST

7 Octobre 2025
Grenoble, France



Le rôle de l'H2 dans les politiques régionales

7 Octobre 2025
Grenoble, France

Laurence Minne, Région Auvergne-Rhône-Alpes





La Région
Auvergne-Rhône-Alpes



AMESTHyST closure

Grenoble

7 October 2025



Deployment of an H2 economy : an evidence for Auvergne-Rhône-Alpes

- **First industrial** Region in France
- **First producer** of renewable energy
- **25% of the French players** in the H2 field are located in the region
- **A strong political will**



A regional Hydrogen Strategy adopted in 2020

Interreg



Co-funded by
the European Union

Alpine Space

AMETHyST

- Developing the hydrogen market through mobility and industry uses
- Supporting Research and Innovation
- Supporting the development of the hydrogen industry, as well as adapting skills and training
- Fostering international and European cooperation

SAS HYmpulsion

A commercial company with a 27M€ capital
created by public and private stakeholders

**Objectif: initiate a renewable hydrogen mobility in
Auvergne-Rhône-Alpes through the deployment of hydrogen
refuelling infrastructure**



Regional investment for H2 retrofitted coaches

Interreg



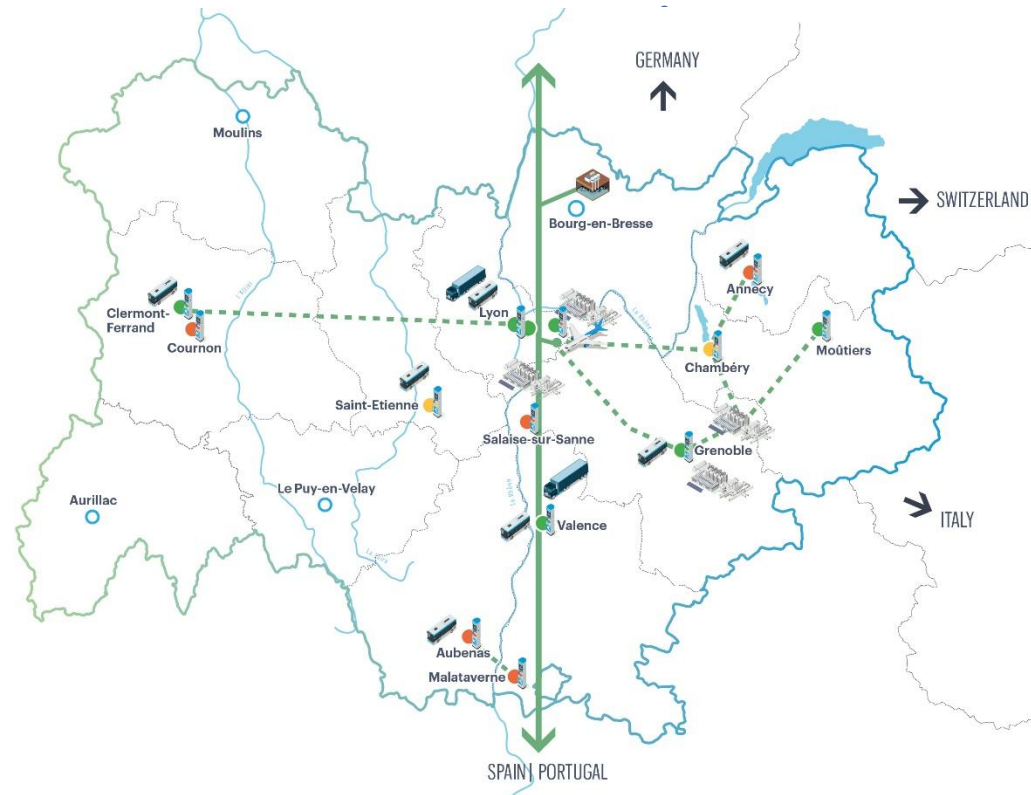
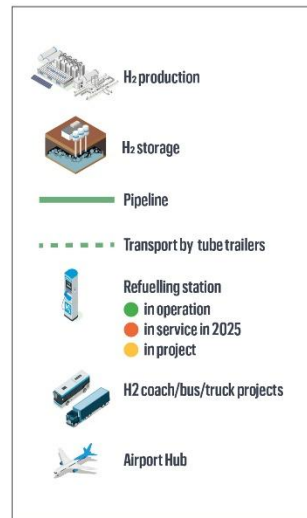
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Alpine Space



- 50 coaches – retrofitted by the regional company GCK
- 25 million€ invested

FROM ZERO EMISSION VALLEY TO IMAGHyNE





Thank you!



AMETHyST

La dynamique alpine de développement de l'hydrogène

7 Octobre 2025
Grenoble, France

Etienne Vienot, responsable Europe et International, Auvergne Rhône-
Alpes Energie Environnement



This project is co-financed by the European Regional Development Fund through the Interreg Alpine Space programme

Des stratégies nationales et régionales

Interreg



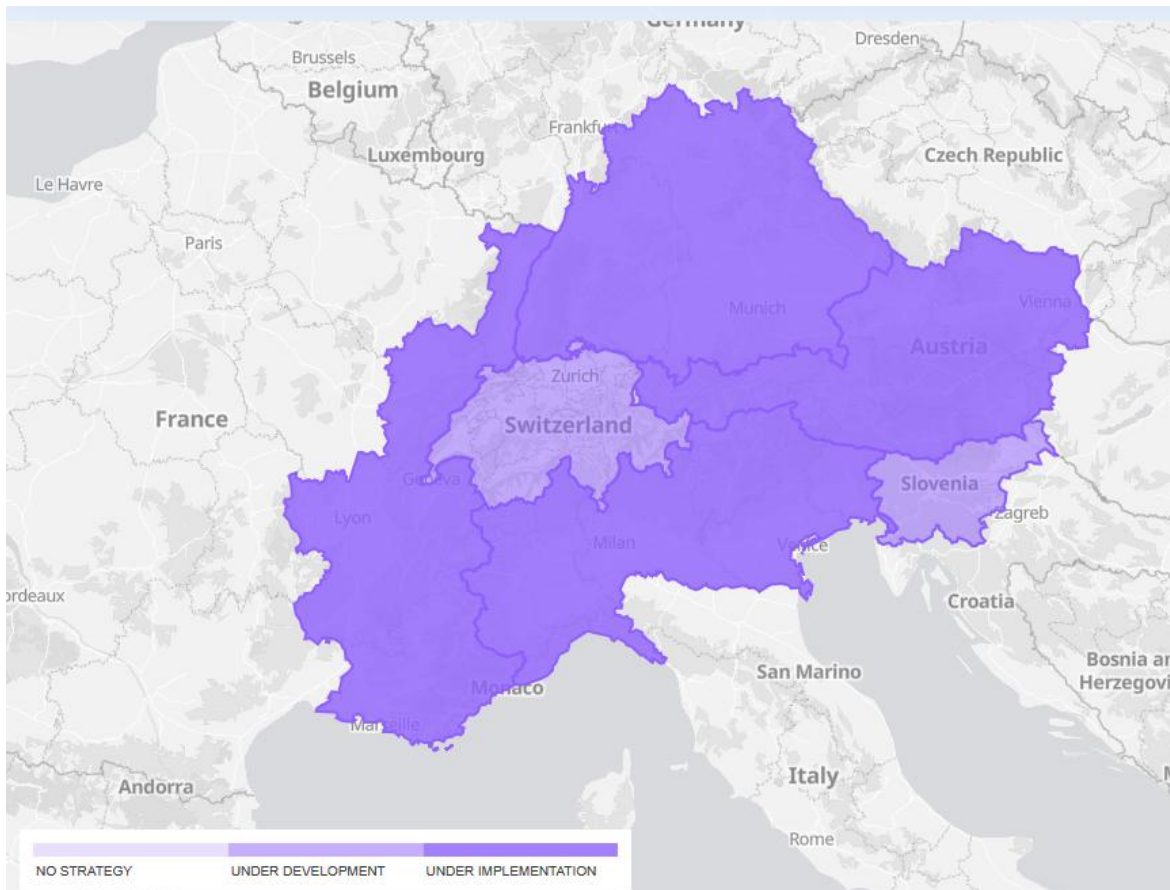
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Alpine Space

AMETHyST

- 7 stratégies nationales
- Beaucoup de stratégies régionales ont été élaborées

Un fort engagement politique



through the Interreg Alpine Space programme

Un engagement des régions alpines

Signature d'une lettre d'intention de coopération entre 10 régions alpines

Mise en place d'un EUSALP

H2 focus group pour

- échanger sur les opportunités de financement
- se soutenir dans les appels à projet
- Monter des projets de coopération territoriale

WHEREAS, the Parties are actively participating in the development and implementation of the Union Strategy for the Alpine Region (also « EUSALP ») that aims at addressing common challenges the energy transition, developing joint strategies and ensuring mutually beneficial interactions between alpine regions.

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WHEREAS, the parties wish to jointly define and implement a common innovation agenda and co-projects to accelerate the deployment of hydrogen-based solutions, strengthen local hydrogen eco-system building interregional value chains. These projects could facilitate and support, among others, the areas : experience and knowledge sharing about common challenges and available solutions, development of technological or organisational solutions, higher education and vocational programmes, testing and demonstration of technologies, the investment in implementing transalpine such as hydrogen refuelling stations (HRS) along the main corridors and heavy vehicles (buses trucks, snow groomers, trains ...), the support needed for the scaling up of solutions and reaching of profitability.

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WHEREAS, The parties support the cross-sectoral strategic initiative "Green Hydrogen for coordinated by EUSALP Action Group 9. This initiative was officially launched in September 2020 EUSALP Energy conference. The Parties have responded favourably to the initiative. Hence the Parties agree to explore the above cooperation opportunities through a dedicated group composed of their nine regional entities.

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The letter of intent shall enter into force on the date of its signature.

Place, Date

Stuttgart, 18.06.2021



La Région
Auvergne-Rhône-Alpes

Laurent Wauquiez
Président Auvergne-Rhône-Alpes

Stefan Benzing
Director Department 1
Key Tasks, Europe, International
Cooperation



Matteo Marnati, Regional Minister for
Environment, Energy, Research and Innovation



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Recitals

REGION
SUD
CÔTE D'AZUR
Renaud MUSELIER
Président de la Région Provence-Alpes-Côte d'Azur

La présidente du conseil régional
REGION
BOURGOGNE
FRANCHE
COMTE
Marie-Guite DUFAY



Renzo CATTANEO
Minister for Environment and Climate



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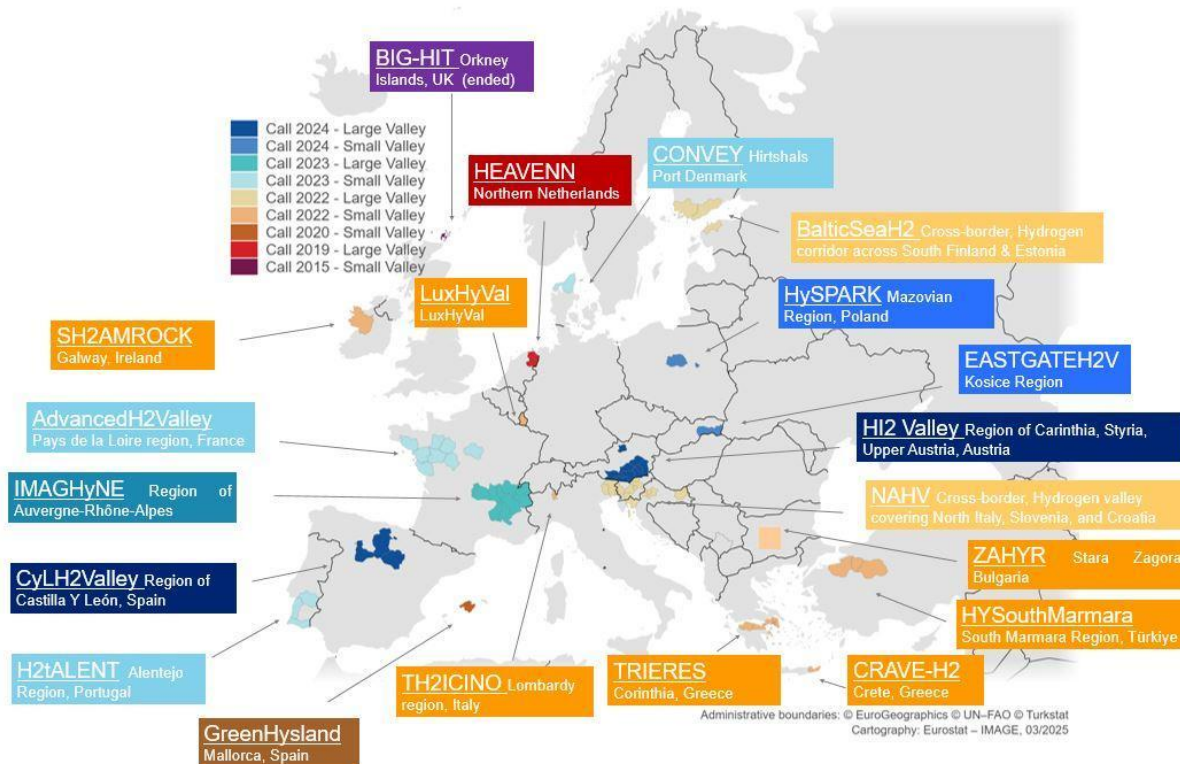


Massimiliano Fedriga, il Presidente
(name and function)

REGIONE LIGURIA
(name and function)

Les Alpes, un hub H2

AMETHyST



3 des 7 grandes
vallées H2
financées par le
CHP sont alpines

762 M€
investissement
privé
72 M€ de fonds
européens



Complémentarité entre usages industriels et mobilité

Interreg



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- Le projet **North Adriatic Hydrogen Valley** mobilise plus de 340 millions d'euros et implique le ministère slovène des Infrastructures, le ministère croate de l'Économie et du Développement durable et la région autonome du Frioul-Vénétie Julienne.
- **IMAGHyNE** ouvrira la voie au déploiement d'une économie de l'hydrogène renouvelable à grande échelle dans la région Auvergne-Rhône-Alpes, pleinement intégrée au système énergétique et répondant aux besoins des secteurs à fortes émissions.●
- Le projet **HI2-Valley** a été lancé en 2025 par les régions autrichiennes de Styrie, de Haute-Autriche et de Carinthie. De nouvelles usines produiront plus de 10 000 tonnes d'hydrogène par an, principalement destinées à l'industrie lourde.●
- **TH2ICINO** soutient le déploiement de micro-économies de l'hydrogène en développant et en démontrant un écosystème complet dans six cas d'utilisation en Lombardie (Italie)

Et d'autres régions alpines engagées dans des candidatures au CHP!

Quelques chiffres

Project numbers

93

H2 Sites

28

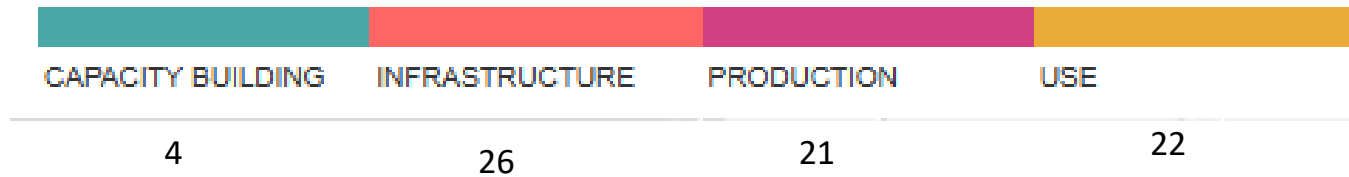
Projects

6

Territories

17

Policies



Des projets de coopération alpine

Interreg
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AMETHyST

Déployer des eco-systèmes H2 en zone
de montagne



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H2MA

Déployer la mobilité H2 le long des
corridors alpins

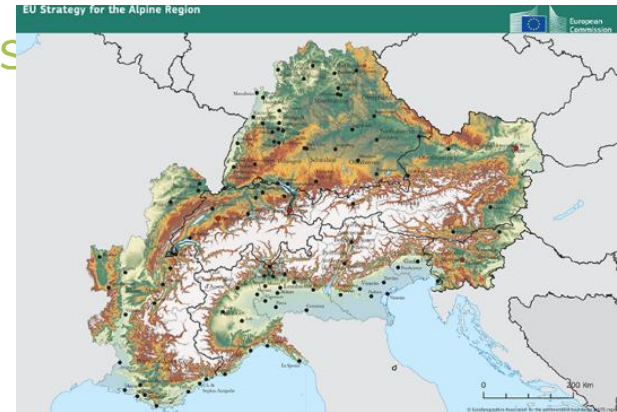


This project is co-financed by the European Regional Development Fund through the Interreg Alpine Space programme

AMETHyST, un projet de la SUERA

- Projet incubé incubé dans le groupe de travail alpin H2 initié par la Présidence Française de la SUERA en 2020
- Financé par le programme Interreg Espace Alpin

AMETHyS



Auvergne Rhône-Alpes Energy Environment Agency (Lead partner) ✓

Cluster Technologies New Energies Renewable Energies Rhône-Alpes ✓

Fondazione Bruno Kessler ✓

Autonomous Province of Trento ✓

Energy Agency South Tyrol - CasaClima ✓

Energy Management Agency of Friuli Venezia Giulia ✓

Energy and Climate Agency of Podravje ✓

Standortagentur Tirol GmbH ✓

Civic Foundation Energiewende Oberland ✓

BlueArk Entremont ✓

ne Space programme

AMETHyST

Déployer des écosystèmes H2 en zone de montagne

Interreg



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- Améliorer l'**information et la connaissance** sur les solutions hydrogène
- Développer des **services d'accompagnement** des acteurs locaux dans la conception et la mise en œuvre de leur projet hydrogène
- **Expérimenter des solutions** "hydrogène vert" en priorité sur les territoires touristiques alpins
- Favoriser les **échanges d'expériences** concernant les solutions hydrogène vertes entre territoires alpins
- Faciliter la **mise en cohérence des politiques** de soutien aux niveaux alpin, national et régional pour le déploiement d'un écosystème alpin de l'hydrogène vert.

Conclusions et perspectives

- Un projet qui a permis aux partenaires et acteurs locaux de mieux connaître les enjeux de l'Hydrogène
- Beaucoup de travail sur les territoires pilotes.
- Une frustration de ne pas avoir plus de réalisations concrètes
- Continuer le travail de déploiement au niveau transfrontalier (H2Ready entre Italie et Slovenie)
- En région: souhait de la Région et des acteurs de l'H2 de monter un projet ALCOTRA en lien avec les JOP 2030.
 - Mobilité: navettes, engins déneigement, BOM
 - Renfort des réseaux électriques
 - Démonstrateurs

An Alpine Hydrogen Resource Centre: the SKHyLINE platform

7 Octobre 2025
Grenoble, France

Eleonora Cordioli, Fondazione Bruno Kessler





skHyline

Hydrogen Ecosystems in the Skyline of the Alps

FBK
FONDAZIONE
BRUNO KESSLER
CENTER FOR
SUSTAINABLE ENERGY

Interreg
Alpine Space



Co-funded by
the European Union

AMETHyST



What is skHyline.eu?

skHyline is an online platform developed within the INTERREG **AMETHyST project**.

Its mission is to share valuable knowledge on the latest initiatives, technologies, strategies and economic models related to **green and low-carbon hydrogen** in Alpine regions.



skhyline.eu



Why SkHyline?

A name designed to represent both **sustainability** and **innovation** in a single term.

It is a play of words around two concepts:
the natural line of the **mountains** (the skyline) and the clean energy potential of **green hydrogen** (H_2).





Hydrogen Ecosystems in the Skyline of the Alps

A place to map and discover projects on hydrogen. A platform to help stakeholders develop their own projects with strategic guidelines and tools.

[About the project](#)

[Explore the map](#)



Project numbers

93
H2 Sites

28
Projects

6
Territories

17
Policies

ABOUT THIS PROJECT

SkHyline is an **innovative knowledge sharing platform** developed within the Interreg Alpine Space project AMETHyST.

The platform's mission is to **share valuable knowledge** about the **latest green and low-carbon hydrogen initiatives, technologies, and economic models** in the Alpine regions. By doing so, we aim to empower local decision-makers, enhance the technical expertise of public authorities, and inform citizens about the potential of hydrogen as a sustainable energy vector.



How can the platform help



To Empower Decision-Makers

Local leaders and policymakers can access a repository of policies, documents, and case studies to make informed decisions about hydrogen investments and policies.



To Enhance Technical Knowledge

Public authorities and technical staff can enhance their understanding of hydrogen technologies and their economic feasibility as well as discover and explore local and European projects.



To Engage Citizens

Members of the community can learn about the benefits of hydrogen and how it contributes to a sustainable future.



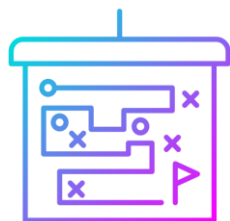
Key features



An interactive **map** of green hydrogen-related projects and initiatives in the Alpine Space.



A techno-economic **simulator tool (H₂FAst)** to determine the financial feasibility of implementing hydrogen technologies.



Insights into **strategies and policies** supporting hydrogen for the decarbonization of territories.



Policy guidelines for the development of sustainable energy policies including the application of green hydrogen.



Let's explore skHyline



skhyline.eu



Thank you for the attention



Eleonora Cordioli
ecordioli@fbk.eu

Sara Stemberger
sstemberger@fbk.eu

AMETHyST

H2 experiments in the Alps: a look back at actions in the pilot regions

7 Octobre 2025
Grenoble, France



This project is co-financed by the European Regional Development Fund through the Interreg Alpine Space programme

AMETHyST

A MultipurposE and Tran sectorial Hydrogen Support for
decarbonized alpine Territories

Final event
Grenoble, October 7th 2025



FVG Pilot case

LOCAL PARTNERSHIP



APE FVG

Energy Agency of Friuli Venezia Giulia

Pilot coordinator,
technical assessments, stakeholder dialogue



SECAB

First cooperative-based company in FVG
for hydropower production and
distribution

Hydro and PV producer, surplus energy provider



PromoTurismo FVG

Regional body managing and promoting
tourism initiatives

Ski resort operator, H₂ snow groomers user



Area Science Park & University of Udine

Research, academia

Knowledge exchange, link to North Adriatic Hydrogen Valley

FVG Pilot case

PILOT AT A GLANCE

APE FVG explored a **full-scale Alpine hydrogen ecosystem**.

Goal: replacing **diesel snow groomers** at Zoncolan ski resort.

Hydrogen produced from **SECAB's surplus hydro & solar energy**.

Valley already runs on **100% renewable electricity**.



FVG Pilot case

ACHIEVEMENTS & CHALLENGES

FEASIBILITY & REPLICABILITY

Raised awareness of hydrogen solutions for **tourism & public mobility**

Surplus 100% renewable energy confirmed
(24,000 MWh/year)

Feasible applications: 3 school buses + 1 snow groomer

Two **scalable scenarios validated**
(120 kW and 2 MW electrolysis systems)

Safe, **modular storage** designed according to EU standards

BARRIERS

Technological and market immaturity: **prototype stage** of H₂ snow groomers

Seasonality of hydrogen demand: usage concentrated in the winter months makes it difficult to pay off the costs of a production plant.

Economic constraints: the lack of a reliable business model, after-sales guarantees and stable prices halted investment decisions.

FVG Pilot case

KEY LESSONS

- ✓ **Phased implementation:** start small (120 kW), scale up gradually (2MW)
- ✓ **Optimized use of renewable surplus energy:** monitor grid constraints & seasonal variation
- ✓ **Regulatory alignment:** engage early, flexible storage strategies
- ✓ **Seasonality of hydrogen demand:** demand peaks in winter, low in summer → importance of matching production with actual consumption patterns
- ✓ **Prioritize the most impactful applications:** focus on high-usage, high-impact sectors (e.g., public transport, municipal fleets, off-grid applications) before expanding into additional areas
- ✓ **Economic viability:** public-private partnerships, subsidies, and incentive mechanisms are crucial to ensure financial viability

FLEXIBLE**SCALABLE****DEMAND-DRIVEN**

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MERCI
GRAZIE
THANK YOU



Martina Artenti
martina.arteni@ape.fvg.it
Agenzia per l'energia del Friuli Venezia Giulia

AMETHyST

A Multipurpose and Trans sectorial Hydrogen Support for
decarbonized alpine Territories

Grenoble, 07/10/2025



Madonna di Campiglio Ski Area



Funivie Madonna di Campiglio S.p.A.

Ski slopes: 60 km

Altitudinal range: 1513-2501 m

Ski lifts: 19, transporting 35,533 passengers/h

Technical snow: 1.1 Mm³/year

Snow groomers: 20 (diesel-fueled)

Skier-days: 1.2 M/year

Winter turnover: 25 M€

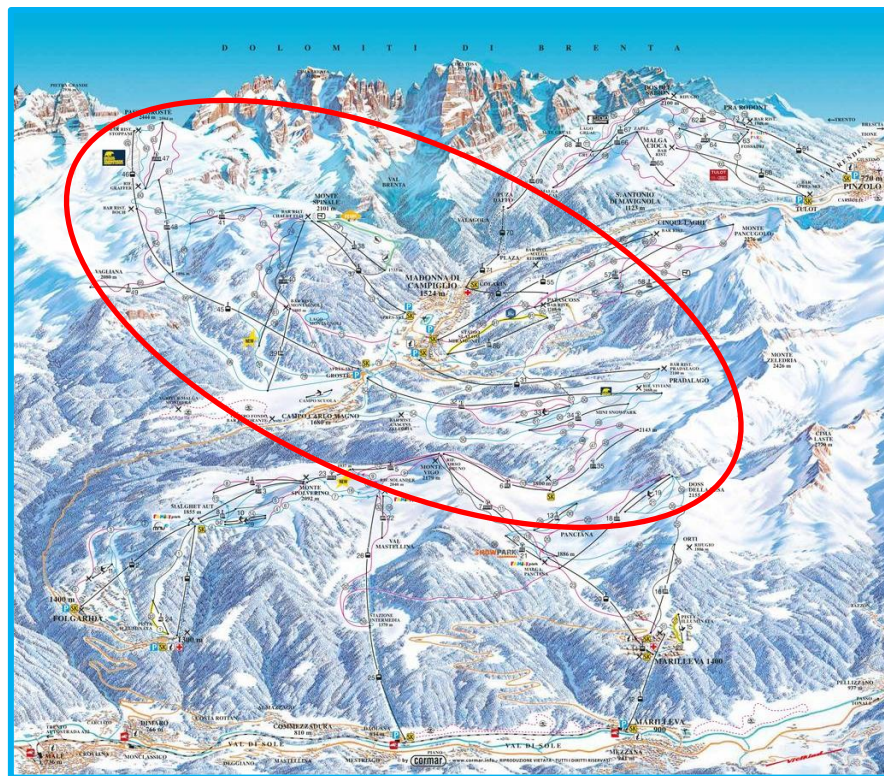


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This project is co-financed by the European Regional Development Fund through the Interreg Alpine Space programme

Madonna di Campiglio Ski Area



Hydrogen potential

PRODUCTION

- Integration of hydrogen-based solutions with renewable energy systems (e.g., solar PV), for production of hydrogen when electric energy generated exceeds demand.

END-USES

- Replacement of diesel-powered snow groomers with hydrogen-powered snow groomers (fuel cell / internal combustion engine)

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Pinath

LEITWOLF h2MOTION

Madonna di Campiglio Ski Area



Local insights and impressions

- Strong collaboration among local stakeholders to explore hydrogen solutions for ski areas and Alpine regions.
- High interest from authorities, companies and agencies in hydrogen for mobility decarbonization, beyond electric alternatives
- Pilot ski area engaging with snow groomer manufacturers (e.g., Pinoth) on hydrogen-powered models.
- Challenges: early-stage technology, high investment & operational costs.
- Opportunity: aligns with visitor demand for sustainability, boosting ski areas' reputation as green and innovative destinations.

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PARTNERS AND
STAKEHOLDERS

Pinoth

SKIAREA
MADONNA
DI CAMPIGLIO
DOLOMITI DI BRENTA

Local municipalities
and administrations,
business support
organizations

Madonna di Campiglio Ski Area



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Key highlights and success stories

- Hydrogen snow groomers show strong decarbonization potential but are still in early development → not yet ready for full fleet replacement.
- Stakeholder collaboration (ski operators, tech providers, authorities) is critical for feasibility, infrastructure, and sustainability alignment.
- Infrastructure and logistics (refueling, storage, supply chain) must be carefully planned for long-term success.
- Phased transition (pilot → gradual scale-up) reduces risks and supports adaptation to evolving hydrogen technologies.



Recommendations for regional and local H2 development policies

7 Octobre 2025
Grenoble, France

Benjamin Auer, Casaclima





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AMETHyST recommendations for action

Benjamin Auer – Energy Agency South Tyrol

Grenoble, 7 October 2025



This project is co-financed by the European Regional Development Fund through the Interreg Alpine Space programme

The AMETHyST Guidelines

AMETHyST



*Autostrada del
Brennero*

The AMETHyST Guidelines

AMETHyST

They are a result of:

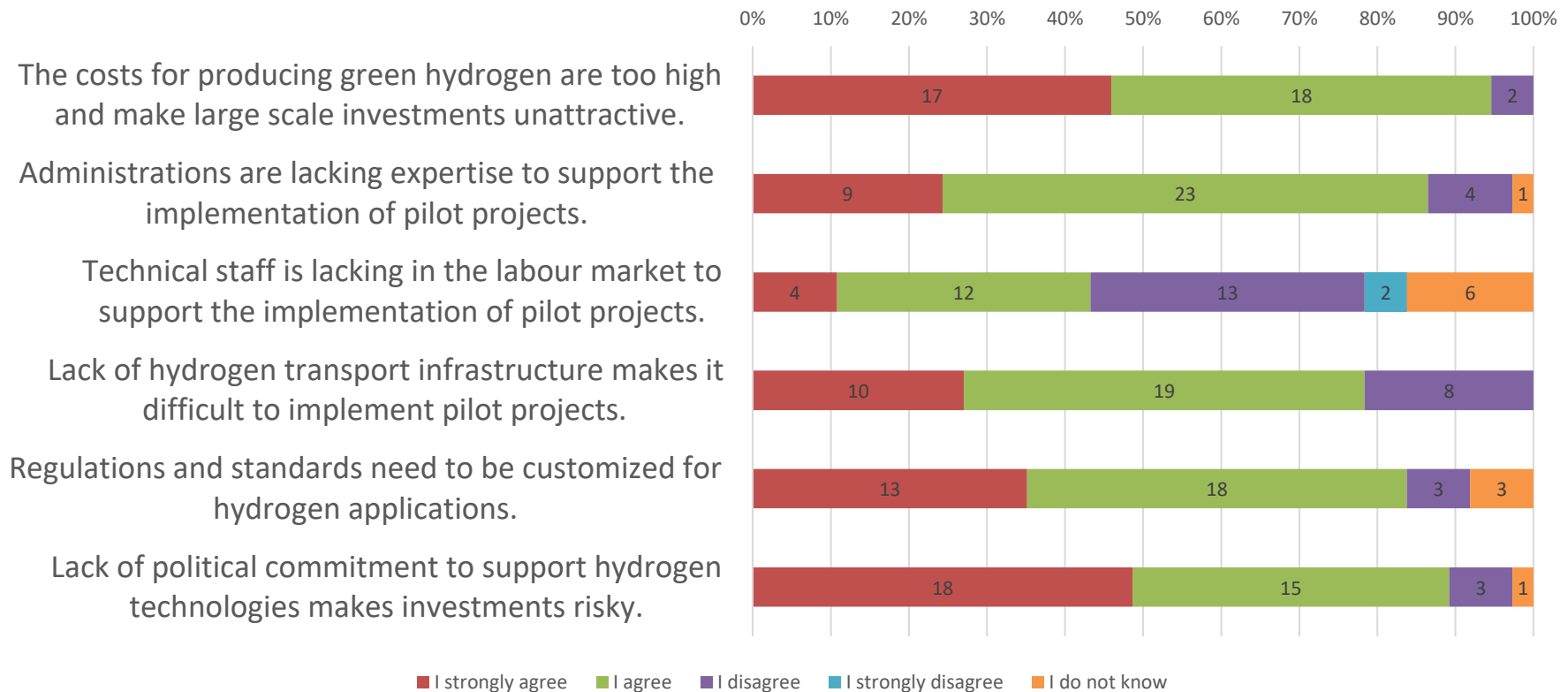
1. The **mapping and analysis** of existing hydrogen strategies, policies and initiatives, available [HERE](#)
2. The organisation and implementation of expert discussion tables and best practice study visits as part of the **inter-regional exchange programme**
3. Input from **expert input** via online survey in 2025



The expert survey

AMETHyST

Barriers for green hydrogen projects

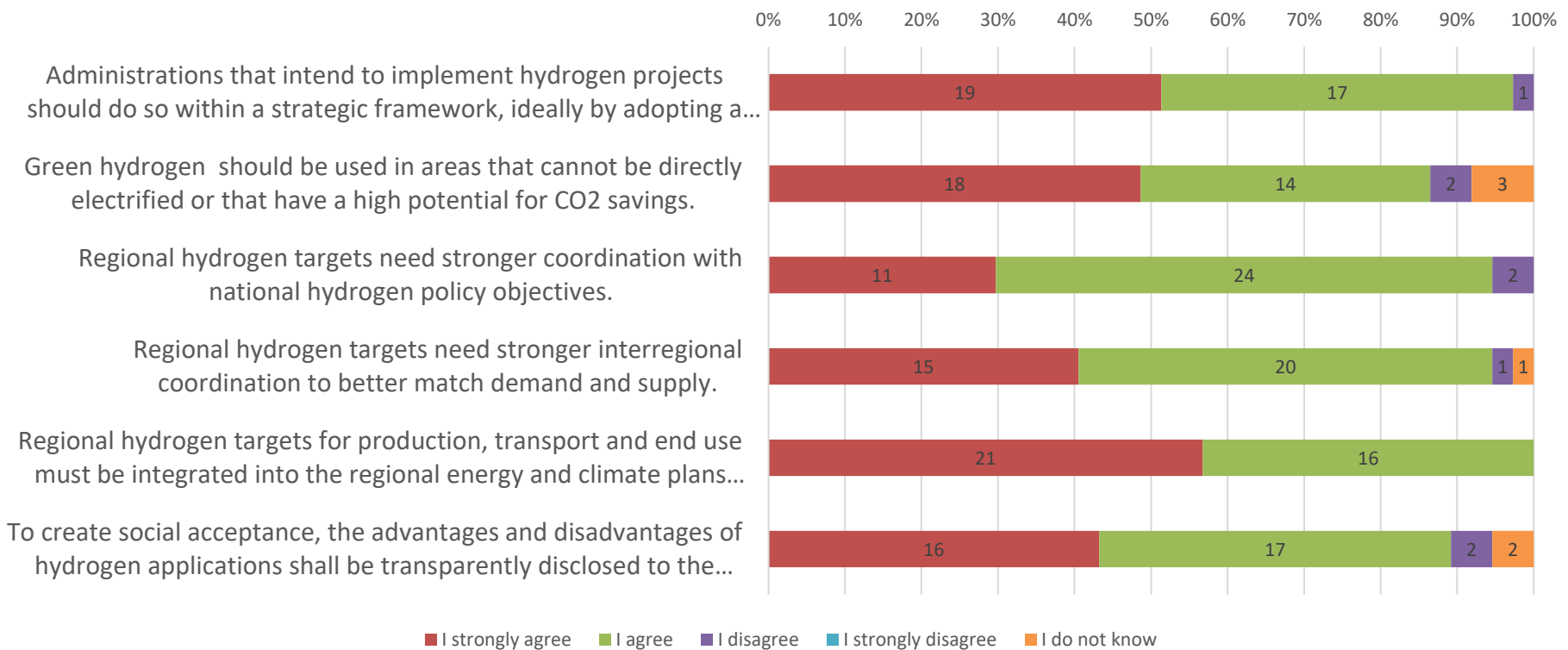


The expert survey

Alpine Space

AMETHyST

Recommendations for regional policy planning



Fields of intervention

- 1. Promote regional policy planning and green hydrogen strategies***
- 2. Ensure coordination between national and regional hydrogen policies***
- 3. Foster transnational and transregional cooperation***

Fields of intervention

Alpine Space

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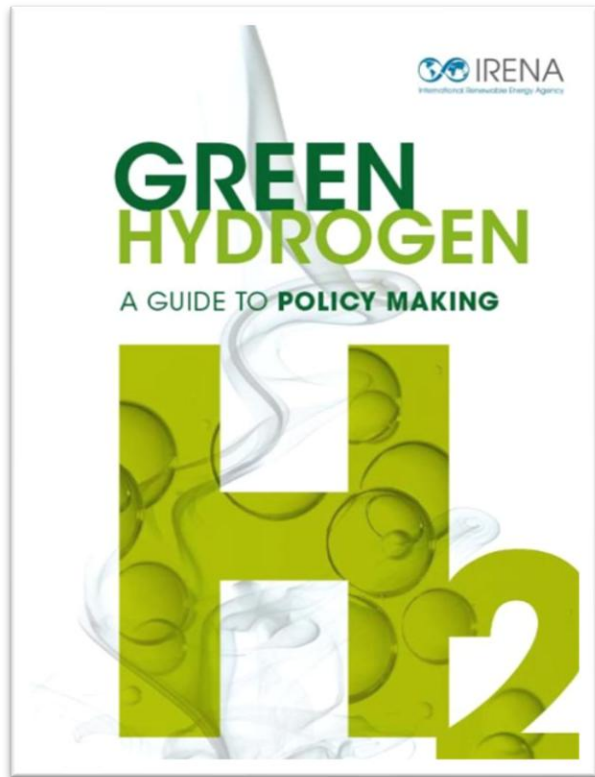
1. Promote regional policy planning and green hydrogen strategies



*European
Hydrogen
Observatory
2025*

Draft a (regional) green hydrogen strategy

AMETHyST



Vision Document

- Showcase potential / end goal
- Align private and public views
- Highlight benefits and added value

Roadmap

- Define major milestones and targets
- Present indicative timeline for scaling up
- Showcase actions to advance

Strategy

- Define key targets
- Ensure coherence with the rest of energy policy
- Introduce direct, integrating and enabling measures
- Introduce a timeline

IRENA: Green Hydrogen – A Guide To Policy Making, 2019.

Alpine Space

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Monitoring, Knowledge, and Social Acceptance

Monitoring

Communication & acceptance

Improve knowledge & skills

Green Hydrogen Policy Principles

Governance, policy and finance

Unlock external expertise through public-private partnerships

Implementation of Steering instruments for green hydrogen

Policy alignment

Multi-level governance & cooperation

Core strategy and technical focus

Energy Efficiency first

Additionality of renewable
energy sources

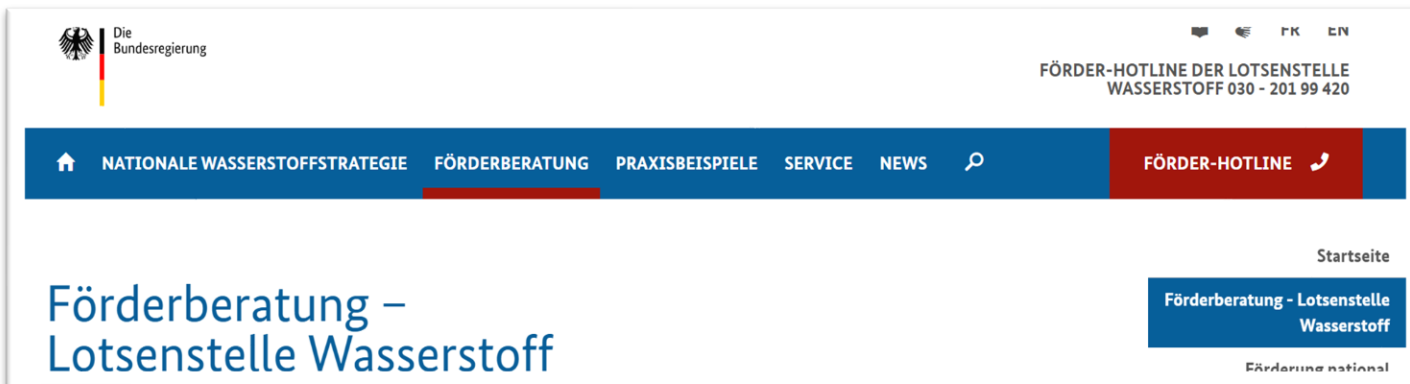
Decarbonization potential

Fields of intervention

2. Ensure coordination between national and regional hydrogen policies

Recommendations

- **Connect regional ambition with national strategies**
- **Establish national support structures**



Example: One-stop-shop of the German government

Fields of intervention

3. Foster transnational and transregional cooperation

Recommendations



This project is co-financed by the European Regional Development Fund through the Interreg Alpine Space programme

Recommendations

- **Collaboration & Knowledge Exchange** – Foster networking, shared learning, and cross-regional hydrogen initiatives.
- **Policy & Governance Alignment** – Harmonize strategies, standards, and long-term policy frameworks across the Alpine region.
- **Financing & Implementation Support** – Coordinate public funding, streamline EU funding access, and monitor effective models.
- **Sustainability & Public Engagement** – Ensure environmental integrity and community involvement in hydrogen development.

Read the full report!

Alpine Space

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Thank you

Benjamin Auer – Energy Agency South Tyrol

benjamin.auer@klimahausagentur.it



This project is co-financed by the European Regional Development Fund through the Interreg Alpine Space programme

Strong Alpine political engagement in developing H2

Recitals

WHEREAS, the Parties are actively participating in the development and implementation of the European Union Strategy for the Alpine Region (also « EUSALP ») that aims at addressing common challenges such as the energy transition, developing joint strategies and ensuring mutually beneficial interaction between the alpine regions.

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5. Each party will be able to identify and involve other organizations within its region to take part in the exchanges.

The letter of intent shall enter into force on the date of its signature.

EUSALP H2 Focus Group established in 2021 to:

- Develop joint projects
- Identify H2 cooperation areas
- Lobby to EU commission

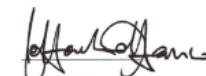
Place, Date



Laurent Wauquiez
Président Auvergne-Rhône-Alpes



Matteo Marnati, Regional Minister for
Environment, Energy, Research and Innovation



Raffaele Cattaneo
Minister for Environment and Climate



Stampa digitalizzata da Massimiliano Fedriga
Data: 01/06/2021 10:42:40

Massimiliano Fedriga, il Presidente

(name and function)

Stuttgart, 18.06.2021



Baden-Württemberg



Stefan Benzing
Director Department 1
Key Tasks, Europe, International
Cooperation



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La présidente du conseil régional



Firmato digitalmente da: Maurizio Fugatti
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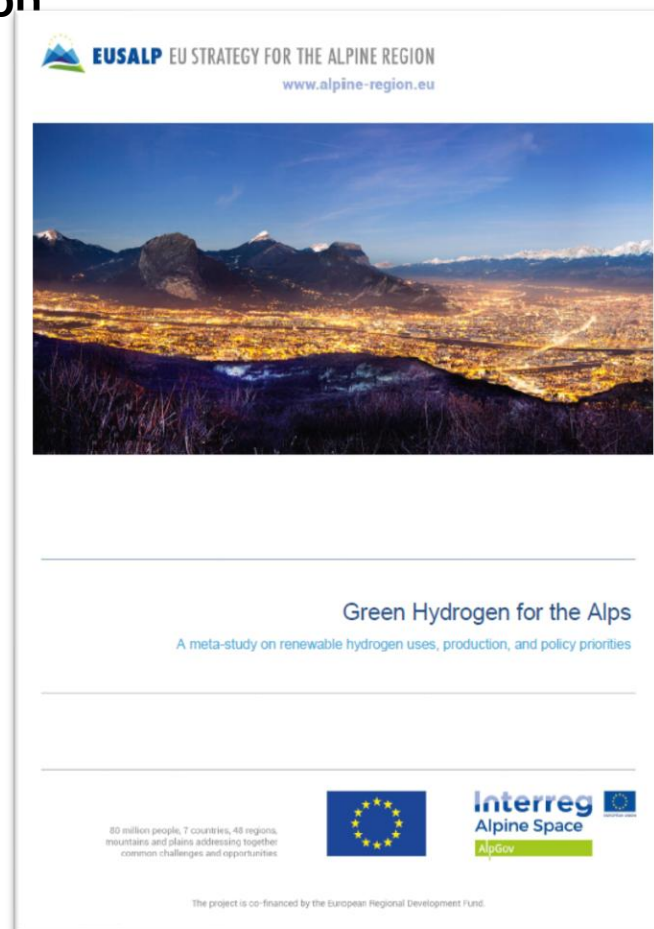
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EUSALP CROSS-CUTTING PRIORITY ON “Accelerating the Energy Transition for a Carbon-Neutral Alpine Region”

Meta-study „Green Hydrogen in the EUSALP“ University of Bolzano

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