



EUSALP AG9 Energy series 2021

*Alpine regions, large scale
initiators of hydrogen mobility*

Webinar – 18 October 2021

Minutes



**Auvergne
Rhône-Alpes**
Énergie Environnement



CONTEXT - Alpine Regions, large scale initiators of hydrogen mobility

The SUERA Action Group 9, co-lead by AURA-EE and CasaClima, in the framework of the French Presidency of EUSALP, is organizing [the fifth annual conference on energy transition in the Alps](#).

It will be divided into three separate seminars on hot topics in energy and sustainability on regional and transnational level: hydrogen as an energy vector in transport, local energy communities, and the perspectives of the new European Bauhaus for a carbon-neutral future.

The first webinar aims at demonstrating how the EUSALP Macro regional strategy is a booster for cooperation in the hydrogen strategic field, with a better coordination and concentration of funds. It is intended to all institutions and stakeholders working in the hydrogen field and heavy mobility.

Committed to the energy transition and sharing air quality problems, the Alpine Regions have indeed been developing hydrogen mobility projects in their territories for many years, such as the Zero Emissions Valley project in Auvergne Rhône-Alpes, H2 Rivers in Baden Württemberg or in South Tyrol. With a dynamic and innovative hydrogen industrial eco-system, Alpine Regions have developed regional strategies to stimulate this hydrogen economy. Infrastructures are being developed, hydrogen refuelling stations are being built, light mobility is being launched, and heavy mobility is starting. To connect all these regional strategies and equip the Alpine corridors with hydrogen infrastructures, some Alpine regions wanted to cooperate on the deployment of heavy mobility, the stimulation of innovation and new technologies, and the development of training and professional skills. This cooperation has taken concrete form in a letter of intent from 9 Alpine regional authorities, within the Green Hydrogen for the Alps initiative initiated by EUSALP Action Group 9 "Energy".

EUSALP offers a framework not only for cooperation, but also for dialogue with the European Commission, on the mobilisation of the various European funds, and in particular the regional ERDF. These funds can be used to finance investments, or even studies, and a network of "Hydrogen" managing authorities has been set up and will make it possible to ensure consistency between regional investments.

[Watch the full replay](#) on AURA-EE's youtube channel

PRESENTATIONS

Presentation of the EUSALP Green Hydrogen in the Alps initiative and progress, by Sylvain Guetaz, policy officer for European cooperation and leader of EUSALP Action Group n°2, Auvergne-Rhône-Alpes Region

Mr. Sylvain Guetaz introduced the session by providing some background of the hydrogen's strategy of the Region.

The region Auvergne-Rhône-Alpes has been quite active in the field of hydrogen since a couple of years:

In 2017, the Region launched the Zero Emission Valley project with some private companies such as Michelin and Engie, in particular by creating SAS Himpulsion, with the aim of deploying a fleet of 1,200 zero-emission fuel cell vehicles and 20 hydrogen stations by the end of 2023. The Region has also launched in 2019 the S3 Hydrogen Valleys partnership, which to date includes 53 European regions and cities, including 10 French Regions. This grouping of local authorities is recognized by the European Commission as a key interlocutor in the field of hydrogen. It has enabled the role of the regions in the deployment of hydrogen technologies to be better recognized and to mobilize greater European support. The Regions have key competencies such as economic development, support for research and innovation, and professional training that allow them to initiate concrete actions in favor of hydrogen development.

Since the beginning of the French Presidency for EUSALP (in 2020), the Region decided to launch an important initiative dealing with hydrogen: It signed the regional pillar of the hydrogen European network. This will be explained later by our Vice-President, Mr. Bonnichon, at the end of this today session.

Presentation of the EUSALP Hydrogen Initiative

The EUSALP Hydrogen Initiative is a proposal coming from the Auvergne-Rhône-Alpes Region to develop a Joint Project Proposal to foster investment in heavy duty mobility solutions across the Alps. (e.g. urban buses, coaches, trucks, snow groomers, refuelling stations, production of green H₂...). It will seek funding from the EU (European Commission, from many involved partners, etc.

The political commitment has been achieved: so far, 9 regions signed a letter of intent (three French Region, five Italian provinces and 1 German region¹). These nine signatories have fulfilled a technical questionnaire in order to better understand how to cooperate within the EUSALP Hydrogen initiative.

¹ AURA, BFC, PACA, Piedmont, Lombardy, Friuli Venezia Giulia, Bolzano, Trentino, Bade-Württemberg

Green Hydrogen for the Alps initiative, Ulrich Santa, Director, Casaclima, EUSALP AG9 co-leader

Mr. Ulrich Santa highlighted the potential of hydrogen in the transport sector (as an alternative fuel) and presented the green hydrogen initiative in the Alps.

This green hydrogen initiative aims to improve cooperation, knowledge of the key stakeholders and their potential. It represents a key element for decarbonization and to become climate-neutral by 2050.

Project ideas are currently being developed:

1. Territorial approach from green hydrogen production to local uses: to be further developed
2. Pre-development assistance for hydrogen infrastructure or heavy vehicles
3. Embedding workshop on hydrogen with interested regions

The EUSALP AG9 decided to conduct an analysis of this regional strategy, in order to identify the potential of hydrogen deployment in different sectors. In other words, to know where it makes most sense to use hydrogen. Which are the most relevant applications of hydrogen?

Hydrogen regional strategies in EUSALP: a stakeholder perspective on barriers and cooperation opportunities in the transition to a H2-based economy. Preliminary results from the meta-study initiated by EUSALP Action group 9, by Lorenzo Menin and Stefano Piazzzi, University of Bolzano

Mr. Lorenzo Menin presented the main findings of the meta-study initiated by EUSALP Action Group 9:

Part 1. This study (a questionnaire) questioned EUSALP Stakeholders involved in energy policy planning at regional level. Geography of questionnaire response (4 States and 8 Regions in total)

Objectives of this study:

- Understanding fundamental hydrogen production and utilising modes envisaged by stakeholders
- Investigating perception of fundamental barriers and opportunities on the way towards hydrogen development
- Exploring policy priorities identified by stakeholders at regional level



- **Austria**
 - Niederösterreich
 - Kärnten
- **France**
 - Rhone-Alpes
- **Germany**
 - Baden-Württemberg
- **Italy**
 - Friuli Venezia Giulia
 - Trento
 - Piemonte
 - Valle d'Aosta

Results of the questionnaire:

- **Priority:** Decarbonization is the top one priority, then jobs & local economy, followed by the need for innovation and energy security.
- **Barriers to implementation:** insufficient competitiveness comes at the top, then technological risk and lack infrastructure.
- **Most promising production pathway:** electrolysis is the most cited option. Blue hydrogen, biogas reforming and biomass is also cited.
- **Most promising utilization pathway:** Heavy transportation is most cited, as well as energy storage.

Part 2. A series of interviews with stakeholders has been done.

Areas of inquiry:

1. Local policy priorities
2. Infrastructural challenges and opportunities
3. Energy/feedstock supply conditions
4. Understanding of technologies, efficiencies, costs, decarbonization potential
5. Details on existing projects
6. Case-specific question based on previous answers (questionnaires) as well as geo-specific conditions

Expected cross-sector benefits:

- **Most cited:** decarbonization, air quality, and enhancement of industrial competitiveness.
- **The road infrastructure issue** was the most common conversation topic -> common focus on large transitional heavy transportation routes, where heavy road transportation is seen as unanswered decarbonization challenge that hydrogen could contribute to solve.
- **Key barrier and risk identified:** lack of international infrastructural development and planning coordination.
- **Electrolysis** is normally considered as the most adequate technology by default, although several interviewees pointed blue hydrogen as a necessary precursor. However, there is awareness of the threat of blue hydrogen to hinder decarbonization.
- It is interesting to point out that some interviewees see electrolysis and hydrogen as inefficient especially for energy storage, indicating partial scepticism.

Local industries as transition leaders:

- Industry is cited most often as the expected transition leader, although geo-specific sectors may represent threat to hydrogen development due to competition for resources (energy/fuel)
- Policy schemes directed towards industrial uses are expected to prevail over user centric applications. These mostly include heavy duty transportation in several forms, while use for heat provision is generally disregarded.
- A very limited attention is given to other parts of society (individual users, civil society, governmental institutions)

Resources and supply chain uncertainty:

From the conversations with the stakeholders, a clear lack of information has emerged regarding the assessment and planning of the local supply capacity of energy and/or material resources necessary to cover the expected hydrogen demands.

According to the interviewees, the needs are:

- Expansion of renewable generation capacity
- Transnational co-investment and infrastructural coordination
- Sharing of knowledge and information
- Industrial partnerships
- Development of blue hydrogen at scale
- Planning and implementation of dedicated electric transfer across regions
- Planning and implementation of hydrogen transfer across regions

Major information gaps encountered:

1. Lack of information on expected performances from different types of technologies along the supply chain
2. Lack of information on technological and infrastructural alternatives
3. Lack of information on local availability of resources (energy or feedstocks) necessary to meet projected hydrogen demands

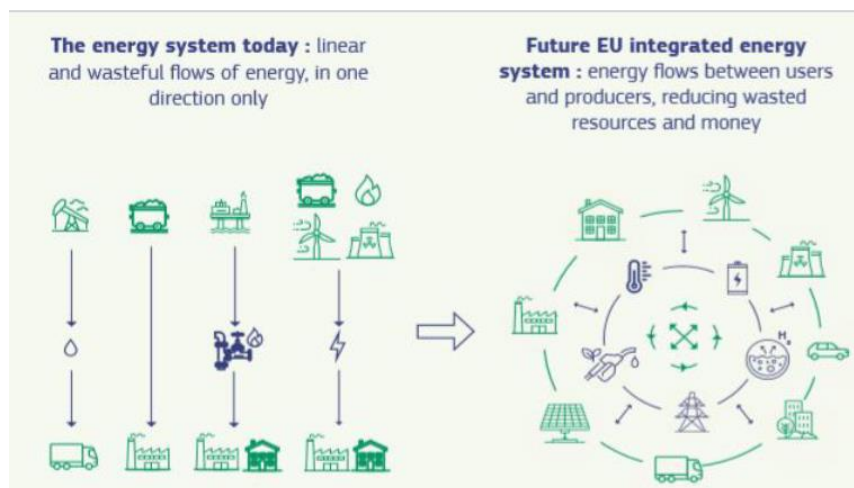
Hydrogen in EU policies DG Energy, Tomasz Bak, Policy analyst, European Commission, Directorate-General for Energy, Infrastructure and Regional Cooperation Unit

Mr. Tomasz Bak gave an overview of the EU initiatives and policies which are currently deployed to promote hydrogen's development within the Member States and Regions.

Energy infrastructure is a key pillar of EU energy policy to deliver the EU Green Deal. To achieve the climate neutrality by 2050, a transition of the whole EU energy system is necessary:

This climate-neutral energy system includes:

- A more circular and energy efficient energy system
- A deep electrification of consumption based on renewable electricity
- The use of renewable and low carbon fuels in hard to abate sectors



Why the current emphasis on hydrogen?

1. The EU needs to deliver on climate neutrality at the least cost, in line with Green Deal ambitions
2. Hydrogen can be applied to many areas
3. May be produced through a variety of processes with a wide range of emissions
→ Opportunity to create jobs, ensure security of supply and industrial leadership.

The hydrogen Strategy – a roadmap to 2050

2024:

- A 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
- Expansions of hydrogen derived synthetic fuels
- EU wide infrastructure network
- An open international market with EU as benchmark.

Investment needs are massive: we need to produce more renewable energy in order to be able to produce green hydrogen and also to have robust hydrogen infrastructure to transport it on long distances between Member States and also to trade hydrogen with third countries. This is why the EU is mobilizing public funds through different instruments such as Next Generation EU, Invest EU, Cohesion policy, CEF-E, CF-T, ETS innovation Fund and Horizon Europe.

Full value chain approach	Actions oriented towards
An investment agenda	<ul style="list-style-type: none"> • Create project pipeline through the Clean Hydrogen Alliance • €220-340bln renewable power, €24-42bln electrolysers, €65bln infrastructure
Boosting demand and scale up production	<ul style="list-style-type: none"> • Comprehensive terminology and EU-wide certification of hydrogen • Support schemes and CCfD for renewable and low-carbon hydrogen • Demand-side policies in end-use sectors
Develop hydrogen infrastructure and markets	<ul style="list-style-type: none"> • Planning of hydrogen transport and storage infrastructure • Rules ensuring competitive markets, enabling infrastructure development (incl. repurposing) whilst retaining integrity of internal gas market
Research and Innovation	<ul style="list-style-type: none"> • Clean Hydrogen Partnership established • Scale up electrolysers and develop hydrogen value chain • Continue to support innovative hydrogen technologies
The international dimension	<ul style="list-style-type: none"> • International standards, regulation and definitions for hydrogen • Promote cooperation

The Hydrogen Alliance is a platform set up by the European Commission. It gathers different stakeholders, mainly industries companies and public authorities.

Important goals of this alliance:

- Identify EU Hydrogen flagship projects which could contribute to meet the important milestone of the hydrogen roadmap
- Boosting demand and scaling up production
- Developing hydrogen infrastructure and markets
- Boosting research and innovation
- Giving an international dimension to EU hydrogen production

TEN-E revision

TEN-E policy: promotes interconnections and interoperability of national networks and accelerate the development of Projects of Common Interest (PCIs). The revision aims at fully aligning with the 2050 climate neutrality objective.

Full alignment of energy infrastructure for renewables and low-carbon gases is needed:

- New and repurposed dedicated hydrogen networks
- Electrolysers with a cross-border impact at massive scale, need to transport and to deliver hydrogen from the production site to the consumption site. That is new pipelines are needed.
- Smart gas grid solutions to integrate renewable and low-carbon gases, such as hydrogen, into existing gas grid

The Connecting Europe Facility (CEF) aims to ease the investment challenges:

- Assisting in better project preparation and minimising risk factors (grants for studies)
- Decreasing the cost of and improve the access to long term financing (financial instruments)
- Helping overcome the funding gap for commercially non-viable projects

EU possible funds for the EUSALP green hydrogen initiative, Hortense Lutz-Hermellin, Auvergne Rhône-Alpes Region, Brussels delegation.

Mrs. Hortense Lutz-Hermellin presented the EU possible funds to give an insight of the funding opportunities to initiate and develop hydrogen projects.

Possible fundings:

Next generation EU (EU recovery plan) 2021- 2026

- Highlights hydrogen as an investment priority to boost economy growth and resilience, create local jobs and consolidate the EU's global leadership
- Recover and Resilience Facility

Via grants and loans, direct management via national plans

Budget: €672,5 billions

ERDF (EU cohesion policy) 2021 – 2027

- Contribute to the development of renewable energy production capacities (hydrogen), support experimental projects...

Via grants. Shared management with regions managing authority and also specific program for EU territorial cooperation, so-called Interreg. EUSALP can use INTEREG Alpine Space programme for instance.

budget: ERDF € 192, 4 billion

It is an interesting source of funding to have in mind.

Horizon Europe: opportunities to fund research and innovation projects, through the Clean Hydrogen Joint Undertaking (= undertaking between Hydrogen Alliance and the European Commission. Together, they are aiming to accelerate the development and deployment of a hydrogen EU value chain. They launched some dedicated calls for projects to finance R&D projects)

Next call will be open in: January 2022

I3: inter-regional innovation investment

The I3 aims at promoting innovation through Smart Specialization and interregional collaboration. The I3 supports stronger interregional cooperation in investments and make sustainable connections by linking regional ecosystems in smart specialisation areas to accelerate market uptake of research results and stimulate innovation.

Connecting Europe Facility CEF: European program to support investment in infrastructure, transport, telecommunications, and energy

CEF – transport Budget 25,8 billion € for 2021 – 2027

Priorities 2021 – 2022:

- Rail and inland navigation – cross-border projects
- Large scale deployment of alternative fuels infrastructure

- Digitalisation of transport
- Mobility systems through intelligent applications

2 types of support :

- Grants: 20 à 50 % of eligible costs for work and studies
- Loans: 1 to 2 call per year.

CEF 2021 CALL transport: alternative fuels infrastructure facility (“Hydrogen refuelling stations for heavy and light vehicles, public transports, river, or sea boats, port vehicles and crews, rail”
Budget: 1,5 billion euros between 2021 and 2023. Necessity of a bank loan (30% subsidy)

This call is targeting:

- Charging stations: public accessible on-road charging stations for light (150kW) and heavy (350kW vehicles: Unit financing)
- Electric for public transport, river or seaboard, port vehicles and equipment and airport logistics

Cut-offs: 19 January 2022 – 7 June 2022 – 10 November 2022 – 13 Avril 2023 – 19 September 2023.



