

AMETHyST

DEPLOYMENT OF MOUNTAIN HYDROGEN ECOSYSTEMS

SUMMARY OF THE MEETING HYDROGEN IN MOUNTAIN TERRITORIES

MARCH 8, 2023 IN MOÛTIERS (FRANCE, 73)



Nearly 250 stakeholders - local authorities, economic players, European project partners - took part in the launch of the European AMETHyST project in Moûtiers on March 8, 2023. This project aims to accelerate the deployment of green hydrogen in mountain areas. Supported by the Auvergne-Rhône-Alpes Region, AMETHyST is led by the Auvergne-Rhône-Alpes Regional Energy Environment Agency (AURA-EE), in partnership with the Tenerrdis competitiveness cluster.

Hosted by the City of Moûtiers, in partnership with the Coeur de Tarentaise Community of Municipalities, the AMETHyST launch event was introduced by Fabrice Pannekoucke, mayor of Moûtiers, president of the Community of Municipalities and vice-president of the Region in charge of Agriculture and Valleys, and Catherine Staron, president of AURA-EE, vice-president of the Region in charge of Research and Innovation. It continued with two round tables during which regional, industrial, and institutional actors, at the regional, national and European levels, discussed feedback, prospects and support for the sector.

Fabrice Pannekoucke

“
When the Region decides to support the hydrogen project, it does so because there is a concentration of about 80% of the hydrogen actors present on the Auvergne-Rhône-Alpes territory.
”



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The decarbonation of mountain territories, one of the priority issues of the Auvergne-Rhône-Alpes Region Hydrogen strategy

Since 2017, the Region has been piloting an ambitious hydrogen industry development strategy. The first line of work focused on mobility use by launching, thanks to European support, the "Zero Emission Valley" project. This hydrogen mobility project involved the simultaneous deployment of production, storage, distribution and vehicle infrastructures.

Objective: to initiate the hydrogen sector through decarbonized hydrogen mobility throughout the region.

To implement this project, the Region has chosen to create a new commercial structure called HYmpulsion, whose shareholders are the Auvergne-Rhône-Alpes Region, Engie, Michelin, Crédit Agricole and the Banque des Territoires (Bank of the territories). This structure is in charge of building and operating the hydrogen recharging infrastructures of the "ZEV" project dedicated to light and heavy mobility. It should be noted that Moûtiers, located in the Tarentaise valley, a highly touristy area, welcomed in 2022 the project's second station.

The hydrogen strategy of the Auvergne-Rhône-Alpes Region is based on four main axes:

- ◆ Developing hydrogen to decarbonize industry and mobility;
- ◆ Investing in research and innovation;
- ◆ Supporting the development of a sector of excellence;
- ◆ Intensifying European cooperation.



Among the priorities, the decarbonization of mountain territories is based on:

- ◆ The need for training and information on the technology and its uses;
- ◆ The development of the H₂ ecosystem in mountain areas where the diversity of uses on small territories allows for many experiments, and the various forms of renewable energy are abundant (hydroelectricity, solar energy ...);
- ◆ Turning climate change into an opportunity: because changes occur more rapidly in mountains, the Alpine territories constitute a laboratory for experimentation, a propellant towards massification, and an incubator to go further.

Hydrogen has many advantages for making progress in the transition. Its production is regular and it does not depend on the seasons. Easily produced by renewable electricity, it can be used for multiple purposes: mobility, industries, ski area operation, agriculture, stationary use...

However, local players, local authorities and project leaders need to be supported to face the challenges of this new energy vector, which implies creating specific infrastructures and multiplying the uses of hydrogen. This is the purpose of the AMETHyST project.

For more information

[Read the press release \(in French\)](#)



The AMETHyST project

for coordinated action on a European scale

AMETHyST should contribute to shaping the contours of a post-carbon alpine lifestyle in tourist areas by strengthening production capacity and improving energy efficiency. It is part of one of the three axes of the hydrogen development strategy: supporting the deployment of mountain H₂ ecosystems; the other two axes being the alignment of regional ERDF funds in favour of hydrogen to finance investments and studies, and the mobilization of European funds to finance regional infrastructures.

The AMETHyST project has been incubated within EUSALP (EU Strategy for the Alpine Region), a space for cooperation between states on a European scale, and for consultation on how Europe can support the territories. EUSALP brings together 48 regional territories and 7 states of the Alpine arc.

The AMETHyST project brings together 10 partners - energy agencies, clusters, communities - in 6 Alpine countries: France, Italy, Slovenia, Germany, Switzerland and Austria, with three main objectives:

- ◆ Experiment with the ecosystem approach in mountain territories around concrete examples, with pilot territories;
- ◆ Promote knowledge sharing within the Alpine space;
- ◆ Accompany the decision-makers, to guide those who will make the territories of tomorrow.

With a budget of nearly 2 million euros, the project runs until the end of 2025.

For more information



[about the AMETHyST project](#)



[LinkedIn page of the project](#)



VISIT

of the hydrogen station

On Wednesday afternoon, March 8, 2023 the participants of the meeting, including the European partners of AMETHyST, went to the hydrogen station in Moûtiers for a guided tour.



ROUND TABLE 1

First feedbacks in the Alpine touristic territories

Jérôme Grellet, General Manager of SETAM Val Thorens, the company that manages the resort's ski lifts, explained how the company's strategy and the objective of decarbonization are part of the overall CSR approach. The decarbonization of the ski area is mainly achieved through the decarbonization of the snow groomers, with the dual issue of autonomy and battery treatment still to be resolved, concerning the hydrogen solution. Another major challenge is to stabilize the economic model. Although the investment part of the project benefits from subsidies, including support from the Auvergne-Rhône-Alpes Region, the operating costs, particularly the fuel, remain very high.

Rémi Berger, Director of Innovation at Green Corp Konnection (GCK), an industrial group offering technological solutions to accelerate the decarbonization of transport with the use of hydrogen, spoke at Alpe d'Huez. Like Val Thorens, the resort is developing a program to decarbonize tamping and all its activities, including passenger transport. The tourist development company, the transport network operator and the local authority share a common vision, the desire to be pioneers, and are setting up an ecosystem with production, distribution and use of H₂ mainly through mobility in the resort and tamping. The hydrogen solution, which performs well in mountain areas, is resistant to cold and altitude unlike alternative solutions. Alpe d'Huez has ordered five groomers and three buses that should be in service for the winter of 2023-2024.

For **Fabrice Pannekoucke**, it is important to be able to rely on a "community of support" in a global approach to land use planning, which involves both public and private actors, to "create an ecosystem". He underlines the potential of high-altitude dams with the energy left over which could be optimized via electrolysis.



On the Austrian side, **Magdalena Lindl, General Manager of Hydrogen Austria**, explained that the hydrogen strategy was largely focused on the development of green hydrogen for heavy mobility, for freight and passenger transport. There are also uses for industry, experiments in housing and commerce. Mountain resorts are experimenting, as they are in France, in the field of transport to cope with heavy traffic. To the question: is hydrogen the subject of great enthusiasm like in France? She answered that hydrogen is not the only answer to the need for decarbonization, that the solution lies in the energy mix.

Luigi Crema, president of Hydrogen Europe Research, shared the observation that the Alpine territories were increasingly interested in hydrogen even before a European strategy was launched. These territories all started with small projects that made it possible to raise awareness of the needs, solutions, opportunities but also the limits of hydrogen. They started with their own initial investments and the ambition to be pioneers and prepare for the future. Then the need for long-term strategies became clear, at the same time as the European Commission recognized the importance of hydrogen in the energy system.

Moreover, hydrogen enjoys strong support from citizens who consider it a clean energy that does not impact the environment. Synonymous with safe supply, hydrogen is also seen as an energy that can be supplied locally, corresponding to individual uses and behaviours. This can be illustrated by the vehicle recharging station close to home.

To the question, can we create functioning ecosystems in the territories and jobs? Luigi Crema cited several regions as examples, as well as the complementarity of top-down and bottom-up approaches. He reminded about the timetable for the creation of corridors aimed at massively decarbonizing heavy mobility, the importance of structuring a European market, and the creation of the European Hydrogen Bank, which will set up a complete hydrogen value chain in the EU.



REMOTE INTERVENTIONS

Pascale Boyer

Member of Parliament for the Hautes-Alpes, President of the National Association of Mountain Elected Officials, President of the newly created "New Green Energy and Hydrogen Working Group" of the National Assembly



“ I welcome the AMETHyST project which contributes to the implementation of the roadmap announced by the President of the European Commission with the creation of a new public bank dedicated to the financing of the H₂ sector capable of investing 3 billion euros. ”

David Matzek-Lichtenstein

DG REGIO, European Commission

“ If we really want to engage the Alpine region in the transition to a decarbonized economy, this transition must be European and anchored in a local context. ”



ROUND TABLE 2

Prospects and support for hydrogen development

For **Matteo Mazzolini, director of the Energy Agency of Friuli Venezia Giulia**, the Alpine region represents a good field of experimentation because it is widely endowed with renewable energy sources. Renewable energies are the future, although there is the problem of intermittence, but hydrogen can be the solution, in a context where funding for research and development of hydrogen is increasing. To increase the confidence of territorial actors and consolidate the formation of ecosystems, guaranteeing the continuity of supply and long-term financing is a priority.

For **Laurent Antoni, Executive Director of the International Intergovernmental Partnership on Hydrogen**, hydrogen can meet both environmental (preservation of the beauty of sites and biodiversity) and economic (decarbonization of tourism, valley bottom industry, preservation of mountain agriculture) expectations. The IPHE, which includes 21 countries around the world (and follows the 40 that have so far created a national hydrogen strategy), notes that countries base their strategy on four driving forces whose weight varies from country to country: air quality; energy sovereignty; resilience and stability of its own electricity or gas network; and economic growth and innovation capacity.

To succeed in its strategy, three major challenges must be met:

- ◆ Reducing the cost of clean hydrogen, which requires massification and innovation;
- ◆ Reducing the uncertainties that drive industry and public authorities away: we need a stable and sustainable regulatory framework;
- ◆ Agreeing on investment needs at the international level while ensuring that markets are not distorted.





Séverine Jouanneau Si Larbi, regional delegate for France Hydrogène, emphasized that in order to reach the target of 1 million tons of production per year by 2030 on the national territory* and 160,000 tons in Auvergne-Rhône-Alpes, it will be necessary to increase the production of green or decarbonized energy, ensure that all the players in the value chain work in a coordinated manner to develop the sector (from production to use), in a coherent manner at the various European, national, regional and local levels, taking into account territorial particularities, and with a complementary valley-mountain approach. The effort to be made is not only financial, but also organizational: it is necessary to connect production and uses, supply and demand, so that the link between actors can be concretely made in the territories.

Emmanuel Goy, deputy regional director of ADEME Auvergne-Rhône-Alpes (Ecological Transition Agency), reminded the audience of ADEME's vision: hydrogen is a tool for carbon neutrality that will find its market where we do not know how to decarbonize via historical and mature energy transition solutions. Need to target relevant uses. And that hydrogen finds its place in the energy mix. The priority today is to decarbonize the hydrogen that we already consume in our industries. For that, we need to develop a sector and other uses such as heavy mobility.

ADEME's assistance supports territorial ecosystems (territorial departments). The aid mechanisms deployed at the national level (via France 2030) target innovation. Reminder of the support for the Zero Emission Valley program of the Auvergne-Rhône-Alpes Region, via the call for territorial ecosystem projects: 25 million euros for the two components combined.

*According to the "Ambition+ 2030" scenario presented in the study "Trajectory for a great hydrogen ambition" published by France Hydrogène in 2021



For **Laurence Minne, head of the Auvergne-Rhône-Alpes Region Hydrogen project**, one of the biggest challenges for the region is the preservation of air quality and the decarbonization of transport and industry. The first phase of ZEV focused on light mobility. ZEV 2 is an ecosystem focused on heavy mobility to deploy infrastructure with more than 80 heavy vehicles that will be financed, a network of stations including a station dedicated to the regional train based in Clermont-Ferrand, a fleet of 50 buses (retrofitted), two partner mountain communities: the Community of Communes Coeur de Tarentaises and the Community of Agglomeration of Arlysère (with buses, coaches and garbage dumpers).

For more information

[Replay of the morning conference and round tables](#)



THE 9 KEY POINTS TO REMEMBER

1

Numerous hydrogen projects and experiments are underway in **mountain areas and resorts**. Hydrogen is a vector for storing renewable energy, is relevant for isolated housing, stationary use and agriculture, and appears to be adapted to forms of mobility in the mountains (snow groomers, construction fleets, goods transport, public transport), where electric mobility is excluded due to cold temperatures and the difference in altitude.

2

Mobility use is generally the entry point for hydrogen deployment. Road traffic represents an important part of the carbon footprint of the stations. There is therefore a challenge to reduce the modal share of cars in stations and increase public transport services via clean vehicle fleets, and encourage the acquisition of clean light vehicles.

3

Today, the difficulty is not so much to convince people of the potential of decarbonization through hydrogen as to achieve a **viable economic model** and produce reliable, available vehicles with reasonable operating costs that meet the needs of intensive use. Investment subsidies exist, but operating costs remain high.

4

It is by working to create **global ecosystems** that we will be able to massify production and distribution, and therefore lower costs, to promote local production of green hydrogen, which will reduce transportation costs and limit the carbon impact.



THE 9 KEY POINTS TO REMEMBER

5

The **support of the European Commission** is essential to change scale, to massify, and to support strategies (local, regional, national). Many initiatives are underway.

6

Among the **levers for deployment**, the support of elected officials at all levels (from local to international) and through the various sectoral public policies is key. So is the sharing of knowledge and experience.

7

Air quality; energy sovereignty; resilience and stability of one's own electricity or gas network; economic growth / innovation capacity are the **four driving forces of national hydrogen strategies**.

8

The **challenges** are to support the development of the sector, massification and innovation; to create a stable and sustainable regulatory framework; and to reach agreement on investment needs at the international level.

9

Hydrogen is not the solution to all our energy needs, it must find its place in the **energy mix**.



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AURA-EE and Tenerrdis thank the speakers of the day:

Fabrice Pannekoucke, Mayor of Moûtiers, President of the Community of Municipalities
Coeur de Tarentaise, vice-president of the Auvergne-Rhône-Alpes Region delegated to
Agriculture and Valleys

Catherine Staron, president of AURA-EE, vice-president in charge of Higher Education,
Research and Innovation of the Auvergne-Rhône-Alpes Region

Jérôme Grellet, General Manager SETAM Val Thorens

Luigi Crema, President Hydrogen Europe Research

Rémi Berger, Director of Innovation, Green Corp Konnection (GCK)

Magdalena Lindl, Managing Director Hydrogen Austria

Pascale Boyer, Member of Parliament for the Hautes-Alpes,
President of the National Association of Mountain Elected Officials, President of the study
group of the National Assembly on new green energies and hydrogen

David Matzek-Lichtenstein, DG REGIO, European Commission

Laurent Antoni, Executive Director of the International Intergovernmental Hydrogen Partnership

Matteo Mazzolini, Director of the Energy Agency of Friuli Venezia Giulia

Séverine Jouanneau Si Larbi, regional delegate for France Hydrogène

Emmanuel Goy, Deputy Regional Director of ADEME Auvergne-Rhône-Alpes

Laurence Minne, Hydrogen project manager, Auvergne-Rhône-Alpes region

and the animator: Patrice Bouillot