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AMETHyST

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## **REGIONAL H<sub>2</sub> WORKING GROUP**

Activity A.2.5: Capitalization of local Alpine green H<sub>2</sub> ecosystem model

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Project Partners join or initiate regional H2 working groups to guide pilot implementation and ensure capitalization and transmission of results. This document provides an overview of the main characteristics of the regional working groups for each pilot area.

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# 1. INTRODUCTION

This document aims at capturing the main features of the regional working groups set up at pilot level. For each regional working group, it provides an overview on the objectives, the way they were established, who the relevant stakeholders are and how they were engaged, which is the perspective in terms of capitalization of achieved results and lessons learnt and, finally, what are the main activities implemented to keep the network active and trigger innovation.

Regional working groups can be established as new entities within the frame of the project or integrated in existing linked initiatives. It is up to Project Partners to decide which is the most effective strategy to adopt also in consideration of the characteristics of each pilot area. There is a high degree of freedom on how activities are implemented at local level but the overall approach is that Regional working groups should provide the forum for the promotion of the results achieved within the Project and stimulate the discussion for taking steps forward. In the long term, Regional working groups should ensure the uptake and sustainability of project results also after the project end. This will be possible by engaging key actors, creating synergies among relevant initiatives, matching demand and offer to build local supply chains and actually rolling out the AMETHyST model. It will be fundamental to engage in the working groups those entities that can actually foster the uptake of the proposed model.

Information on the status of the regional working groups will be updated on a yearly basis. The current report provides a snapshot of the progress of activities achieved by April 2024.

## 2.REGIONAL H2 WORKING GROUPS

### Hydrogen and the mountain ecosystems in the Auvergne Rhône-Alpes region - FRANCE

#### RESPONSIBLE PARTNERS: AURA-EE, Tenerrdis

Objective(s)	<p>Tenerrdis, in collaboration with AURA EE organised several hydrogen working group sessions since the beginning of the AMETHYST project.</p> <p>The main objectives of these regional H2 working group sessions are to:</p> <ul style="list-style-type: none"> <li>- Assess the feasibility of implementing hydrogen technologies in the pilot territory : Assemblée de Pays Tanataise Vanoise – Arlysère.</li> <li>- Identify the potential role of the different areas of the pilot territory in the energy transition, explore the links betweenrenewable energy potential and H2..</li> <li>- Make public authorities aware of the potential of H2 solutions for different targeted applications.</li> <li>- Learn from different experimentations in other areas, in order to capitalize on knowledge.</li> </ul> <p><b>The key topics :</b></p> <ul style="list-style-type: none"> <li>- By joining the Working Group, local stakeholders discuss their <u>needs and expectations, as well as the difficulties and barriers</u> they can face by implementing H2 solutions.</li> <li>- Local stakeholders share experiences and best practices.</li> <li>- The Working Group can help them identify solutions to <u>overcome their difficulties</u>.</li> <li>- The main objective is <u>to build together a joint hydrogen strategy for the regional mountain areas</u>. For example, the first Working Group led to the organization of the “Forum de rencontres des acteurs H2” on December 8, 2023 : with the private sector presented its technical solutions to meet the expectations of the public authorities.</li> </ul>
Constitution	<p>We relaunched a longstanding Working Group for regional and local stakeholders called “H2 in the mountain ecosystem” wich gathered public authorities, technology providers, consultants, sectoral agencies, etc. The main objective of this initial Working Group was to understand the role of hydrogen in the mountain ecosystems, and especially in relation to their specific conditions.</p>
Capitalization	<p>The main goal of this Working Group is to help stakeholders build an H2 project accross the pilot territory during the project as well as in a long-term perspective. To help the pilot territory to become a model for the implementation of H2 solutions elsewhere. The members of the working group have been working together for several years, under the guidance of Tenerrdis. Tenerrdis aims to present the results of the project and the lessons learnt during the pilot implementation within</p>

	<p>the WG. It will also be the place where the next steps of H2 deployment in the territory will be discussed after the end of the project.</p>
Meetings	<p>So far two meetings took place, the first one <b>on July 3, 2023 focusing on " Hydrogen and the mountain ecosystems in the Auvergne Rhône-Alpes region"</b></p> <p>The main objectives were:</p> <ul style="list-style-type: none"> <li>- Identify gaps/obstacles and possible solutions for implementing H2 solutions in the Alps (from a private sector perspective).</li> <li>- Discuss the added value of H2 for the Auvergne-Rhône-Alpes region and targeted market segments.</li> <li>- Identify the needs of private players and their expectations of public authorities.</li> </ul> <p>A total of 16 private participants took part, covering the entire H2 value chain: Lhyfe, Hympulsion, Ataway, GCK, GEG, Hyliko, SATA, Domaines Skiabiles de France, BE Green.</p> <p>A second WG has been organised on <b>December 8, 2023</b> in Albertville during the "Forum de Rencontres des acteurs publics et privés de l'H2" event.</p> <p>A round table with feedbacks from successful H2 ecosystems in other regions of France with Lhyfe, and on Ugitech's current projects on H2 for industry to decarbonize the steel industry took place. Almost 40 participants attended the event.</p> <p>Tenerrdis, with the support of AURA EE aim to organize future <u>Working Group on H2 groomer test</u> experiment in the mountain station (Alpes d'Huez, autumn 2024).</p> <p>A next meeting is scheduled on 25/06 in Evian, with a specific focus on hydrogen boats on alpine lakes.</p> <p>Furthermore, the members have been involved in other ways such as :</p> <ul style="list-style-type: none"> <li>- At thematic events : for exemple during the launch of AMETHYST in Moutiers</li> <li>- Face-to-face meetings</li> <li>- Email exchanges, etc.</li> </ul>

Members	
STAKEHOLDER	TPOLOGY
Lhyfe	SME
Hympulsion	SME
Ataway	SME
GCK	SME
GEG	Local's authority : supplier and producer of renewable energies
Ugitech	Industry
Hyliko	SME
SATA Group	Ski Area Operator

Domaines Skiabiles de France	National professional organization
Be Green	SME
Région Auvergne Rhône-Alpes	Regional Authority
CARA	Other Public Body : competitiveness cluster
Communauté de Communes Coeur de Tarentaise	Local authority
Commune de Les Belleville	Local authority
Assemblée du Pays Tarentaise Vanoise	Local authority
Ville de Moûtiers	Local authority
Chambéry Grand Lac	Local authority

## EVENT TRACKER

<b>Title</b>	<b>Hydrogen and the mountain ecosystems in the Auvergne Rhône-Alpes region</b>
<b>Date</b>	July 3, 2023
<b>Participants</b>	16 participants took part to this meeting, covering the entire H2 value chain: Lhyfe, Himpulsion, Ataway, GCK, GEG, Hyliko, SATA, Domaines Skiabiles de France, BE Green, Région Auvergne Rhône-Alpes, CARA
<b>Main topics discussed</b>	The main objectives were: <ul style="list-style-type: none"> <li>- Identify gaps/obstacles and possible solutions for implementing H2 solutions in the Alps (from a private sector perspective).</li> <li>- Discuss the added value of H2 for the Auvergne-Rhône-Alpes region and targeted market segments.</li> <li>- Identify the needs of private players and their expectations of public authorities.</li> </ul>
<b>Title</b>	<b>Forum de Rencontres des acteurs publics et privés de l'H2</b>
<b>Date</b>	<b>December 8, 2023</b>
<b>Participants</b>	Almost 40 participants - with Lhyfe and Ugitech (as speakers)
<b>Main topics discussed</b>	Feedback from successful H2 ecosystems in other regions of France with Lhyfe, and on Ugitech's current projects on H2 for industry to decarbonize the steel industry.



## Trentino - ITALY

### RESPONSIBLE PARTNERS: FBK, PAT

<p>Objective(s)</p>	<p><b>Promoting Awareness:</b> Increase awareness and understanding of H2 technology and its potential benefits within the region.</p> <p><b>Facilitating Networking and Partnerships:</b> Create opportunities for networking and collaboration among stakeholders to foster partnerships, share best practices, and catalyze joint projects and investments in H2 infrastructure and applications.</p> <p><b>Policy Advocacy and Regulatory Support:</b> Advocate for supportive policies to promote the development and deployment of H2 technology.</p> <p><b>Market Development and Commercialization:</b> Identify market opportunities and barriers for H2 deployment within the region, develop market strategies, and promote H2 applications across sectors such as transportation, industry, power generation, and heating.</p> <p><b>Environmental and Economic Impact Assessment:</b> Assess the environmental and economic impact of H2 deployment within the region, including emissions reduction potential, job creation, and economic growth, to inform decision-making and prioritize investment areas.</p> <p><b>Stakeholder Engagement and Public Outreach:</b> Engage with diverse stakeholders including local communities, businesses, NGOs, and media to build support for H2 initiatives, address concerns, and ensure transparency and inclusivity in decision-making processes</p>
<p>Constitution</p>	<p>The Regional H2 Working Group in Trentino was established by APRIE and »Dipartimento sviluppo economico, ricerca e lavoro« in 2022 as a result of focused efforts within the framework of PNRR Hydrogen Valleys funds and in collaboration with local stakeholders and authorities in the Trentino region.</p>
<p>Capitalization</p>	<p><b>Sustained Collaboration:</b> The working group is anticipated to continue fostering collaboration among regional stakeholders, including industry players, research institutions, government agencies, and local communities. By maintaining an open dialogue and leveraging collective expertise, the group can drive ongoing progress in hydrogen technology deployment and address emerging challenges.</p> <p><b>Policy Advocacy and Implementation:</b> As hydrogen technology matures and gains momentum, the working group is expected to advocate for supportive policies, regulations, and incentives at both the regional and national levels. This includes advocating for funding mechanisms, incentives for infrastructure development, and regulatory frameworks that facilitate market uptake of hydrogen technologies.</p>

**Technology Advancement:** With a focus on innovation and R&D collaboration, the working group can continue to support the advancement of hydrogen technologies tailored to the region's needs. This may involve identifying opportunities for technology development, facilitating knowledge exchange, and fostering partnerships to accelerate the commercialization of hydrogen-based solutions.

**Market Development:** The working group is poised to play a critical role in driving market development for hydrogen applications across various sectors, including transportation, industry, power generation, and heating. By identifying market opportunities, addressing barriers to adoption, and promoting awareness among stakeholders, the group can stimulate demand and facilitate the growth of a vibrant hydrogen economy in Trentino.

**Environmental and Economic Impact Assessment:** Over the longer term, the working group will continue to assess the environmental and economic impacts of hydrogen technology deployment in Trentino. This includes monitoring emissions reductions, job creation, and economic growth associated with hydrogen projects and initiatives, and using this data to inform decision-making and prioritize investment areas.

**International Collaboration:** Beyond the regional level, the working group may also engage in international collaboration and knowledge exchange to stay abreast of global trends and developments in hydrogen technology. This includes participating in international conferences, research networks, and collaborative projects to leverage best practices and lessons learned from other regions and countries.

Overall, the Regional H2 Working Group in Trentino is expected to evolve into a dynamic platform for ongoing collaboration, innovation, and strategic planning in the field of hydrogen technology. By continuing to engage stakeholders, advocate for supportive policies, and drive technological innovation, the group can contribute significantly to Trentino's sustainable development goals.

Ensuring the capitalization and transmission of results achieved and lessons learned from the pilot implementation process beyond the project end is crucial for maximizing the impact and sustainability of the Regional H2 Working Group in Trentino. Several strategies can be employed to achieve this:

**Documentation and Knowledge Management:** The working group should systematically document project outcomes, best practices, challenges faced, and lessons learned throughout the pilot implementation process. This includes maintaining comprehensive

reports, case studies, and technical documentation that capture key insights and experiences.

**Networking and Collaboration:** The working group should continue to foster networking and collaboration among stakeholders beyond the project end. This includes maintaining communication channels, organizing regular meetings, and leveraging existing networks to facilitate knowledge exchange and collaboration on future initiatives.

**Dissemination of Results:** Actively disseminating project results and findings is essential for raising awareness and showcasing the impact of the working group's efforts. This can be achieved through various channels, including conferences, workshops, publications, press releases, social media, and dedicated project websites.

**Engagement with Decision Makers:** Engaging with policymakers and decision makers at the regional and national levels is critical for ensuring that the lessons learned and recommendations generated by the working group inform policy development and decision-making processes. This can involve presenting findings to relevant government agencies, participating in policy forums, and advocating for supportive policies and incentives.

**Long-Term Monitoring and Evaluation:** Establishing mechanisms for long-term monitoring and evaluation of hydrogen projects and initiatives is essential for assessing their impact over time and identifying areas for improvement. This may involve setting up monitoring frameworks, conducting periodic evaluations, and soliciting feedback from stakeholders.

**Participation in Knowledge Networks:** The working group can participate in broader knowledge networks and communities of practice focused on hydrogen technology and sustainable development. This enables access to a wider pool of expertise, facilitates cross-learning opportunities, and enhances the visibility of Trentino's initiatives on the global stage.

By implementing these strategies, the Regional H2 Working Group in Trentino can effectively capitalize on the results achieved and lessons learned during the pilot implementation process, ensuring their transmission to relevant stakeholders and paving the way for continued progress in hydrogen technology deployment in the region.

## Meetings

Currently, the working group has been set up but no meetings have been planned yet. In the long term perspective, it is foreseen to organize one meeting per year.

## Members

STAKEHOLDER	TPOLOGY
PAT	Regional Authority
A22 Autostrade del Brennero	Private company
Trentino Sviluppo	Business support organisation
Fondazione Bruno Kessler	R&D and Innovation institution
Confcommercio Trentino	Industry association
Comune di Pinzolo	Local Authority
Comune di Peio	Local Authority
Fondazione Edmund Mach	R&D and Innovation institution
Universita' degli Studi di Trento	University

## South Tyrol - ITALY

### RESPONSIBLE PARTNER: CasaClima

<b>Objective(s)</b>	<p>The main objective is to share experiences and know-how between regional hydrogen actors and in particular mutually promote partners' projects, events and news.</p> <p>Furthermore, the objective of the group is to identify common needs and opportunities for cooperation in advancing the regional hydrogen ecosystem in the Province.</p>
<b>Constitution</b>	<p>The working group is a rather loose, not institutionalised, group of interested stakeholders that emerged from the WP1 focus group meeting and showed commitment to engage in further exchange activities.</p>
<b>Capitalization</b>	<p>The interest and engagement of the group is independent from a specific project and/or funding, being rather anchored in the provincial hydrogen strategy (for local transport) or in private enterprise initiative.</p> <p>It is envisaged that the exchange within the group stay active after the project end, and that further opportunities for cooperation are born from within it. It is in the interest of all partners to communicate initiatives and projects in their own networks and thereby contribute to the growth of the regional green hydrogen market.</p>
<b>Meetings</b>	<p>There have been mostly bilateral in-person meetings with several of the involved members of the group. Furthermore, information has been shared via email and telephone.</p>

Members	
STAKEHOLDER	TPOLOGY
Alperia Smart Services	Energy provider
SEV – Südtiroler Energieverband	Association of local energy providers
Autonomous Province of Bolzano – Transport Department	Regional Authority
EURAC Research	Research Institution
Free University of Bolzano – Biofuels unit	Research and education
GKN Hydrogen	Enterprise
Arieshof	Management of local pilot infrastructure
Prinoth	Enterprise
Arxax Ltd.	Enterprise

Hydrocell

Enterprise

**EVENT TRACKER**

<b>Title</b>	Discussion of future cooperation opportunities
<b>Date</b>	24.01.2024, Brunico
<b>Participants</b>	GKN Hydrogen; Arieshof
<b>Main topics discussed</b>	Presentation of current activities, brainstorming and discussion on future cooperation and mutual promotion opportunities

## Friuli Venezia Giulia - ITALY

### RESPONSIBLE PARTNER: APE FVG

Objective(s)	<p>The main purpose is to establish a forum for discussion, knowledge exchange and matchmaking to nurture the development of the hydrogen ecosystem at regional level. This will be possible by activating synergies among relevant stakeholders and by matching demand and offer under different dimensions. As a matter of fact, there are several gaps that need to be bridged in terms of knowledge, technology readiness, available solutions, etc. The regional working group offers the opportunity to address needs and challenges of local stakeholders, to share lessons learnt and achievements.</p> <p><i>Expected topics</i></p> <ul style="list-style-type: none"> <li>- Needs and barriers to the deployment of hydrogen solutions at regional level</li> <li>- Hands-on experience on lessons learnt from real case examples (i.e. updates on the implementation progress of the pilot in Friuli Venezia Giulia)</li> <li>- Policy recommendations</li> <li>- Connecting offer and demand</li> </ul>
Constitution	<p>The working group was first set up as part of WP1 focus group activities. The stakeholders that were invited at the events are representative of different economic sectors and their expertise spans different fields of activity. The idea is to keep the group open for the involvement of other actors depending on the challenges that need to be tackled. The opportunity to interact with other networks will be assessed on a case-by-case basis.</p>
Capitalization	<p>In a longer-term perspective, it is expected to capitalize on the lessons learnt within AMETHyST to enhance the replicability and upscale of exploitable results in other contexts and ultimately to foster the uptake of solutions and contribute to the set up of a regional green hydrogen value chain.</p> <p>APE FVG is member of the Italian network of regional energy agencies (RENAEL) and coordinator for the focus group on hydrogen. This can offer the opportunity to increase the outreach of project results and to address challenges from a wider perspective both in scope and in territorial coverage.</p> <p>Another channel that can be explored is to establish synergies with the North Adriatic Hydrogen Valley.</p>
Meetings	<p>The working group was established thanks to WP1 activities and afterwards other meetings were organized bilaterally or in smaller groups depending on the topic under discussion. Online calls were preferred whenever possible.</p>

## Members

STAKEHOLDER	TPOLOGY
Confindustria Udine	Business support organization
Faber SpA	SME
University of Trieste	Research
Area Science Park	Research
CTS H2	SME
SECAB	Energy provider
Promoturismo FVG	Public body
SAFE SpA	Industry
Toyota MHIT	Industry
RENAEL	Sectoral agency
Prinoth	SME

## EVENT TRACKER

<b>Title</b>	Call with TMHIT
<b>Date</b>	19.01.2024
<b>Participants</b>	APE FVG, SECAB, TMHIT
<b>Main topics discussed</b>	Assess other potential uses for the hydrogen produced by SECAB
<b>Title</b>	Call with Faber
<b>Date</b>	24.01.2024
<b>Participants</b>	APE FVG, Faber
<b>Main topics discussed</b>	Application of storage system in pilot project
<b>Title</b>	In-person meeting
<b>Date</b>	14.03.2024
<b>Participants</b>	APE FVG, RENAEI
<b>Main topics discussed</b>	Presentation of AMETHYST project and agreement on role of APE FVG as coordinator of the national round table on hydrogen



## Maribor region – SLOVENIJA

### RESPONSIBLE PARTNER: ENERGAP

<p><b>Objective(s)</b></p>	<p>The main objectives of our working group include fostering knowledge exchange, exploring best practices in the use of hydrogen within our region, and developing guidelines for the advancement of hydrogen technologies locally. Additionally, we aim to identify potential projects related to hydrogen utilization and production.</p> <p>Our working group plans to hold regular meetings to discuss pertinent topics, create materials and guidelines, and visit hydrogen-related projects and partners abroad. It's crucial that we collaborate on producing materials and guidelines to be shared with the European Commission and other EU institutions involved in hydrogen initiatives.</p>
<p><b>Constitution</b></p>	<p>As a result of WP1 focus group activities the hydrogen working group was established. By January 2023, we sent invitations via email to all potential members to participate in the hydrogen group. Once they confirmed their participation, we established the working group for hydrogen. ENERGAP will serve as the coordinator of the group.</p>
<p><b>Capitalization</b></p>	<p>We plan to hold 3-5 meetings annually. Members will have the opportunity to contribute to the preparation of materials and guidelines, which will then be shared with the European Commission and other EU institutions working on hydrogen-related issues.</p> <p><i>How can the working group ensure capitalization and transmission of the results achieved and the lessons learnt within your pilot implementation process beyond the project end?</i></p> <p>In the long term, the working group will continue to drive progress in hydrogen utilization within our region. To ensure the dissemination of results and lessons learned beyond the project end, the group will:</p> <ol style="list-style-type: none"> <li>1. Document outcomes systematically.</li> <li>2. Share insights through workshops, webinars, and conferences.</li> <li>3. Build partnerships with stakeholders.</li> <li>4. Offer capacity building initiatives.</li> <li>5. Advocate for supportive policies.</li> <li>6. Organize different capacity building events</li> </ol> <p>Through these efforts, the group aims to foster sustainable development and widespread adoption of hydrogen technologies in the region.</p>
<p><b>Meetings</b></p>	<p>We are regularly in touch with the hydrogen working group through email (sending educational materials or new information related to hydrogen), phone calls, one-on-one meetings, and other thematic events in the field of hydrogen. Through these communication channels, we aim</p>

to facilitate ongoing engagement, knowledge sharing, and collaboration among members.

Subsequently, the inaugural workshop, titled "Challenges and Opportunities of Green Hydrogen," was held on November 23, 2023, at the Habakuk Hotel in Maribor. Additionally, some members were invited to participate in a Round Table as part of the Amethyst project meeting on April 9, 2024. We also plan to organize a workshop focusing on safety aspects when using hydrogen. Through these activities, the working group aims to foster active participation and collaboration among its members.

## Members

STAKEHOLDER	TPOLOGY
ENERGAP	Sectoral agency
Javni holding Maribor, d. o. o.	Other public body (Public Holding in Maribor)
Javno podjetje Marprom d.o.o.	Other public body (Public Enterprise for Urban Passenger Transport)
Municipality of Maribor	Local Authority
Plinarna Maribor d.o.o.	Business support organisation (Gasworks Maribor, Company for Production, Distribution of Energy Resources, Trade, and Services)
Dravske elektrarne Maribor d.o.o.	Business support organisation (Power Plant)
OVEN ELEKTRO MARIBOR d.o.o.	Small and Medium-sized Enterprise (Electricity Production and Renewable Energy Sources)
Energija plus d.o.o.	Small and Medium-sized Enterprise (Company for Energy Marketing and Services)
University of Maribor	Research
Regional Development Agency for Podravje - Maribor	Regional Authority
The Chamber of Craft and Small Business of Slovenia	Business support organisation
JOŽEF STEFAN INSTITUTE	Research
Chamber Of Commerce And Industry Of Štajerska	Industry association
Minister of the Environment, Climate and Energy of Slovenia	<i>National Authority</i>
The Energy Agency	<i>Sectoral agency</i>
Slovenske železnice - Potniški promet, d.o.o.	<i>Other (Slovenian Railways)</i>
TÜV SÜD Sava d.o.o.	<i>SME (solutions in safety, security, and sustainability)</i>

Energetika Maribor d.o.o.	Other public body (Public Company Energetika Maribor primarily provides thermal energy in Maribor City, focusing on producing and distributing heat as the city's sole organized district heating method.)
Holding Slovenske elektrarne d.o.o.	<i>National Authority</i> (Slovenian Power Plants Holding)
Ministry of Defence	<i>National Authority</i>
Rekuperata d.o.o.	<i>SME</i> (Energy Recovery from Waste)
The National Institute of Chemistry	<i>Research</i>
CONA TEZNO d.o.o.	<i>Business support organisation</i>

## EVENT TRACKER

<b>Title</b>	WORKSHOP CHALLENGES AND OPPORTUNITIES OF GREEN HYDROGEN
<b>Date</b>	23.11.23
<b>Participants</b>	21
<b>Main topics discussed</b>	<p>The moderated discussion provided a platform for discussing the opportunities, possibilities and barriers to the development of hydrogen in Slovenia. Participants shared their perspectives and experiences:</p> <p>The workshop highlighted promising aspects of hydrogen use in Slovenia, including transport, electricity storage, industrial use, urban passenger transport and sustainable mobility. It is particularly important that Slovenia recognises the great potential in the development of hydrogen technology, which opens up opportunities for applications in all sectors, with a focus on local communities, industry and research and development.</p> <p>Despite the prospects, there are significant barriers to the implementation of pilot projects, such as the lack of a strategy for the use of hydrogen in Slovenia, the need for financial support, the difficulty of access to operational technologies and safety concerns. Pilot projects, while playing a key role in progress, face challenges in the areas of finance, awareness and infrastructure.</p> <p>In the context of energy production and utilization, risks such as the human factor, challenges in hydrogen storage, and concerns about safety and reliability of use have been highlighted. For the successful implementation of hydrogen utilization ideas, key factors will include not only finances but also knowledge, understanding, awareness of the importance of hydrogen, and active involvement in local projects.</p> <p>Highlighted Main Points:</p> <ul style="list-style-type: none"> <li>- Safety: The key role of safety in hydrogen use. Developing new, safe infrastructure solutions.</li> <li>- Knowledge and Understanding: The importance of knowledge and understanding of the technology.</li> <li>- Standards: Compliance with standards for safe use.</li> </ul>

- Public Acceptance: The need to raise public awareness of hydrogen.
- Collaboration and Sharing Responsibility: The need for collaboration and sharing of responsibility among stakeholders.

## HyPA-Hydrogen Partnership – AUSTRIA

RESPONSIBLE PARTNER: SAT

Objective(s)	To support the ramp-up of an Austrian hydrogen economy, the joint platform will ensure a continuous exchange between companies, researchers, administration and civil society, facilitate their networking, provide an international showcase and an overview of funding opportunities, and communicate on current developments in the field of hydrogen.
Constitution	HyPA is an initiative powered by three public entities: Ministry of Climate, Ministry of economic affairs, and the regionale government of Tyrol. <b>The Standortagentur Tirol</b> is managing HyPA, Hydrogen Partnership Austria, together with the Austrian Energy Agency.
Capitalization	HyPa is active throughout Austria and beyond. Many HyPa members are active throughout Europe and worldwide. Many project initiatives see networking and knowledge transfer in hydrogen projects as the key to successful implementation and expansion. One Member, Wiva P&G is Initiator for the outrolling of Hydrogen Valley Projects.
Meetings	<p>On 21 December 2023, the first "Hydrogen in heavy goods transport" roundtable took place at the Federal Ministry for Climate Protection (BMK). The event, organised by BMK and the Hydrogen Partnership Austria (HyPA), brought together over 70 experts from the industry to discuss the current status of hydrogen technology in heavy goods transport and shed light on future developments.</p> <p>On 26 January 2024, the Apothecary Wing of Schönbrunn Palace became the meeting place for the hydrogen industry. The annual conference of the Hydrogen Partnership Austria (HyPA) brought together 200 experts to discuss the current status, challenges and future of the hydrogen economy in Austria. The conference provided a platform for a fruitful exchange, supported by contributions from leading figures in politics, business and research. The opening speeches by Federal Minister Leonore Gewessler (Federal Minister for Climate Action, Environment, Energy, Mobility, Innovation and Technology) and Federal Minister Martin Kocher (Federal Minister for Labour and Economic Affairs) placed a strong emphasis on the importance of hydrogen as a cornerstone for a strong business location and a climate-neutral energy system. The Minister emphasised the essential role of <b>HyPA</b> for direct dialogue with the industry.</p>
Members	
<b>STAKEHOLDER</b>	<b>TYPOLOGY</b>
AVL List	Industry
Forschungsförderungsgesellschaft -FFG	Other public body, Research funding organisation
Green Tech Valley Cluster	Cluster

HyCentA	Research
Bosch Austria	SME
Plastic Omnium	Hydrogen Industrie
E-Control Austria	Sectoral Agency
Verbund AG	Sectoral Agency
AIT – Austrian Institute of Technology	Industry Association
Trans Austria Gasleitungs GmbH	Industry Association
OMV	Fuels, chemicals, materials and energy Industry

## EVENT TRACKER

<b>Title</b>	Hydrogen Mobility Day
<b>Date</b>	11-2023
<b>Participants</b>	<p>AVL List – Gustav Tuschen          HyPa-Austria – Magdalena Lindl          FFG – Mathias Weinmayr          AC Styria – Thomas Krenn          Green Tech Valley Cluster – Markus Simbürgen          HyCentA Research GmbH – Patrick Pertl          Bosch Austria – Gottfried Fuchs          Plastic Omnium – Ewald Wahlmüller          AVL List – Alexander Schenk</p>
<b>Main topics discussed</b>	<ul style="list-style-type: none"> <li>• Research and Development Mobility – AVL List</li> <li>• Activities of the HyPa Cluster</li> <li>• Funding programmes for emission-free mobility</li> <li>• Current developments in the mobility sector</li> <li>• Hydrogen Valleys in Austria</li> <li>• Hydrogen in Austria – where are we today?</li> <li>• Fuel Cell Systems from Plastic Omnium</li> </ul>

## Wiva P&G HyWest - AUSTRIA

### RESPONSIBLE PARTNER: SAT

<b>Objective(s)</b>	HyWest bundles various H2 projects in Tyrol. The partners from these projects have already come together in our roundtable. The aim is to discuss the possibilities for various Alpine regions once a year and to exchange experiences for easier implementation of various hydrogen projects in other regions.
<b>Constitution</b>	The working group was created by the organisation of the first roundtable for Amethyst and is repeated once a year. Fen-Research GmbH is the lead partner for the HyWest project and therefore the first point of contact for information on this project, which has been identified as a pilot project in Tyrol.
<b>Capitalization</b>	Thanks to our collaboration with HyPA, these initiatives will continue even after the end of the project. We are also a member of WiVa P&G and follow all project initiatives, work, funding opportunities and regulations relating to hydrogen. It is planned to install up to three Hydrogen Valleys in Austria. The Wiva P&G HyWest project that has already been launched can be used as a basis for the valley planned in the west in cooperation with Bayer, South Tyrol and Trentino.
<b>Meetings</b>	The partners from HyWest are also project partners in our H2Alpin hydrogen project. In the course of our project partner meetings, these partners are also regularly informed about projects (e.g. Amethyst) and invited to workshops and roundtables.
<b>Members</b>	
<b>Project Partner</b>	<b>TYPOLOGY</b>
MPreis Warenvertriebs GmbH	SME
Zillertaler Verkehrsbetriebe AG	Public Passenger Transport
Tiwag, Tiroler Wasserkraft AG	Energy Provider
Tigas, Erdgas Tirol GmbH	Energy Provider
Energieinstitut an der JKU Linz	Sectoral Agency
FEN Research GmbH	R & D
HyCentA Research GmbH	R & D
WIVA P & G	R & D
<b>STAKEHOLDER</b>	Sectoral agency
Postbus AG	Public Transport
MCI	University
Universität Innsbruck	University
Standortagentur Tirol GmbH	Sectoral agency
Gebrüder Weiss AG	Freight Carrier
Wirtschaftskammer Tirol	Sectoral Agency

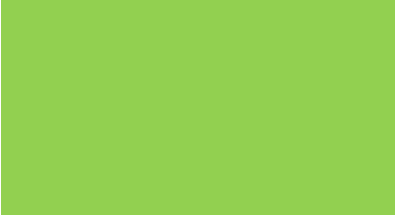
Energieagentur Tirol GmbH	Energy Agency
JuVe-Motion GmbH	Start Up – R & D

## EVENT TRACKER

<b>Title</b>	Gaps/barriers & possible solutions to the implementation of H2 solutions in the Alps		
<b>Date</b>	11.09.2023 – 13:30-15:00		
<b>Participants</b>	Wolfram Gehri ( <b>WG</b> )	Postbus	Austria/Tirol
	Peter Waldenberger ( <b>PW</b> )	Gebrüder Weiss	Austria/Tirol
	Michael Polzinger ( <b>MP</b> )	HyPa Austria	Austria/Tirol
	Wolfgang Madl ( <b>WM</b> )	MPREIS	Austria/Tirol
	Nikolaus Fleischhacker ( <b>NF</b> )	FEN Research GmbH	Austria/Tirol
	Albert Bloch ( <b>AB</b> )	Standortagentur Tirol	Austria/Tirol
	Markus Winkler ( <b>MW</b> )	Standortagentur Tirol	Austria/Tirol
	Eva Wernig ( <b>EW</b> )	FEN Systems	Austria/Tirol
<b>Main topics discussed</b>	<ul style="list-style-type: none"> <li>• In what way do you support the use of renewable energies in your company?</li> <li>• How can hydrogen be integrated for the energy transition in alpine regions?</li> <li>• What are the obstacles to the implementation of H2 solutions (projects) in the pilot regions?</li> <li>• How could these obstacles be overcome?</li> <li>• Are future project implementations or expansions with hydrogen planned in your company?</li> </ul>		

<b>Title</b>	Gaps/barriers & possible solutions to the implementation of H2 solutions in the Alps			
<b>Date</b>	11.09.2023 – 15:30 - 17:00			
<b>Participants</b>	Wolfgang Madl ( <b>WM</b> )	MPREIS	Austria/Tirol	Regional food retailer and producer
	Daniel Jakob ( <b>DJ</b> )	TIWAG	Austria/Tirol (online)	Electricity generation and distribution
	Nikolaus Fleischhacker ( <b>NF</b> )	FEN Research GmbH	Austria/Tirol	R&D organization
	Markus Winkler ( <b>MW</b> )	Standortagentur Tirol	Austria/Tirol	
	Eva Wernig ( <b>EW</b> )	FEN Systems	Austria/Tirol	R & D organization
<b>Main topics discussed</b>	<ul style="list-style-type: none"> <li>• Presentation of WIVA P&amp;G HyWest Pilot project (project goal, subprojects, plant components)</li> <li>• Discussion of the pilot project (implementation problems, results achieved, unforeseen developments, costs)</li> </ul>			



- 
- Exchange of best practices, local actors involved in H2 projects or developing H2 solutions
  - Discussion about a possible transferability of the project to other (alpine) regions
  - What framework conditions are necessary for the further development of H2 projects?

## Oberland – GERMANY

### RESPONSIBLE PARTNER: EWO

Objective(s)	<p>The main objective is to provide a place where interested parties can exchange ideas on the topic of hydrogen. An exchange between experts and interested stakeholders is to take place, which will process and promote the topic of hydrogen in the Oberland region. The primary aim is to promote dialog and cooperation between the stakeholders. Public relations work will also be used to raise awareness of the topic of hydrogen beyond the group. At the beginning, the current state of research and the latest regulations will be presented to the participants in order to bring everyone up to the same level of knowledge. Another goal is to develop a vision and strategy for the use of hydrogen in the region. This should be based on the current situation and focus on the potential in the second step. To this end, specific fields of application for green hydrogen and projects will be identified in collaboration with the working group. It may not be possible to implement this within the project duration, especially to fulfill a scientific framework. But the aim is to get these steps off the ground.</p>
Constitution	<p>The Oberland region consists of 4 larger administrative regions, all of them have a climate protection advisory board. Meetings of these groups are used to discuss these issues and drive the topic forward. So for the H2-Working group, an existing institution has been joined, giving the topic of hydrogen a new focus in the region. Interested stakeholders from the existing network were identified and invited to a more intensive exchange (via the 1st hydrogen summit). There are also plans to enter into a separate exchange with individual groups (e.g. municipal utilities) to discuss/exchange the findings gained.</p>
Capitalization	<p>Through the increased activation and networking of stakeholders (who could be identified as interested in hydrogen through the project), a vision and strategy for the Oberland is being worked on - this results in cooperation and ideas that, in the best case, can be further pursued and implemented. As a partner in the region, EWO will continue to network and support the work of the stakeholders/working group after the end of the project</p>
Meetings	<p>The working group is kept up to date on the progress of the project in various ways. On the one hand, there is an e-mail distribution list where the participants are informed via e-newsletters, among other things. Furthermore, if there is a need for discussion, there is the possibility of exchanging information by telephone. EWO also provides information about the project and the results in political committees, at events and at the annual Founders' Meeting. In addition, videos are made available in the region to spread the word about the project.</p>
Members	

STAKEHOLDER	TPOLOGY
Walter Huber	Local Authority
Eduard Heilmann	SME (H-TEC Systems)
Christine Funck	Business support organisation
Paula Kopp	Sectoral Agency
Eric Bourguignon	SME (MR PLAN)
Chris Wagner	Business support organisation
Christian Bär	Business support organisation
Peter Heßner	Regional Authority
Thomas Zorn	SME (Tyczka Hydrogen)
Andreas Seebach	SME (White energy solutions)
Walter Albrecht	Local Authority
Christian Mangold	SME (Oberland Mangold)
Uli Mach	SME/Research (blueFLUX Energy AG)
Jan Dühring	Local Authority
Karl Neuner	Local Authority
Thomas Feistl	Business support organisation
Christian Schula	SME (Eco Analytics GmbH)
Karl Steingruber	Local Authority
Manfred Pfeiler	SME (Elektrizitätswerk Tegernsee)
Stefan Ziegler	Local Authority
Andre Behre	Local Authority
Albert Götz	Local Authority
Wodan Lichtmeß	Local Authority

## EVENT TRACKER

<b>Title</b>	Hydrogen Summit
<b>Date</b>	04.07.2023
<b>Participants</b>	60
<b>Main topics discussed</b>	Hydrogen applications, possibilities and limitations, transferability to the region

<b>Title</b>	Hydrogen Excursion
<b>Date</b>	22.03.2024
<b>Participants</b>	40

**Main topics discussed**

Hydrogen applications at household level (White energy);  
Hydrogen from biogenic waste materials (blueFLUX energy)

## Val de Bagnes – SWITZERLAND

RESPONSIBLE PARTNER: BAE

### Objective(s)

#### 1. Hydrogen Production Technologies

**Water Electrolysis:** Examine electrolysis technologies to produce hydrogen from green electricity generated by the installed solar panels.

**Efficiency and Capacity:** Technical evaluations to maximize the efficiency and capacity of hydrogen production.

#### 2. Prototype Development and Testing

**LPG Snow Groomer Tests:** Assess the performance and feasibility of using LPG as an interim solution.

**Hydrogen Snow Groomer Prototypes Development and Testing:** Actively participate in the prototyping phase of hydrogen snow groomers with Prinoth, including field tests and necessary adjustments.

#### 3. Infrastructure and Distribution Network

**Hydrogen Refueling Stations:** Plan and construct local infrastructure for refueling snow groomers with hydrogen.

**Maintenance and Safety:** Ensure that production and distribution infrastructures comply with safety and maintenance standards.

#### 4. Economic Viability and Profitability

**Cost/Benefit Analysis:** Conduct economic studies to evaluate the profitability of local hydrogen production and the potential savings compared to continued diesel use.

**Subsidies and Financing:** Identify funding sources, subsidies, and public/private partnerships to support the energy transition.

#### 5. Environmental Impact and Regulatory Compliance

**Regulatory Compliance:** Ensure that all activities comply with local, national, and international environmental regulations.

**Emission Reduction Tracking:** Implement monitoring and reporting systems to measure real reductions in CO<sub>2</sub> and other pollutants.

## Initial Dialogues and WP1 Roundtables

**Engagement Activities:** WP1 involved a series of roundtable discussions that brought together various interested parties, including local authorities, energy experts, businesses, and representatives from environmental organizations.

**Focus on Hydrogen:** During these meetings, it became clear that the majority of stakeholders were highly interested in hydrogen technology due to its potential to contribute to decarbonization efforts. However, there was a collective emphasis on the need for technical and economic proof.

## Formation of the Working Group

**Interdisciplinary Approach :** An interdisciplinary working group was formed, comprising representatives from the commune of Val de Bagnes, BlueARK, Altis, and technical experts. This working group was tasked with studying the feasibility of hydrogen applications, starting with snow groomers.

**Definition of Objectives :** The primary objectives were set to guide the efforts: reducing CO2 emissions, ensuring local hydrogen production, and transitioning to hydrogen snow groomers within five years.

**Governance Structure :** A governance structure was created, with a board comprising stakeholders from the WP1 roundtables, ensuring intersectoral representation and continuous engagement with local needs and priorities.

## Pilot Projects and Prototyping

**Technical Contributions:** The first phase of activities involves supporting the development of hydrogen snow groomer prototypes and validating the hydrogen production area. This partnership has been reinforced by local experiments with solar panel installations in the mountains to generate green electricity for hydrogen production.

**Economic Evaluations:** Simultaneously, rigorous economic analyses will be undertaken to assess the cost-benefit aspects of local hydrogen production, logistical considerations, and long-term sustainability.

## Continuous Stakeholder Engagement

## Capitalization

**Feedback Loops:** Regular feedback sessions have been established to inform and engage the community and stakeholders.

### Imaginative Aspects

To spark community interest and attract global attention, several creative initiatives are being imagined:

**Hydrogen Innovation Challenges:** Annual competitions inviting innovators to develop and propose new applications and improvements for hydrogen technologies in mountainous and rural environments.

**Hydrogen Festival:** An annual event celebrating advancements in hydrogen technology, featuring workshops, keynote speeches from global energy experts, and live demonstrations.

### Long-Term Expectations of the Working Group

#### Efforts for Sustainable Decarbonization

**Leadership in Green Transition:** The working group is expected to continue leading decarbonization efforts in Val de Bagnes and potentially influence sustainability goals regionally and nationally.

**Ongoing Innovation:** Maintaining a proactive approach to adopting and integrating new sustainable technologies as they develop, ensuring the region remains at the forefront of green innovation.

#### Expansion of Hydrogen Applications

**Diversifying Hydrogen Utilization:** Beyond snow groomers, the working group can explore other applications of hydrogen technology in transportation, energy storage, and industrial processes.

**Infrastructure Development:** Continuously develop and expand green hydrogen production and refueling infrastructure to support a broader network of hydrogen-powered machinery and vehicles.

#### Educational Initiatives

**Training and Capacity Building:** Implementing ongoing training programs for local businesses, technicians, and the community to strengthen skills in operating and maintaining hydrogen technologies.

**Public Awareness Campaigns:** Increasing public understanding and acceptance of hydrogen technologies through educational campaigns, workshops, and demonstrations.

Ensuring Capitalization and Transmission of Results

### Documentation and Reporting

**Comprehensive Documentation:** Maintaining thorough documentation of all processes, results, and lessons learned during the pilot project.

### Transmission to Other Alpine Territories

**Initiative Replication:** Exploring the potential to successfully replicate our initiative in other Alpine territories to expand the positive impact of the transition to hydrogen.

**Validation of Economic and Technical Viability:** Before replicating the initiative, ensuring both economic and technical viability by conducting thorough analyses of costs, benefits, and financial models, as well as validating the technical aspects of the project.

## Meetings

**In-Person Meetings:** Regular face-to-face meetings have been organized to facilitate discussions, updates on progress, and decision-making. These meetings have provided a platform for brainstorming, sharing ideas, and addressing challenges collectively.

**Email Exchanges:** Communication via email has been utilized for sharing important updates, documents, and announcements. This method allows for asynchronous communication and ensures that all members are informed consistently.

**Bilateral Calls:** Individual or small group calls have been conducted to address specific issues, provide personalized updates, or seek feedback from particular members. Bilateral calls have allowed for more focused discussions and a deeper exploration of key topics.

**Focus Groups:** Dedicated focus group sessions have been organized to delve into specific aspects of the project in more detail. These sessions have allowed for in-depth discussions, idea generation, and problem-solving within smaller groups of experts.

**Thematic Events:** Thematic events, such as workshops or seminars, have been held to concentrate on particular areas of interest or



expertise within the working group. These events foster collaboration, knowledge sharing, and skill development among members.

## Members

STAKEHOLDER	TPOLOGY
Altis	SME
Val de Bagnes	Local Authority
TMR	SME
H2 energy	SME
GCK	SME
AXPO	SME
Alpiq	SME
Buchard voyage	SME
Téléverbier	SME
Microcity	SME
Prinoth	SME
Rossier transport	SME
Canton du Valais	Regional Authority
Inocel	SME
Hydrospider	SME

## EVENT TRACKER

<b>Title</b>	Hydrogen Kick-Off in Val de Bagnes
<b>Date</b>	13.02.2023
<b>Participants</b>	Altis, Blueark, val de bagnes
<b>Main topics discussed</b>	Validate the idea of hydrogen in Val de Bagnes

<b>Title</b>	Hydrogen Kick-Off in Val de Bagnes
<b>Date</b>	25.02.2023
<b>Participants</b>	Téléverbier
<b>Main topics discussed</b>	Validate the interest in hydrogen for decarbonizing the Verbier resort and understand the customer's needs

<b>Title</b>	Hydrogen Kick-Off in Val de Bagnes
<b>Date</b>	24.04.2023

<b>Participants</b>	Rossier transport
<b>Main topics discussed</b>	Validate the interest in hydrogen for decarbonizing the Verbier resort and understand the customer's needs
<b>Title</b>	Hydrogen in val de bagnes
<b>Date</b>	12.04.2023
<b>Participants</b>	Altis, Blueark, val de bagnes
<b>Main topics discussed</b>	Establishment of a working group composed of the municipality and the industrial service of the region = ALTIS. Objective: Concrete implementation of a demonstration case and establishment of a solar production area.
<b>Title</b>	Hydrogène in Val de bagnes
<b>Date</b>	05.05.2023
<b>Participants</b>	Alpiq, Altis
<b>Main topics discussed</b>	Consideration if synergy is possible.
<b>Title</b>	Hydrogen in Val de Bagnes
<b>Date</b>	26.06.2023
<b>Participants</b>	Altis, Axpo
<b>Main topics discussed</b>	Consideration if synergy is possible.
<b>Title</b>	Hydrogen in Val de Bagnes
<b>Date</b>	07.07.2023
<b>Participants</b>	TMR, Buchard voyage, Altis, canton du valais
<b>Main topics discussed</b>	Consideration if synergy is possible.
<b>Title</b>	Hydrogen in val de bagnes
<b>Date</b>	23.08.2023
<b>Participants</b>	Altis, Blueark, val de bagnes
<b>Main topics discussed</b>	Progress of the working group and selection of the demonstration area.
<b>Title</b>	Search for technical partners.
<b>Date</b>	14.09.2023

<b>Participants</b>	Alpiq, Hydrospyder, H2 energy
<b>Main topics discussed</b>	Consideration if synergy is possible.

<b>Title</b>	Search for technical partners.
<b>Date</b>	20.10.2023
<b>Participants</b>	Prinoth
<b>Main topics discussed</b>	Consideration if synergy is possible.

<b>Title</b>	Search for technical partners.
<b>Date</b>	20.10.2023
<b>Participants</b>	GCK, Altis
<b>Main topics discussed</b>	Consideration if synergy is possible.

<b>Title</b>	Hydrogen in val de bagnes
<b>Date</b>	20.11.2023
<b>Participants</b>	Altis, Blueark, val de bagnes
<b>Main topics discussed</b>	Progress on the test electricity production zone and validation of initial tests.

<b>Title</b>	Hydrogen in val de bagnes
<b>Date</b>	20.12.2023
<b>Participants</b>	Altis, Alpiq, h2 energy, Hydrospider
<b>Main topics discussed</b>	Progress update and iteration on a production zone in Val de Bagnes.

<b>Title</b>	Hydrogen in val de bagnes
<b>Date</b>	15.02.2023
<b>Participants</b>	Altis, Alpiq, h2 energy, Hydrospider
<b>Main topics discussed</b>	Progress update and iteration on a production zone in Val de Bagnes.

<b>Title</b>	Hydrogen in val de bagnes
<b>Date</b>	4.03.2023
<b>Participants</b>	Prinoth
<b>Main topics discussed</b>	Checkpoint with Prinoth on the progress of hydrogen snow groomer development.

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<b>Title</b>	Hydrogen in val de bagnes
<b>Date</b>	20.04.2023
<b>Participants</b>	Altis, Axpo
<b>Main topics discussed</b>	Status update and information exchange on the validation of a demonstration case.

<b>Title</b>	Hydrogen in val de bagnes
<b>Date</b>	23.05.202
<b>Participants</b>	Altis, Blueark, val de bagnes
<b>Main topics discussed</b>	Setting up budget requests from the municipality for a detailed study on the costs of a production zone.