



Life3H

Making Hydrogen Valleys a reality

NEWSLETTER

N.1 - February 2023



The **LIFE3H** project has received funding from the LIFE programme of the European Union [LIFE 20 ENV/IT/000575]

Hello,

the LIFE3H consortium is pleased to send you the first issue of the six-monthly project newsletter. The aim is to inform you every six months about the main results, events, news and contents of particular interest. Through short articles, the newsletter aims both to broaden the audience of local communities and stakeholders potentially interested in the project, and to expand the network with all associations and industries that believe in the potential of hydrogen.

The consortium will also be pleased to send you shortly the letter of inclusion in the Stakeholder Chart, by which you can confirm your willingness to participate, on a completely voluntary basis, in project support activities.

Good reading!

The LIFE3H consortium



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THE PROJECT LIFE3H

LIFE3H overall objective is to set-up, demonstrate and exploit 3 Hydrogen Valleys (HV). Starting from the implementation of clean H2 buses fuelled with surplus H2 coming from local industrial productions thus closing the economical circle locally. The project will demonstrate new transport solutions to increase air quality by reducing emissions, facilitate mobility, economic growth & environmental sustainability in urban and natural areas.

The sites for setting up the Hydrogen Valley are:

- The historical City of Terni;
- Port of Civitavecchia;
- Altopiano delle Rocche in the Regional Park (Sirente Velino).

LIFE3H specific objectives are:

- Build up the first 3 Italian HVs laying the basis of one transregional HV;
- The development of a sustainable road and public transport system;
- Implement integrated local policies & regulatory approaches for widespread deployment of Hydrogen Refuelling Stations and Fuel Cell vehicles;
- Increase circular economy by storing and using H2 waste from local industries like steel mills and chlorine-soda plants;
- Create a standard smart sustainable mobility management system;
- Develop a Hydrogen Valley implementation strategy allowing future expansion in the project sites and replication in other sites;
- Raise citizens' awareness & improving policy commitment to spread sustainable hydrogen-based mobility and improve air quality.

Hydrogen Valleys involve investments on a specific geographic area covering multiple segments of the hydrogen supply chain. Thus, they include production, storage, and transportation to end users, up to use in one or more different sectors (mobility, industry, power generation).



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THE CONSORTIUM

Regione Abruzzo

Abruzzo Region is divided into a General Direction, 8 Departments and 3 Autonomous Services counting, as of 1st January 2021, on 1377 employees in service. The Departments in turn are structured into Services, each with their own skills and organized into offices. Among the functions attributed to them are the planning of national and European resources and institutional and territorial reforms also through partnership sharing and the participatory process. Sustainable development is the basis of regional planning and, with the aim of achieving the 17 goals of the 2030 Agenda and the ambitious energy and climate targets for 2030 and 2050. The Region has identified hydrogen as the key driver for decarbonisation and the energy transition.



Società Chimica Bussi

Società Chimica Bussi ("SCB") is an historical chemical company based in Bussi in Tirino (Pescara) belonging to the Gestioni Industriali Group ("GIG"), the main national operator in the electrolytic base chemicals segment. SCB in its production site is engaged in two business lines, chlorine derivatives and organics. In the production of a liquid and solid chemical product widely used in the field of disinfectants, bactericides, water treatment and detergents. SCB already produces green hydrogen through electrolytic processes powered by hydroelectric energy, a part of which is currently not used. Therefore it is available to be captured, purified and compressed as raw material for fuel this can be used for activities with a reduced impact in terms of CO2 emissions and in a circular economy perspective.

CITRAMS – Università degli Studi dell'Aquila

The Interdepartmental Research Center for Transport and Sustainable Mobility (CITraMS) of the University of L'Aquila involves the 7 Departments of the University, Regione Abruzzo, Società di Trasporto Unico Abruzzese (TUA) and several national and international experts in the field. It was therefore born with a high international vocation and a transversal scientific approach between the engineering, computer science, mathematics, physics, chemical, medical, neuroscientific and humanistic disciplines.



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Autorità di Sistema Portuale del Mar Tirreno
Centro Settentrionale

The Port System Authority of the North-Central Tyrrhenian Sea is a body with legal personality of public law and administrative autonomy. It has financial, budgetary and administrative functions. The Port System Authority is the governing body of the port territory, within whose circumscription are included the ports of Civitavecchia, Fiumicino and Gaeta.

Rampini

For 70 years, Rampini has been developing high-tech and environmentally friendly products, with innovative design as the benchmark. Constant progress, both qualitatively and quantitatively, has led Rampini to become one of the most significant players in the design and production of electric and hydrogen-powered public transport.



Comune di Terni

With a population of over 110.000 inhabitants, Terni is Umbria's second largest city. Terni is committed to implement policies supporting, inter alia, circular economy, sustainable transport, air pollution control. In such framework a new mobility based on the increase of hydrogen and electric vehicles as well as participation to the LIFE3H project, represents a more stringent commitment of the City Council that hence demonstrates a paradigm shift from past unsustainable development.



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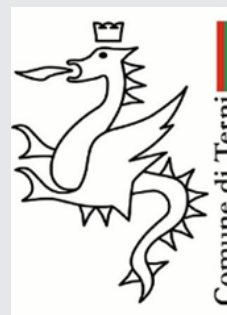
Port Mobility

Port Mobility is beneficiary partner to the LIFE3H project, aimed to set-up, demonstrate and exploit 3 Hydrogen Valleys in the Italian central regions, through the implementation of H2 busses in the public mobility. Port Mobility is a private company which performs public services thanks to the Convention stipulated in 2005 with the Civitavecchia Port Authority (now Authority of port system in the North-Central Mediterranean Sea).



Snam 4 Mobility

Snam4Mobility is a company, 100% controlled by Snam, which has the mission of supporting the growth of sustainable mobility. They favour the development on the national and international territory of the infrastructure and technologies for natural gas transport. Snam4Mobility builds methane, biomethane (produced by Snam4Environment, 100% controlled by Snam) and H2 refuelling infrastructures, open to the public and private (for fleets).



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TUA

TUA Spa is the local public transport company. With around 1350 employees, it manages around 60% of the road passenger transport service in the Abruzzo region. They also coordinate the activities of private sector owned operators to provide additional services, for a total production of around 29 million kilometres per year. TUA's fleet consists of around 900 buses, 12% of which are powered by methane. As part of the ecological transition, the company management intends to pursue a fleet renewal strategy oriented towards differentiated solutions, with the aim of achieving the highest possible level of environmental compatibility and sustainability in each different service area. TUA has embarked on a process of renewing the company vehicle fleet that will allow the gradual replacement of diesel vehicles with modern vehicles with a reduced environmental impact, initially powered by natural gas, then with the gradual integration of electrically driven buses, until the introduction of hydrogen buses (FCB).



UNeed.IT



UNeed.IT is an innovative start-up specialized in planning and implementation of sustainable mobility systems, with study and research activities focusing on emerging scenarios in the transport sector. Its ambition is to promote the sustainable development of our society, contributing to the achievement of the following Sustainable Development Objectives adopted by the United Nations: 'Objective No. 9 - Industry, Innovation, Infrastructure', 'Objective No. 11 - Sustainable Cities and Communities'.



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Università di Perugia (UNIPG)

The University of Perugia (UNIPG) is a public higher education institution founded in 1308. It is one of the oldest universities in Europe. Research, education and consulting activities are organised in 14 Departments, with about approximately 25,000 students, 1,100 professors and researchers and 1,100 staff members. With a comprehensive offer of degree programs covering nearly all fields, UNIPG combines a long and solid tradition of excellence with a commitment to innovation and an interdisciplinary approach that ensures students the acquisition of flexible educational training based on a mixture of skills and abilities. Post-graduate degrees are offered in top-rated specialisation schools and doctoral programs, as well a variety of masters programs in the various academic disciplines.



Università degli Studi Guglielmo Marconi (USGM)

Università degli Studi Guglielmo Marconi (USGM) is the first Digital University recognized by the Italian Ministry of Education, University and Research (MIUR). It currently has 16.000 students enrolled across 6 Schools: Business, Law, Political Sciences, Applied Sciences & Technologies, Arts, Education Science. USGM offers a wide range of lectures, workshops, and research ventures, exploring the use of technological advancements in education, providing interdisciplinary knowledge, skills and competences, with a particular focus on global perspectives, contemporary culture and digital transformation. USGM appears among the top 25 top performers worldwide in three categories of research according to U-Multirank ranking system, namely International Joint Publications, Open Access Publications and Regional Joint Publications.



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STRUCTURE OF THE PROJECT

The project consists of the following five actions

A) PREPARATORY ACTIONS

ACTION A.1: HRS, H2 Supply and BUS design and realization

- A1.1 Hydrogen Refuelling Stations (HRS) site verification

The main activities include the check of each site location with local fire departments, the set-up of a communication protocol between the HRSs developers and the verification of the architectural aesthetic standards.



- A1.3 HRS design, manufacturing and setting up

The main activities include the examination of the feasibility of using economically hydrogen production equipment, the system modelling of the refuelling system, the selection of suitable equipment and manufacturing for the 3 HRSs and the description of the technical specifications of the refuelling.

- A1.5 Hydrogen bus production

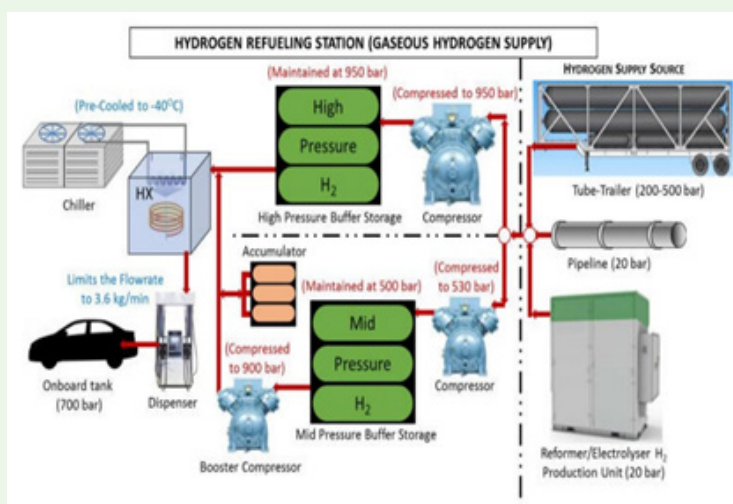
The project envisages the production of six hydrogen-powered buses. The company Rampini is responsible for the production of two buses, while the Abruzzo Region and the Municipality of Terni are responsible for the public procurement procedures for the supply of the remaining four vehicles.

- A.1.2 H2 supply and refuelling agreements

This task will assure the signature of the agreement between S4M, Port Mobility, TUA and the hydrogen providers.

- A.1.4 FCBs requirements definition

Rampini will define FCBs requirements specifications.



B) IMPLEMENTATION ACTIONS

ACTION B.1: H-city-port-mountain

• B.1.1 H-city (Terni site)

The service provided by FCB will cover the route TR5, which starts from the Santa Maria di Terni Hospital and terminates at Bivio Acquavogliera, the road to San Gemini town.



• B1.3 H-port (Civitavecchia site)

The FCBs will be added to the fleet actually available on the routes: The first from the cruise terminal to the train station, a spot service line available to the tourists planned and realized with modality and frequency that depend on the cruises' arrival. The total length of the line is about 2.5 kilometres and it takes about 15 minutes each way (average 10 km/h). The second route will cover internal port service, which is an ordinary circular line with two bus terminals (Molo del bicchiere and Terminal ADM Sud). The total length of the line (round-trip) is 10.8 kilometres.



• B1.2 H-mountain (Altopiano delle Rocche site)

The project envisages the use of two 8-metre buses as a shuttle connection between the two ski resorts of Ovindoli (Magnola) and Rocca di Cambio (Campo Felice), running all year round with trips from Friday to Sunday, including public holidays. The total weekly runs of the two buses amount to 1,460 km.



• B1.4 Maintenance support of the H-Valleys

This task involves the set-up of a maintenance team able to intervene in a short timeframe in case major problems occur to the demos.



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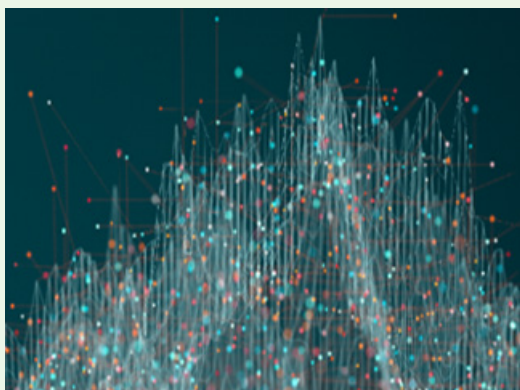
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C) MONITORING OF THE IMPACT OF THE PROJECT ACTIONS

ACTION C.1: Data collection, monitoring, technical and socio-economic analysis

- C.1.1 Data collection and analysis Plan

Under this sub-task will be set up a HRSS and FCBs monitoring plan defining data to be collected and how including technical, economic, social and environmental data. It will be also defined and set up the digital platform that will allow automatic data collection.



- C1.2 Data monitoring

This sub-action will monitor performances of HRSS and FCBs with dedicated tools. Monitoring strategy will be based on a two-level approach:

- 1) Full equal monitoring of each single site;
- 2) Cross-evaluation process. To evaluate the performances of FCBs on different route conditions and compare the data. This comparative analysis will enrich the project commercialization recommendations for FCBs.

- C1.3 Technical, socio-economic and environmental analysis

In this sub-task the collected data will be analysed and the technical, socio-economic and environmental impacts will be evaluated.

D) PUBLIC AWARENESS AND DISSEMINATION OF RESULTS

ACTION D.1: Communication and Public Awareness

- D.1.1 – Set-up of a communication plan

During this sub-action a clear communication plan will be defined together with the set-up all the needed tools.



- D.1.3 – Networking with other projects

This sub-action will focus on creating appropriate links and exchange of information with other projects dealing with Hydrogen and mobility.

- D.1.2 – Communication to the local population

The objective is to inform and disseminate the project's activities among local populations and stakeholders.



- D.1.4 - Project results' dissemination

This sub-action will promote the outcomes towards science, transport and urban development experts with the aim of increasing knowledge about "Hydrogen mobility" across Europe and, finally, boost its implementation.



D) PUBLIC AWARENESS AND DISSEMINATION OF RESULTS

ACTION D.2: Hydrogen Valley growth strategy

- D2.1 Hydrogen Valley Implementation Strategy

An implementation criterion will be developed to evaluate and optimize specific characteristics of a hydrogen valley: energy flows, transport management, industrial and civil processes. Such strategy, aligned with similar EU initiatives, will support the decision-makers to develop their own HV. The strategy will cover technical, social and economic aspects connecting best available practise with local peculiarities.

- D2.3 Hydrogen Valley LIFE3H exploitation strategy

Based on the results of the application of the HV implementation strategy (D2.1), three further site-specific strategies will be defined to ensure the full maturity and completeness of the HV in the period following the end of the project. Strategic support for this will come from the public and private stakeholders involved.

- D2.2 Hydrogen Valley Replicability Network

The hydrogen valley implementation strategy will be shared and implemented beyond LIFE3H partnership. Starting from the stakeholders already involved during the proposal, a network of potential valleys will be established.



E) PROJECT MANAGEMENT

ACTION E.1: Project Management and monitoring of project progress

- E.1.1: Project management by Abruzzo Region

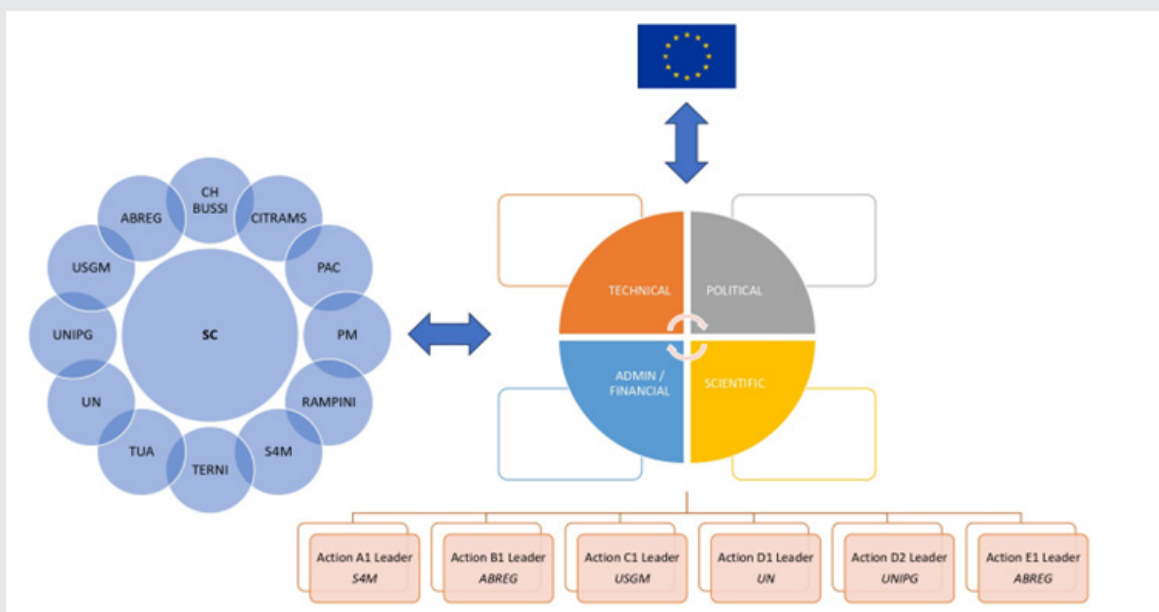
The project management refers to the management of all the technical, financial/administrative, local/political and scientific aspects and a consensus building procedures appropriate to project activities will be developed and applied to make final decisions.

- E.1.2– After-LIFE Plan

The Project Management Group will be in charge to prepare the “After-LIFE Plan” to be submitted with the final report. It will be prepared in IT and in EN and both in paper and electronic format and will set out how the dissemination and communication of the project results.

- E.1.3– Quality management

The quality of the project Deliverables will be monitored by the Quality Board (QB). The QB will elaborate a quality plan. This document will provide a framework for the preparation, monitoring, evaluation and validation of project documents, among which are the deliverables.



KICK-OFF MEETING

The Life3H project officially started with the kick-off meeting held on 14 October 2021 at the press room of the Abruzzo Regional Council in Pescara, Piazza Unione. The representatives of the project partners briefly introduced their institutions and the project team. Afterwards, the activities to be carried out during the project were described in detail and the financial, administrative and project management aspects were discussed.



FIRST MONITORING VISIT

On 24 March 2022, the first monitoring visit of the Life3H project was held in Avezzano at the ARAP headquarters in via Isacco Newton. The visit, which was delivered by the project monitor Mr Paolo Rosa-Clot, acting on behalf of CINEA (European Climate, Infrastructure and Environment Executive Agency of the European Union), was attended by representatives of all partners involved in the project. During the visit, the partners illustrated the objectives of the project, the work plan, the environmental targets and the benefits of hydrogen mobility. Afterwards, activities were discussed in detail (Action by Action). The participants then visited the area where the Hydrogen Refuelling Station is to be built in Avezzano.

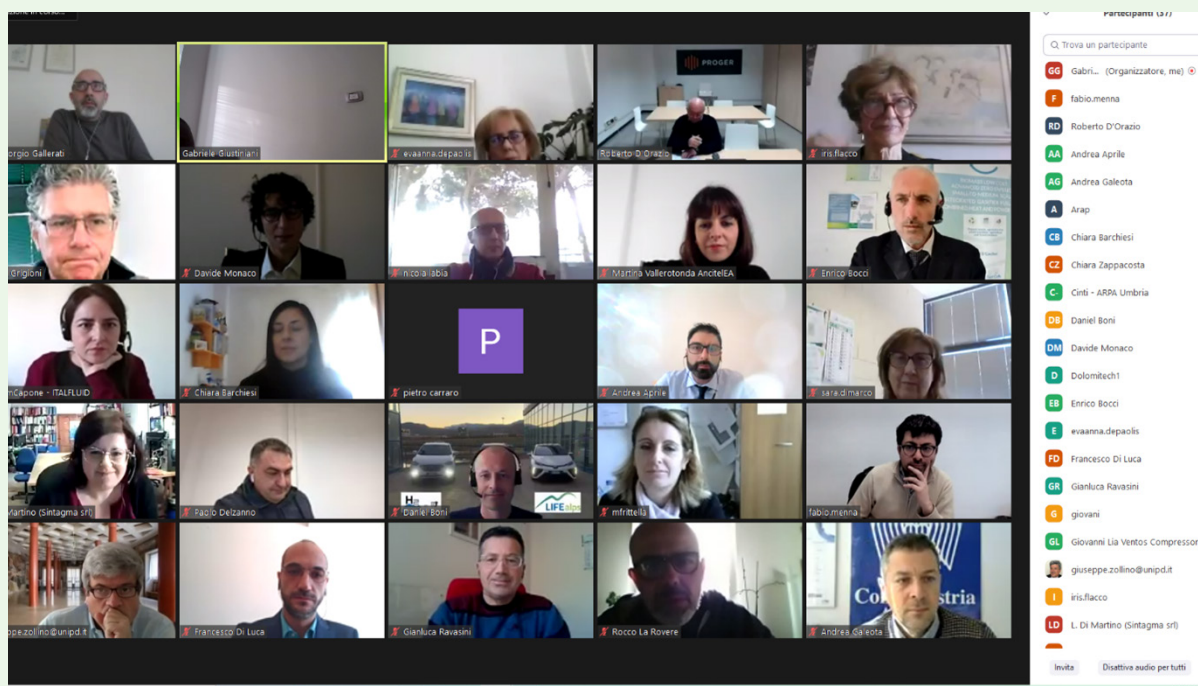


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FIRST STAKEHOLDER MEETING

On March 25th 2022, the first meeting of the stakeholders network was organized. During the meeting the Stakeholder Chart was presented. The implementation of the Stakeholder Chart aims to involve the stakeholder in order to set-up the so-called 'replicability network' that is crucial for the success of the exploitation/replication activities of the project. The meeting was chaired by UNNeed.IT with the support of Regione Abruzzo e USGM. After a short presentation about the LIFE3H project, the discussion started. About 10 questions/interventions arose from the public. The meeting was recorded and it lasted more than 1.5 hours.



THE STAKEHOLDER CHART

To the present date, the Stakeholder Chart consists of 43 actors, composed by research institutions, public bodies, associations involved in the dissemination of hydrogen technologies and representatives of industry

	Name	Type of stakeholder	Stakeholder activities
1	Institute for Innovative Technologies	Research Institution	The Institute manages the Bolzano Hydrogen Refuelling Station
2	ENEA	Research Institution	ENEA is The National Agency for New Technologies, Energy and Sustainable Economic Development
3	ATENA Scarl	Research Institution	District of High Technology gathering 16 members between research centers, universities and industries
4	ASM Terni Spa	Public Utility	Public multi-utility of Terni: management of local electricity grid, gas grid and waste collection and disposal
5	Regione Umbria	Public Body	Region of H-city
6	Comune di Civitavecchia	Public Body	Municipality of H-port
7	Parco Naturale Regionale Sirente Velino	Public Body	Natural Regional Park hosting H-mountain
8	Comune di Rocca di Mezzo	Public Body	Municipality of Altopiano delle Rocche - H-mountain
9	Comune di Rocca di Cambio	Public Body	Municipality of Altopiano delle Rocche - H-mountain
10	Comune di Ovindoli	Public Body	Municipality of Altopiano delle Rocche - H-mountain
11	Arpa Umbria	Public Agency	Environmental Protection Agency of Umbria Region
12	Legambiente Umbria	No Profit	Environmental Association - Umbria Region headquarters
13	Legambiente Abruzzo	No Profit	Environmental Association - Abruzzo Region headquarters
14	The Climate Group	Networking Body	The Climate Group is an international non-profit driving climate action and energy initiatives. It is the Secretariat for the Under2 Coalition which is made up of over 220 governments globally
15	H2IT	Networking Body	Italian Hydrogen and Fuel Cell Association gathering more than 50 members between companies and research centers
16	FEDARENE	Networking Body	EU Federation of Agencies and Regions for Energy and the Environment gathering over 80 members across 23 EU countries
17	Confindustria Abruzzo	Networking Body	Association of Companies and Industries of the Abruzzo Region
18	Assoporti	Networking Body	Italian Ports Association
19	Assembly of European Regions (AER)	Networking Body	Assembly of European Regions gathering regions from 35 EU countries
20	Ancitel	Networking Body	Non-profit company designing and providing services and solutions to local authorities to increase their operational efficiency
21	Unindustria Civitavecchia	Networking Body	Association of Companies and Industries of the Civitavecchia Municipality
22	UNCEM	Networking Body	National Union of municipalities, communities and mountain authorities
23	Anci Lazio	Networking Body	National Association of Municipalities - branch of Lazio Region
24	Polo INOLTRA	Logistic Centre	Innovation, Transport and Logistics Centre located in Abruzzo Region
25	Toyota Motor Italy Group	Industry	World leader of car manufacturers, first to commercialize FCEV
26	Logicompany 3	Industry	Logistic Company First to use GNL in Italy. Now moving to Hydrogen.

	Name	Type of stakeholder	Stakeholder activities
27	Gap Spa	Industry	Steel material handling company - (working also for AST). Is developing hydrogen heavy material handling vehicles.
28	Dolomitech	Industry	FCBs manufactures
29	CET Engineering	Industry	Developer and producer of hydrogen compressors
30	Sintagma	Engineering office	Specialized in PUMS (Sustainable Urban Mobility Plan). Sintagma realized TERNI PUMS.
31	AESS	Energy Agency	Agency for Energy and Sustainable Development of Modena (Italy)
32	IVECO	Industry	Industrial Vehicles Corporation and truck manufacturer
33	Regione Lazio	Public Body	Region of H-port
34	Baltour	Industry	Italian public transport company based in Teramo, Abruzzo
35	Aumatech	Industry	Supply of technologies for the production of pressurized gas storage tanks
36	P&F Technology – Project and Financing Group	Consultancy	Subsidized financing and business consulting
37	ARAP Abruzzo (Azienda Regionale Attività Produttive)	Public Body	Regional company for productive activities
38	RINA	Consultancy	Administrative, organisational and financial services
39	Italfiuid	Service	Italian services company that has been operating in the oil industry
40	COMEC Innovative	Industry	Supply of machine tools for the mass production of hydrogen tanks and pipes
41	Comune di Avezzano	Public body	Municipality of Avezzano - hosting the HRS station of Abruzzo Region
42	Sapio	Industry	Italian producer and supplier of industrial and medical gases and homecare and integrated support services
43	Nippon Gases	Industry	Producer of industrial and medical gases



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PARTNERSHIP



PROJECT
COORDINATOR



SOCIETÀ
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CENTRO INTERDISCIPLINARE ALLE
TRASPORTI MOBILITÀ SOSTENIBILE



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