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H2MA

*Output 1.2*

**Report on the implementation and achievements  
of recommendations and updates for local,  
regional, and national hydrogen strategies and  
mobility plans, integrating H2MA knowledge,  
resources and tools**

Work package 1

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## DOCUMENT CONTROL SHEET

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### Short description

H2MA brings together 11 partners from all 5 Interreg Alpine Space EU countries (SI, IT, DE, FR, AT), to coordinate and accelerate the transnational roll-out of green hydrogen (H2) infrastructure for transport and mobility in the Alpine region. Through the joint development of cooperation mechanisms, strategies, tools, and resources, H2MA will increase the capacities of territorial public authorities and stakeholders to overcome existing barriers and collaboratively plan and pilot test transalpine zero-emission H2 routes.

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## IMPRINT

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- PP2 BSC, Business Support Centre, Ltd, Kranj (SI)
- PP3 EUROMETROPOLE DE STRASBOURG (FR)
- PP4 Lombardy Foundation for the Environment (IT)
- PP5 Cluster Pole Vehicule du Futur (FR)
- PP6 Turin Metropolitan City (IT)
- PP7 Climate Partner Upper Rhine Valley (DE)
- PP8 4ward Energy Research GmbH in cooperation with Reiterer and Scherling GmbH (AT)
- PP9 Lombardy Region (IT)
- PP10 Codognotto Austria (AT)
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# INDEX

- INTRODUCTION ..... 4**
- HYDROGEN STRATEGIES AND MOBILITY PLANS UPDATES ..... 6**
  - SLOVENIA..... 6**
    - 1. Business Support Centre, Kranj - BSC ..... 6**
    - 2. Energy Agency of Savinjska, Saleska and Koroska Region - KSENA ..... 8**
  - GERMANY ..... 10**
    - 1. Climate Partner Upper Rhine Valley - KPO..... 10**
  - AUSTRIA ..... 12**
    - 1. 4ward Energy Research Ltd - 4ER ..... 12**
  - ITALY ..... 14**
    - 1. Lombardy Region - LR..... 14**
    - 2. Turin Metropolitan City - CMT ..... 15**
  - FRANCE..... 16**
    - 1. Cluster Pole Vehicule du Futur (PFV) ..... 16**
    - 2. Eurometropole de Strasbourg EMS ..... 17**
    - 3. Cluster Pole Vehicule du Futur (PFV) ..... 18**
- 1. ANNEXES..... 19**

## INTRODUCTION

H2MA brings together 11 partners from all 5 countries of the Alpine space programming area (SI, IT, DE, FR, AT), with the intention of harmonizing and speeding up the transnational integration and planning of the green hydrogen infrastructure roll-out in transport and mobility in the Alpine region. By jointly developing cooperation mechanisms, strategies, tools and resources, H2MA aims to increase the capacity of territorial decision-makers and other stakeholders to overcome existing barriers to the deployment of hydrogen mobility for freight and passenger transport (heavy goods vehicles and rail transport in the short term, maritime and aviation in the long term), in tandem with urban mobility planning (buses), increasing the macro-regional impact.

Heavy freight traffic in the Alps is still one of the main causes of greenhouse gas emissions and it also causes air pollution and noise, which is especially destructive in the Alps, where there are many nature conservation areas or nature reserves. On the other hand, the use and introduction of green hydrogen in all sectors, but especially in heavy transport road transport, represents one of the more promising and effective ways of decarbonising heavy freight transport, as the European Commission plans that by 2030, there will be more than 60,000 heavy goods vehicles powered by hydrogen fuel cells. It is important to realize that there are still many challenges in the field of production, distribution and introduction of hydrogen in transport, which are still being addressed by scientists from various fields, environmentalists, as well as economists and other decision-makers. The cooperation of various professional actors with policy makers, the implementation of pilot testing for the introduction of hydrogen technologies, international cooperation and learning from examples of good practices is therefore crucial.

The H2MA project is currently in the phase of developing useful tools and materials, in the framework of which the project partners, among other things, are developing an information database based on the GIS system. Analyses of the gaps between the situation in the field, the market situation and the existing strategic political instruments in the partner countries were prepared. All implemented and planned pilot projects, which implement green hydrogen mobility in a practical sense, were listed. Unfortunately, there are only a few such pilot projects in Slovenia, and they are not yet fully operational.

This document was drafted in order to present the effort made in line with updating and amending the policy instruments (hydrogen strategies and mobility plans) currently in force in the countries and regions of all of the policy-tackling partners of the H2MA project. The following table, which was recognized in the section C.2.5 of the application form, presents the policy instruments tackled by several policy-tackling partners within the H2MA project.

## Tackled Policy Instruments

<b>Policy Instrument</b>	<b>Partner responsible for the update</b>	<b>Status of the instrument</b>
Slovenian H2 National Strategy	KSSENA, BSC KRANJ	In development
Action plan on Alternative Fuels Infrastructure	KSSENA, BSC KRANJ	Active
Regional Development Programme (RDP) of Gorenjska 2021 - 2027	BSC KRANJ	Active
Austrian National H2 Strategy	4ER	Active
Strasbourg Climate Plan 2030	EMS	Active
H2 Roadmap of the Baden-Württemberg	KPO	Active
Bourgogne-Franche-Comte H2 Roadmap	PVF	Active
Grand Est H2 2020-2030 Strategy	PVF	Active
Urban Logistics Plan	CMT	In development
Piedmont H2 Valley Protocol	CMT	Active
Regional H2 Strategy of the Lombardy Region	RL	In development
Interregional H2 strategy for the coordination of H2 port infrastructure	EMS, PVF	In development

The actions taken in line with the activity *A 1.6 – Integrating H2MA knowledge and resources into partnership territories’ H2 and mobility strategies*, presented by the deliverable *D.1.6.2 – Summary of updates and developments achieved in Alpine Space H2 and mobility strategies*, were synergized with the workload and the actions done for the achievement of the *O 1.2 - Recommendations and updates for local, regional and national hydrogen strategies and mobility plans, integrating H2MA knowledge, resources, and tools*, the results of which are shown in this document. The outcomes of the actions within the deliverable D.1.6.2 and O1.2 were very diverse, within the partnership. Since the measures for both actions were merged, to tackle the right stock of the stakeholders and policy makers at the right time, and not to overflow them with material of the recommendations, several partners have produced only one set of recommendations, which were then shared to several different policy makers and authorities. The results of the actions were multifarious. Some of the partners were able to achieve a lot of updates and amendments, and some of the partners were unsuccessful due to various factors, described in the next chapter. Policy instruments, tackled by some partners (Slovenia, Italy, France), are still being developed or synergized within their working groups. In the next chapter (Hydrogen Strategy and Mobility Plans Updates), the justifications are presented along with results and outcomes for each individual policy instrument that was tackled within the framework of both activities and within the framework of the H2MA project in the fall of 2023 in the 2<sup>nd</sup> project period.

# HYDROGEN STRATEGIES AND MOBILITY PLANS UPDATES

## SLOVENIA

### 1. Business Support Centre, Kranj - BSC

*The Regional Development Programme (RDP) of Gorenjska 2021-2027 includes measures and investments to promote alternative fuels infrastructure (under Objective 6.5 ‘Green Connected Gorenjska’; Measure 6.5.1 ‘Introduction of smart mobility modes on alternative fuel sources’). BSC is the author and managing authority of the RDP; H2MA knowledge will enable BSC to establish a Regional Mobility Centre and steer RDP funds towards projects that promote green H2 refuelling infrastructure.*

#### 1.1 Justification summary:

Hydrogen technology's integration into mobility presents significant technical and financial challenges, necessitating policy changes based on comprehensive analysis at regional, national, cross-border, and European levels. In the H2MA project, the study visits and review of strategies from other partners expanded the knowledge base but updating the Regional Development Programme (RDP) of Gorenjska 2021-2027, requires fulfilling 2 main conditions.

- Condition 1: entails basing policy changes on thorough economic, spatial, and energy network analysis aligned with the national Hydrogen Strategy, which Slovenia lacks.
- Condition 2: mandates the adoption of the proposed changes to the RDP by the Council of Mayors of the Gorenjska Region (CMGR), which is directly linked to the first condition.

Currently, none of the ongoing BSC projects fulfill these conditions, and internal consolidation is needed to propose changes. Despite an analysis of hydrogen infrastructure and demand in the region, issues like operational challenges, lack of demand, and financial viability hinder further investments. Recommendations for national-level actions, including gathering additional information and fulfilling conditions, aim to influence regional planning and investments. These activities, undertaken in H2MA's third phase, pave the way for potential policy changes at the regional level.

#### 1.2 Explanation:

Hydrogen technology and its implementation in mobility, modes of transport are demanding, technically and financially. Therefore, decisions on policy changes must be prepared and adopted after a thorough analysis, not just of the regional situation but a national one, cross-border and European. In H2MA project BSC have gained a wider knowledge through the study visits, the introduction of H2 infrastructures, and the reviews of existing strategies from other partners.

The 2030 and 2050 possible scenarios have been made, but this information wasn't sufficient to update the existing regional policy, the Regional Development Programme (RDP) of Gorenjska 2021-2027 (RDP). That because several other conditions (listed below) are not completely fulfilled.

##### Condition 1:

Any policy changes referring to the investments into the hydrogen facilities need to be based on a thorough economic, spatial, energy network and production potential analysis and aligned with the national Hydrogen Strategy to be the base of steering RDP funds towards projects that promote green H2 refuelling infrastructure.

- This condition is not fulfilled for two reasons: Slovenia does not have a National Hydrogen Strategy, and the economic – spatial - energy network and production potential analysis have not been yet done to the stage to prepare the investment proposal.

### Condition 2:

Proposed changes to RDP by the managing authority need to be adopted by the Council of Mayors of the Gorenjska Region (CMGR).

- This condition is not fulfilled as the changes to the RDP are confirmed by CMGR if the first condition is fulfilled and there is an actual project prepared and proposed as a measure to be integrated in the RDP.

### Condition 3:

The least important condition, but it must be taken in consideration is the adoption of the changes to the RDP in a bundle.

- BSC has numerous projects from different thematic areas, fulfilling, addressing the targets of RDP and addressing further development and improvements of RDP by transnational learning activities or regional and national needs. None of the results of these projects are currently in the state to contribute to the finalization of the proposal for the RDP policy change. On the other hand, internal consolidation of the policy changes to the RDP from other thematic areas needs to be done to propose the changes of the RDP in a bundle, which is not a condition for a policy change, but a recommendation.

### According to the conditions stated, the following list reports what has been done and could be done:

- An analysis was realized regarding the state of play of hydrogen infrastructure and demand in the Gorenjska region and Western Cohesion region within the H2MA activities.
- This state of play shows that each of the projects connected to the implementation of hydrogen infrastructure and production has issues that put further investments for H2 under condition.
- The only H2 refuelling station in Gorenjska is not operational, because there is no demand. The production of grey hydrogen in Gorenjska region exists, but green hydrogen production was closed by the company because financially hasn't made sense. The H2 station and H2 storage system pilot in Kranj, Gorenjska, for military facility and public mobility use is on hold until demand side is established.  
The plans of City Municipality Kranj to establish another H2 refuelling station in Kranj for buses is still in the idea phase. The only other existing refuelling station in the Western region (Anhovo) does not cover the needs of the community because the company does not have H2 trucks. According to SCANIA Slovenia, information gained in the RP3, 1st LWG, H2 trucks are still being tested in terms of safety since they are "bombs on wheels".

Gaining most of this information in the RP 1 and 2, except the last one gained in the RP 3, we and the LP decided to prepare recommendations for the national level, since their decision will influence the regional level planning and investments.

Below are listed the activities planned in H2MA and implemented in RP 3, which will pave the path to possible changes in the policy change on the regional level are:

- Gaining additional information from AT and IT for the H2 infrastructure to contribute to the overall planning and localization of refueling infrastructure and preparation of the regional scenario contributing to the AS map and Masterplan.
- Gaining additional information from the LWG activities
- Fulfilment of the conditions
- Preparation of a valid scenario (validated by the key national stakeholders)
- Ideally (not promised in the AF of H2MA) preparation of a proposal for a new project or obtaining information from the Council of Mayors for non-implementation of further policies in the field of introducing hydrogen into mobility until the next program period.
- Ideally obtaining consent from the Council of Mayors for the policy change based on new project/measure proposal (not a commitment in the H2MA AF).



## 2. Energy Agency of Savinjska, Saleska and Koroska Region – KSENA in coordination with Business Support Centre, Kranj - BSC

*Slovenia is on track to develop its **National H2 Strategy in 2022/23**, which is expected to dictate that 7% of fuel consumption, particularly in the transport sector, can be met by green H2 until 2040. **KSENA** participated in the strategy's drafting working group as technical partner; in this capacity, it will employ H2MA's planning approach and knowledge to suggest a) optimal infrastructure roll-out for transalpine routes, and b) H2 ecosystem development pathways for coal-dependent regions.*

*The 'Action plan on Alternative Fuels Infrastructure' (2019) of the Slovenian Ministry of Infrastructure prescribes H2 infrastructure roll-out, under Directive 2014/94/EU (transposed in 2017). **KSENA** cooperates directly with the Ministry's working group that monitors and yearly revises the plan's measures; KSENA will improve 2022-24 planning by proposing a) increased deployment targets for H2 infrastructure, b) coordination with Alpine countries, and c) green H2 quotas in the transport sector.*

### 2.1 Justification summary:

The Slovenian partners have submitted recommendations to national hydrogen stakeholders, emphasizing the need for a comprehensive strategy aligned with new regulations. Since the Action plan on Alternative Fuels Infrastructure was already surpassed by the Law on the alternative fuels' infrastructure and the promotion of the transition to the alternative fuels in transport, in the May of 2023, a lot of safety measures and concrete actions were insufficiently defined, and the act itself was not synergized with the new AFIR, adopted in 2023 and part of the Fit for 55 package. These recommendations include, the measures developed for advancing both Law on the alternative fuels infrastructure and the promotion of the transition to the alternative fuels in transport and Slovenian National Hydrogen Strategy:

1. Developing the Strategy of the Republic of Slovenia for Hydrogen to meet EU goals, addressing key infrastructure requirements and setting ambitious targets.
2. Clarifying legislation and administrative procedures for hydrogen charging infrastructure installation and developing technical guidelines.
3. Integrating a hydrogen technology detailed planning, as in the publicly available draft of the NEPN (National Energy and Climate Plan) update proposal, the treatment of green hydrogen as one of the most important carriers of decarbonization is not comprehensive and lacks expert explanation.
4. Enhancing safety aspects within the hydrogen strategy by including components for public support, economic regulation, workforce education, and infrastructure security.

### 2.2 Explanation:

The complete list of recommendations (which have been adapted to the new regulations) have been sent from the partners to the relevant players on the Slovenian national hydrogen level.

In the following points are listed the recommendations detailed by the Slovenian partners (find the full doc in the annex), which mainly include the necessity of developing a Strategy of the Republic of Slovenia for Hydrogen, and its connection with the regulations regarding permits, economy and safety.

1. Necessity of developing the Strategy of the **Republic of Slovenia for Hydrogen**, in the form of an independent strategic document in connection with the revision of Directive 2014/94/EU and the adoption of the new Regulation on the establishment of infrastructure for alternative fuels (Alternative Fuels Infrastructure Regulation - AFIR).

The proposal is based on experience in the development of projects in the field of hydrogen in the Republic of Slovenia and a good knowledge of the conditions and needs for promoting such investments in the territory of the Republic of Slovenia.

The new regulation on the establishment of infrastructure for alternative fuels, including for the field of hydrogen, represents the key goals of the introduction of hydrogen technology in connection with the field of sustainable mobility, which will need to be achieved by 2025, or at least until 2030: A) the maximum distance between two hydrogen filling stations on the TEN-T network is limited to 200 km by the new regulation. B) hydrogen charging stations must be placed at all important traffic nodes ("urban nodes"). C) the minimum cumulative capacity of each hydrogen filling station must reach at least 1 ton of stored H<sub>2</sub> on site. D) in addition to the dispensers under 350 bar pressure intended for vehicle categories M3, O and N, at each filling station there must be at least one dispenser under the pressure of 700 bars, dedicated to M1 and M2 vehicle categories.

The achievement of these goals in the Republic of Slovenia is necessarily linked to comprehensive strategic planning and the development of additional capacities.

2. The urgency of developing the RS Strategy for hydrogen in connection with the unclear legislation regarding the necessary permits for the installation of hydrogen charging infrastructure, and the further development of detailed technical guidelines for individual areas for the introduction of hydrogen charging infrastructure.

It is proposed to prepare a strategic basis (e.g. the Strategy of the Republic of Slovenia for hydrogen, an action plan, etc.) to produce technical guidelines, in relation with the ambiguity of the necessary permits and administrative procedures for the installation of the hydrogen charging infrastructure. The Act on Infrastructure for Alternative Fuels and Promotion of the Transition to Alternative Fuels in Transport and the ACTION PROGRAM FOR ALTERNATIVE FUELS IN TRANSPORT FOR THE YEARS 2022 AND 2023, only refer to the Annex II of the Directive 2014/94/EU, presenting the technical specifications that all hydrogen charging infrastructure must meet (but does not describe all the necessary administrative procedures and permits that investments must meet).

3. The integration of the strategic planning of the economy of hydrogen technologies, the associated charging infrastructure, and the National Energy and Climate Plan, does not make sense.

The proposal is based on experience in the development of projects in the field of hydrogen in the Republic of Slovenia and a good knowledge of the conditions and needs for promoting such investments in the territory.

In the publicly available draft of the NEPN (National Energy and Climate Plan) update proposal, the treatment of green hydrogen as one of the most important carriers of decarbonization is not comprehensive, and there is also a lack of expert explanation.

Although hydrogen is only indirectly mentioned several times in the document, the economic planning of hydrogen technologies has not yet been defined strategically and planned.

The document does not mention restrictions and administrative procedures, including operating permits, and, of course, the key to co-financing such projects. The draft also mentions the renewable gas certification system several times, which will enable the development of the renewable gas market, but very little is written about it.

It would be necessary to identify the key stakeholders, state bodies and professional institutions that will implement the aforementioned certification system. As already stated, in a rough sense, in the studied document, hydrogen is indirectly mentioned and favoured several times, but in different sections and aspects of the mentioned economy and technology are not broken down, so we cannot claim that it is a strategic planning of the mentioned lot.

But in the studied document, hydrogen is indirectly mentioned and favoured several times, but in different sections and aspects of the mentioned economy and technology are not broken down, so we cannot claim that it is a strategic planning of the mentioned lot.

4. The urgency of developing the Strategy of the Republic of Slovenia for hydrogen, in connection with the components that should necessarily be more precisely addressed as part of the hydrogen economy and the safety aspect.

The proposal is based on experience in the development of projects in the field of hydrogen in the Republic of Slovenia and a good knowledge of the conditions in partner countries (H2MA project) and in countries with a high level of integrated pilot technology. We suggest and encourage that the Strategy of the Republic of Slovenia for hydrogen or Strategic planning adds components that indirectly ensure the safety, integrity, control and quality of the integration of hydrogen technologies in the Slovenian energy system.

The necessary components that we believe should be included in the strategic planning, according to the various sections, are the following:

- PACKAGE A) Public political commitment and support for the introduction of hydrogen technologies.
- SECTION B) Economics and regulation of the renewable gas market
- SET C) Security
- ASSEMBLY D) Self-sufficiency with renewable hydrogen

## GERMANY

### 1. Climate Partner Upper Rhine Valley - KPO

*Baden-Württemberg adopted a H2 Roadmap (2020), in which the creation of refuelling network and introduction of H2-powered HDVs in public and commercial transportation feature prominently. KPO will valorise H2MA resources and pilot experience to a) coordinate H2 infrastructure roll-out in tandem with the ongoing H2-SO project (mapping regional H2 demand in mobility, funded by Baden-Württemberg Ministry of the Environment) and b) accelerate local business ecosystem development.*

#### 1.1 Justification Summary:

The initial Baden-Wurttemberg H2-Roadmap estimated hydrogen needs for mobility, with an update incorporating survey data revealing and increasing demand in the industry and mobility sector. This led to a clearer understanding of where hydrogen refuelling stations should be installed. Additionally, the map is the base for the regional gas grid providers for the development of a hydrogen pipeline network in Bade-Wurttemberg.

#### 1.2 Explanation

In the first version of the Baden-Wurttemberg's H2-Roadmap (Version December 2020), the hydrogen amount needed for the mobility was estimated to be about around 1.7 TWh in 2030 and 12,9 TWh in 2050.

To clarify this message and to check if the estimated amounts of hydrogen especially for the industry and mobility sector are reliable, we started a survey among industry companies together with the chambers of commerce in Südbaden.

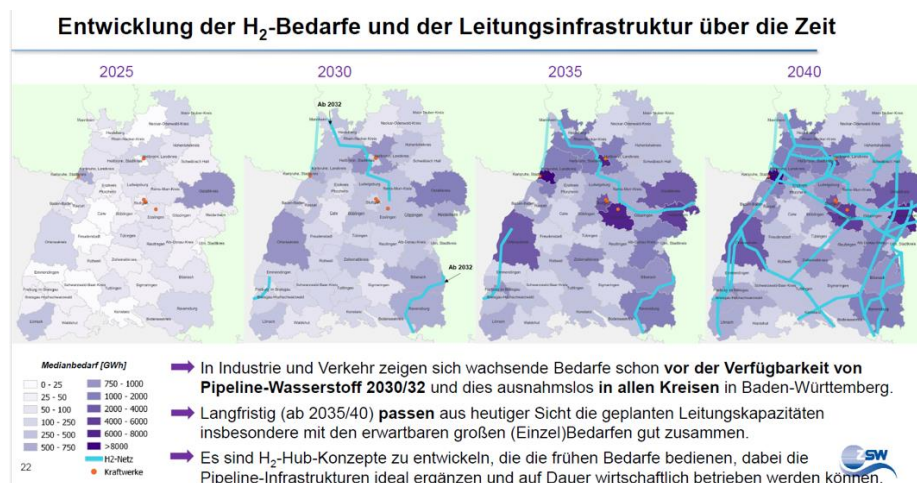
The results of this regional survey were synergized with the H2MA resources and integrated in an update of the Baden-Württemberg's H2-Roadmap, presented on the 19<sup>th</sup> of December 2023. The results are shown in the following graphs:

The total hydrogen needs in BW in 2030 is 22,7 TWh and will rise exponentially to a value of over 70 TWh in 2025 (These results come from a survey of the Ministry of Economy in Bade-Württemberg). Concerning the mobility sector, the hydrogen need will rise constantly in the next years with huge regional differences:



Based on this, we have not a clearer view of i.e. where to install Hydrogen refueling stations in Baden-Württemberg.

If you add to the graphs shown above the industrial need of hydrogen, you get a very clear view of i.e. how a pipeline-based hydrogen distribution network has to be implemented. This map is the base for the regional gas grid providers for the development of a hydrogen pipeline network in Baden-Württemberg (the blue lines in the following picture):



All these results have now entered an updated version of the Baden-Württemberg Hydrogen roadmap published end of last year.



## AUSTRIA

### 1. 4ward Energy Research Ltd - 4ER

*Austria's H2 Strategy (2022) de-prioritises H2 transport applications. 4ER, as a research partner and consultant to the Ministry of Environment (BMK), will use H2MA knowledge and pilot results to suggest the re-prioritisation of green H2 for mobility in the strategy's upcoming 2023 consultation. Also, policy and governmental observers (BMK, Land Carinthia, AustriaTech) will safeguard that H2MA plans and A1.6 recommendations for Austria comply with both national and regional H2 strategies and infrastructure plans for the transport sector.*

#### 1.1 Justification Summary:

The H2MA project assessed the current status and objectives of hydrogen use in the mobility sector, comparing strategies from Germany, Italy, France, Austria, and Slovenia (although the country does not yet have its own hydrogen strategy).

To align with European targets, the Austrian partners suggest developing a concrete action plan involving stakeholders from various sectors. This plan should include targets for expanding the hydrogen filling station network, defining use case targets for 2030 and 2050, designating transit routes with minimum filling station requirements, ensuring green hydrogen supply at existing stations, and addressing the need for skilled workers. These recommendations aim to facilitate the transition to hydrogen mobility and meet climate neutrality goals.

#### 1.2 Explanation:

As part of the H2MA project, the current situation was recorded and presented with regard to the existing situation and the objectives of hydrogen use and infrastructure in the mobility sector and a comparison of the existing hydrogen strategies in Germany, Italy, France and Austria was made. The situation in Slovenia was also recorded, although the country does not yet have its own hydrogen strategy.

To adapt the Austrian hydrogen strategy, the Austrian partners of the H2MA, recommends that a concrete action plan for the mobility sector, aligned with the European targets, be drawn up to serve as a starting point for investment decisions by the relevant stakeholders.

This should also incorporate the definition of the legal framework for the hydrogen mobility, reducing the corresponding hurdles in terms of requirements and approvals. Relevant stakeholders from business, science, associations, NGOs and policy should be involved in this process.

The action plan should include the following points:

#### 1. Definition of expansion target for H2 filling station network for transit traffic (trucks)

Hydrogen can make a contribution to decarbonization in the mobility sector and even if the ramp-up of the technology is not expected until after 2030, the course for the development and expansion of the infrastructure must be set now in order to achieve the goal of climate neutrality.

The Austrian Hydrogen Strategy does not define any specific targets for the expansion of the hydrogen infrastructure in the mobility sector. So it is recommended that the existing strategy should be adapted to this end and define target values for: number of filling stations, capacity of filling stations, and maximum distance between filling stations.

#### 2. Definition of target values for the use cases defined in the strategy for 2030 and 2050 (also in a transnational context)

Based on recommendation 1 and the comparison of the different existing strategies in the countries of the Alpine region, the definition of target values for the use cases mentioned in the strategy ("*buses in local public transport on particularly busy routes with dense intervals, currently often served by*

*articulated buses, buses/coaches in inter-regional transport with high daily mileage, freight transport")* is also recommended in order to be able to better estimate the need for the expansion and development of the infrastructure and to provide the relevant stakeholders with a certain degree of investment security.

### *3. Definition of transit routes where a defined minimum number of filling stations is available*

In addition to point 1 a rough timetable for expansion should also be drawn up, taking into account planned road infrastructure projects, and a concept for supplying the filling stations should also be considered, based on the "Long-term and integrated planning 2022 for the gas distribution network infrastructure in Austria for the period 2023-2040".

Considerations should not be limited to the infrastructure along the TEN-T corridors, but should also take into account other relevant sections of the (highway network) road network in Austria. It is necessary to coordinate with neighboring countries on possible international hydrogen corridors. This is the only way to ensure a sufficiently dense network for journeys with hydrogen vehicles throughout the EU and to support the market ramp-up of hydrogen mobility. This can be supported by the development and use of suitable planning tools in order to better estimate hydrogen demand and to optimize the development of the infrastructure.

### *4. Existing Hydrogen Fueling stations*

According to the Austrian strategy, it is planned a substitution of fossil fuels with climate-neutral hydrogen in energy-intensive industry as far as possible by 2030.

The hydrogen filling stations currently available in Austria are not supplied with green hydrogen, elaboration of action steps to ensure a supply of green hydrogen even with existing filling station infrastructure. It is therefore recommended that the target will also be defined for the use of hydrogen in the mobility sector.

### *5. Need for skilled workers*

The H2MA findings also show that the expertise and manpower required to convert existing fleets and to develop and operate the necessary infrastructure are not currently available to the extent required. In order to promote the rapid expansion of hydrogen mobility, suitable (further) training opportunities must be created along the entire value chain. It is recommended that this aspect be taken into account in Action Area 5 of the national hydrogen strategy.

## ITALY

### 1. Lombardy Region - LR

*Lombardy Region is on track to develop a H2 Strategy in 2024, with particular reference to the mobility sector in the Alpine area. H2MA experience, resources, and pilot results will be integrated in the upcoming strategy in the following ways: a) WP2 pilot results will be used to plan infrastructure rollout and set targets for refuelling stations, and b) WP3 business development approach will be used as a model to set up the regional H2 mobility business ecosystem.*

#### 1.1 Justification Summary

The Lombardy Region, in collaboration with Fondazione Politecnico di Milano (FPM), is developing a Regional Hydrogen Strategy with a focus on mobility and industry, set to be released in 2024. The strategy integrates insights from the H2MA project, which provides data on regional hydrogen strategies, sets quantitative targets, assesses current infrastructure, and offers scenario planning for optimal deployment. Stakeholder engagement through local working groups and workshops foresees a possible improvement of the strategy.

#### 1.2 Explanation

The Lombardy Region, together with its consultant Fondazione Politecnico di Milan, is currently working on developing the Lombardy's Regional Hydrogen Strategy, with a specific focus on the mobility sector and the industry. The strategy is expected to be released this year, 2024. The outcomes of the activities of WP1 are being considered within the process, being RL and FPM involved both in the H2MA project and in the designing of the strategy.

The H2MA project is supporting the development of the strategy in Lombardy through four main contributions:

- H2MA project made available information regarding the strategies of other regions, enabling coordination and connection. The strengths and developments of other regions' strategies are regarded as reference while quantitative information is being considered towards a harmonization of policies and standards.
- The importance of setting quantitative targets, highlighted by the activity A1.1, is being accounted in the regional strategy through the support of numerical analyses. In particular, a quantitative target is being set on the portion of the demand in industries and transport that is expected to be met by hydrogen in 2030. Furthermore, the renewable power required to meet such hydrogen demand is estimated to provide a better understanding of the challenge and the possible dependence on external sources of hydrogen.
- In the development of the H2MA tool (A1.5), attention was posed on the collection and analysis of data about the present status of the hydrogen infrastructure (existing/planned hydrogen production facilities and hydrogen refuelling stations) as well as of interacting facilities (e.g., existing refuelling stations for conventional fuels and renewable energy potential). This enabled a better understanding of the current situation and of the impact of recent policies, such as the subsidies for hydrogen development in abandoned areas.
- The use of the H2MA tool provides scenarios that allow distributing the quantitative information in space, to define and compare the optimal locations for production and consumption and the optimal routes for transmission and delivery.

A further foreseen improvement of the Regional Hydrogen Strategy is expected to be possible after the discussion with stakeholders in the local working groups and workshops.

## 2. Turin Metropolitan City - CMT

*A) CMT is in the process of drafting an Urban Logistics Plan (to be finalized in 2023), which will feature H2 as a decarbonization solution for mobility and industry. As its main author and implementer of the Plan, CMT will valorize H2MA resources, planning approach, and pilot results to a) fine-tune planning requirements for H2 mobility refueling infrastructure, b) promote the connection of H2 production and distribution ecosystems with renewable energy production.*

### 2.1 Justification:

CMT's Sustainable Mobility Department has drafted the Urban Logistics Plan in 2023. The plan will be endorsed by the Deputy Council for Mobility by mid-2024 and then finally approved by the Council of the Metropolitan City of Turin.

The Plan includes the "Strategy for the development and deployment of e-fuels, hydrogen and biofuel". This measure provides for the drafting of an "Action Plan" for the promotion and dissemination of alternative fuel transportation for logistics with the aim of fostering and accelerating the achievement of environmental objectives of the sector.

The Action Plan will outline the roadmap for the establishment of energy production facilities in the metropolitan area and the refuelling network (public and private) to be set up to ensure supply to the vehicles.

To achieve the sustainability goals, set by the EU, the Plan will consider the need to support several kinds of alternative fuels, with a view to "technology neutrality" to enable stakeholders to choose the sustainable fuels best suited to their specific mobility needs.

As indicated in the technical sheet of the measure, the Action Plan will be developed through the following process:

1. Gathering experiences and expectations of stakeholders at the Stakeholder Table.
2. Gathering any planning or ongoing initiatives by territorial entities at the Coordination level.
3. Information exchange with major companies involved in the creation of hydrogen and/or e-fuels production plants.
4. Compilation of a summary of the collected elements.
5. Drafting of the Action Plan.
6. Sharing the Action Plan for approval at the Coordination of territorial entities.

Work on the plan is concurrent with the H2MA project and will follow the implementation timelines of WP2 and WP3.

*B) The Piedmont H2 Valley Protocol, a collaboration framework with the Italian government for the H2 roll-out in the region, aims to accelerate infrastructure development in the mobility sector and promote R&D efforts. Through its H2MA involvement, CMT, as a key actor in realizing the Protocol, will support it by a) streamlining and unlocking relevant investment opportunities (through WP3), b) improving the location planning of upcoming refueling infrastructure (via WP1 resources and WP2 pilot).*

### 2.2 Justification:

The Metropolitan City of Turin has met the Steering Committee of the Piedmont Region Hydrogen Strategy (May,10, 2023), submitting the request to be admitted as a full member of the strategy Steering Committee.

Through the H2MA Tool, CMT has developed a hydrogen action plan in the framework of the Sustainable **Logistics Plan**. This plan will be presented and discussed with the Regional Committee for the purpose of integrating the regional vision and strategy considering the actions in CMT's plan.



## FRANCE

### 1. Cluster Pole Vehicule du Futur (PFV)

*A) PVF was one of the primary authors of the Grand Est H2 2020-2030 Strategy (2020) and participates in its monitoring (as the Region's thematic expert). Based on H2MA pilot results and resources, PVF will aim to steer the Strategy's implementation towards a) widening green H2 mobility applications, promoting the coordinated infrastructure roll-out for HDVs, trains, and ships, and b) securing the growth of relevant business ecosystems, by identifying and encouraging public-private synergies.*

#### 1.1 Justification Summary:

Jacques Haenn, a member of PVF, oversees the hydrogen sector in Grand Est and coordinates the DINAMHySE initiative aiming to boost the region's hydrogen industry. PVF and EMS attended the inauguration of a new H2 station in Strasbourg, using the opportunity to promote the H2MA project and its resources. Three online meetings with DINAMHySE members discussed the project's value for the Grand Est H2 2020-2030 Strategy. Discussions emphasized using the H2MA tool to identify optimal locations for new hydrogen infrastructure, aligning with national and regional strategies to shift towards green hydrogen. The next step involves submitting a guide for improving the station networking strategy, aiming to establish 30 hydrogen refueling stations in Grand Est. The H2MA tool will be crucial in strategically placing refueling stations across the region for comprehensive coverage and accessibility.

#### 1.2 Explanation:

Grand Est H2 2020-2030 Strategy

One of the members of PVF, Jacques Haenn, oversees the Grand Est hydrogen sector and coordinator of the DINAMHySE initiative whose aim is to accelerate the development of the hydrogen industrial sector in the Grand Est region, along the entire value chain from production to applications including mobility, buildings, renewable energy storage, and to implement hydrogen within the framework of the energy transition.

Partner PVF and EMS attended the inauguration of a new H2 station in Strasbourg that represented an opportunity to communicate about the H2MA project and tool to the Grand Est Region. Moreover, three meetings took place online with DINAMHySE members to present the project and its added value to the Grand Est H2 2020-2030 Strategy.

During the discussions with Grand Est representatives, we highlighted the fact that using the H2MA tool may help stakeholders identify optimal locations for new hydrogen infrastructure, alongside existing projects in the regions. This could help in transitioning from decarbonised hydrogen to green hydrogen, aligning with both national and regional strategies. We also emphasised that in France, the focus is on decarbonised hydrogen rather than green hydrogen. With the help of the H2MA project and tool, we encourage the shift towards green hydrogen.

The next step will be to submit a guide with recommendations for improving the station networking strategy, considering existing and planned infrastructure in neighbouring areas during the LWGs. The Grand Est Strategy plans to establish 30 hydrogen refueling stations to facilitate the integration of the region's infrastructure. Our H2MA tool will play a crucial role in strategically suggesting placement of hydrogen refueling stations across the Grand Est region, ensuring comprehensive coverage and accessibility for vehicles using hydrogen as a fuel source for example.

*B) PVF was one of the primary authors of the Bourgogne-Franche-Comté H2 Roadmap (2019) and participates in its monitoring (as the Region's thematic expert). Drawing from the H2MA experience and planning approach, PVF will a) provide suggestions on how to streamline the regional investment planning under a transalpine angle, and b) suggest revisions to the Roadmap's sections 4 ('Mobility uses') on H2 infrastructure combinations for trains and HDVs.*

### **1.3 Justification:**

#### *Bourgogne-Franche-Comte (BFC) H2 Roadmap*

One of the members of PVF is Bertrand Boivert and plays a similar role as Jacques Haenn by coordinating Club H2 BFC, which aims to strengthen the links between H2 players in the Bourgogne Franche Comté region.

As Jacques, Bertrand introduced H2MA French actors to Club H2 BFC thanks to monthly meetings with the members and gave us opportunity to present the project and to discuss the regional strategy. Given the region's focus on promoting hydrogen derived from renewable energy sources, we showcased that the project could support initiatives aimed at increasing the production and use of green hydrogen.

Considering that the main goal of the BFC H2 roadmap is to foster the emergence of new hydrogen projects, we stressed that the H2MA project could employ data analysis, GIS mapping, and multi-criteria decision analysis to identify optimal locations for hydrogen infrastructure development at the NUTS 3 level.

Additionally, stakeholder engagement and capacity-building initiatives could help refine location selection criteria. In conclusion, the project can effectively promote the development of hydrogen infrastructure in strategic locations developing investment and growth in the hydrogen sector.

## **2. Eurometropole de Strasbourg EMS**

*The Strasbourg Climate Plan 2030 (2020) outlines measures to promote the development of an infrastructure network for H2 mobility and relevant technological innovations, under Priorities 1.2 "Improve air quality for all" and 1.2 "Promoting sustainable mobility". Through H2MA, EMS, the owner and implementer of the Plan, will improve its knowledge on how to coordinate the territorial H2 roll-out and achieve 2023 targets, creating synergies between HDV and port H2 refuelling infrastructure.*

### **2.1 Justification:**

The Strasbourg Eurometropole (EMS) has prioritised the fight against global warming. In October 2020, it solemnly declared a state of climate emergency and is taking committed action to drastically reduce greenhouse gas emissions in its area, anticipate the effects of global warming and adapt to it.

Updated in 2024, the territorial Climate-Air-Energy Plan details the objectives to be achieved by sector, with associated monitoring indicators. Vincent Duez, a colleague of Jean Melounou from the Eurometropole oversees the energy section of the roadmap. Vincent participated both at the inauguration of the R-HYFiE platform and the study visit with Jean and was well informed of the H2MA project and its objectives.

The H2MA project is in line with action 1.1.2 "Minimize the impact of the vehicle fleet to limit emissions and accelerate carbon-free change", and more specifically Sheet 1.1.2.4 "Develop new vectors of renewable and carbon-free mobility", under which the carbon-free mobility master plan is being drawn up.

The plan proposes several scenarios for the development of the various low-carbon energies: electricity, biofuels and hydrogen. In the "reasonable" scenario, the use of hydrogen in the road sector is estimated at 1% of the road fleet registered in the Eurometropole in 2035 (0.7% for trucks) and 3% in 2050. For H2 distribution, the master plan considers that the two distribution station projects planned in the area are sufficient to cover demand in the medium term. However, we pointed out

during our discussions that this approach was limited in that the H2 stations and production units located in the immediate vicinity on German territory were not considered, nor was the demand for hydrogen on the German side.

Future updates of the climate plan will incorporate data from the H2MA project to reassess hydrogen supply and demand in the region. It's worth noting that the collaboration created by the H2MA project strengthens the city's expertise and its capacity for dialogue with local partners in the hydrogen sector.

### **3. Cluster Pole Vehicule du Futur (PFV)**

*Strasbourg, KPO, and PVF, in collaboration with regions, municipalities, and green H2 mobility actors across the river Rhine (within and beyond the Alpine space) are planning to initiate in 2023/4 an interregional H2 strategy to coordinate H2 port infrastructure. H2MA will function as the precursor to the envisioned pan-Rhine H2 strategy, which will aim to coordinate separate territorial H2 strategies, emphasizing interconnections with renewables, marine, and road transport.*

#### **3.1 Justification:**

Strasbourg, KPO, and PVF, in collaboration with regions, municipalities, and green H2 mobility actors across the river Rhine (within and beyond the Alpine space) were planning to initiate an interregional H2 strategy to coordinate H2 port infrastructure. This initiative will not take place. After consultation with stakeholders, it was decided that it would be wiser to work with existing Franco-German-Swiss network TRION-climate.

The TRION-climate is an association which brings together many energy and climate stakeholders from the three countries, including PVF, KPO and the Eurométropole de Strasbourg. Trion-Climate offers interesting resources for monitoring the progress of hydrogen projects and encouraging their development, objectives that are in line with those of the H2MA project.

So, rather than setting up a new interregional H2 strategy, our approach is to work with Trion Climate to publicize the H2MA tools and involve members of the association in the LWGs to coordinate H2 strategies.

## 1. ANNEXES

-Recommendations by PP1 (KSSENA) and PP2 (BSC KRANJ) – Recommendations for the development of the Strategy of the Republic of Slovenia for Hydrogen (slo. Priporočila za izdelavo Republike Slovenije za vodik)

-Recommendations by PP4 (4ER) – Recommendations for the Austrian Hydrogen Strategy (ger. Empfehlungen zur Anpassung der “Wasserstoffstrategie für Österreich”)

-Development of the Urban Logistics Plan by PP6 (CMT)

**Zavod Energetska agencija za Savinjsko, Šaleško in Koroško**

**Koroška cesta 37a**

**3320 Velenje**

**in,**

**BSC, poslovno podporni center, d. o. o., Kranj**

**Regionalna razvojna Agencija Gorenjske**

**Cesta Staneta Žagarja 37**

**4000 Kranj**

## **Priporočila za izdelavo Strategije Republike Slovenije za vodik**

**v imenu ključnih deležnikov nacionalnega partnerstva projekta H2MA:**



November, 2023

Spoštovani,

Z željo po prispevanju k trajnostnem razvoju in razogljičenjem energetske intenzivnih sektorjev Republike Slovenije ter zavedanjem ključne vloge zelenega vodika pri zmanjševanju emisij toplogrednih plinov za doseganje strateških ciljev ogljično-nevtralne EU do leta 2050, v skladu z Evropskim zelenim dogovorom, nacionalni partnerski konzorcij projekta H2MA, v nadaljevanju predstavlja priporočila za izdelavo vodikove strategije Republike Slovenije. Cilj teh priporočil je poudariti pomembnost celovitega pristopa pri načrtovanju in uvajanju infrastrukture zelene vodikove mobilnosti, z razvojem ločenega strateškega dokumenta oz. strategije.

*Resolucija o Dolgoročni podnebni strategiji Slovenije do leta 2050 in Celovit Nacionalni energetski in podnebni načrt Republike Slovenije* sta kot ključna nacionalna strateška politična inštrumenta postavila temeljne ambiciozne cilje zmanjšanja emisij toplogrednih plinov. V okviru obeh načrtovalskih dokumentov je vodik prepoznani kot eden izmed ključnih dejavnikov in nosilcev energije, ki bodo v naslednjih 30. letih pomembno prispevali k razogljičenju energetske intenzivnih sektorjev.

Vodikova strategija za podnebno nevtralno Evropo, ki jo je za doseg ogljično-nevtralnih ciljev do leta 2050, v letu 2020 sprejela Evropska komisija, predstavlja temeljni politični dokument v katerem Evropska komisija ugotavlja visoko potrebo po ambicioznih in dobro usklajenih politikah tudi na nacionalnih ravneh držav članic. Poleg tega pa je z Resolucijo Evropskega parlamenta o evropski strategiji za vodik, ki je bila sprejeta v letu 2021 in v kateri Evropski parlament poziva države članice k hitremu in ambicioznemu izvajanju nacionalnih energetskih in podnebnih načrtov, spodbujanju hitrega uvajanja vodika na trg, uvajanju zadostnih dodatnih zmogljivosti za proizvodnjo obnovljivega vodika, zagotovitvi, da se prihodnja plinska infrastruktura uporablja za čisti vodik in prilagoditvi regulativnih okvirov za spodbujanje povpraševanja po vodiku, država Republika Slovenija neposredno zavezana k razvoju celovitega dokumenta, t.j. Nacionalne vodikove strategije Republike Slovenije oz. Strategije Republike Slovenije za vodik.

Vodik obnovljivega izvora sicer v Slovenskem pravnem zakonu omenja več različnih strateških dokumentov in pravnih aktov (*Resolucija o Dolgoročni podnebni strategiji Slovenije do leta 2050, Resolucija o nacionalnem programu razvoja prometa v Republiki Sloveniji za obdobje do leta 2030, Strategija razvoja prometa v Republiki Sloveniji do leta 2030, Zakon o infrastrukturi za alternativna goriva in spodbujanju prehoda na alternativna goriva v prometu, Strategija na področju razvoja trga za vzpostavitev ustrezne infrastrukture v zvezi z alternativnimi gorivi v prometnem sektorju v Republiki Sloveniji, Program evropske kohezijske politike v obdobju 2021-2027 v Sloveniji, NEPN, Resolucija o Dolgoročni podnebni strategiji Slovenije do leta 2050, itn.*), a kljub vsem sprejetim in veljavnim politikam, strateško načrtovanje vpeljave vodikovih tehnologij v Slovenskem prostoru, še vedno ni popolnoma opredeljeno.

Vodikova strategija Republike Slovenije naj bi bila oblikovana kot celovit strateški dokument, ki predstavlja smernice in ukrepe za vzpostavitev trajnostnega okvira za proizvodnjo, distribucijo, in uporabo vodika v državi. Pomembno je poudariti pomen zelenega vodika, proizvedenega iz obnovljivih virov energije, ki ima potencial znatnega zmanjšanja ogljičnih odtisov in spodbujanja energetske neodvisnosti.

## VSEBINA

1. KONTEKST IN IZHODIŠČA .....	3
2. PRIPOROČILA.....	4
3. REFERENCE.....	9

## 1. KONTEKST IN IZHODIŠČA

Priporočila za izdelavo strategije republike Slovenije za vodik so nastala kot del izvedbe transnacionalnega projekta H2MA, "Green Hydrogen Mobility for Alpine Region Transportation", sofinanciranega s strani ESRR, programa Interreg Območje Alp.

H2MA združuje 11 partnerjev iz vseh 5 držav programskega območja (SI, IT, DE, FR, AT), z namero uskladiti in pospešiti transnacionalno povezovanje in načrtovanje uvedbe infrastrukture za zeleni vodik v prometu in mobilnost v alpski regiji. S skupnim razvojem mehanizmov sodelovanja, strategij, orodij in virov želi H2MA povečati zmogljivosti teritorialnih odločevalcev in drugih zainteresiranih strani za premagovanje obstoječih ovir pri uvajanju mobilnost na vodik za tovorni in potniški promet (težka tovorna vozila in železniški transport kratkoročno, pomorstvo in letalstvo dolgoročno), v tandemu z načrtovanjem mobilnosti v mestih (avtobusi), kar povečuje makroregionalni učinek.

Težki tovorni promet, na območju Alp, še vedno predstavlja enega izmed glavnih povzročiteljev emisij toplogrednih plinov, poleg tega pa povzroča tudi onesnaževanje zraka in hrup, ki je na območju Alp, kjer je prisotnih veliko naravovarstvenih območij oz. naravnih rezervatov, še posebej uničujoč. Na drugi strani pa izraba in vpeljava zelenega vodika v vseh sektorjih, predvsem pa v težkem transportnem cestnem prometu, predstavlja eno izmed obetavnejših in učinkovitejših poti razogljičenja težkega tovornega prometa, saj Evropska komisija namreč načrtuje, da bo do leta 2030, na cestah že več kot 60.000 težkih tovornih vozil s pogonom na vodikove gorivne celice. Pomembno se je zavedati, da je na področju proizvodnje, distribucije in uvajanja vodika v transport, še vedno veliko izzivov, ki jih še vedno naslavljajo tako znanstveniki iz različnih področij, okoljevarstveniki, kot tudi ekonomisti in drugi odločevalci. Sodelovanje različnih strokovnih akterjev s pripravljavci politik, izvajanje pilotnih testiranj uvajanja vodikovih tehnologij, mednarodno sodelovanje in učenje na primerih dobrih praks je zato ključnega pomena.

Projekt H2MA je trenutno v fazi razvoja uporabnih orodij in gradiv, v okviru katerih projektni partnerji med drugim razvijamo informacijsko bazo podatkov na osnovi GIS sistema. Pripravljene so bile analize vrzeli med stanjem na terenu, stanjem na trgu in obstoječimi strateškimi političnimi inštrumenti v partnerskih državah. Popisani so bili vsi implementirani in načrtovani pilotni projekti, ki v praktičnem smislu udeležujejo zeleno vodikovo mobilnost. Žal je takšnih pilotnih projektov v Sloveniji le nekaj in še ti niso povsem operativni.

### Partnerji projekta H2MA:





## 2. PRIPOROČILA

V nadaljevanju so s podrobnimi opisi obravnavana vsa pripravljena priporočila.

Priporočilo/predlog	Opis priporočila/predloga
<p>Nujnost razvoja Strategije RS za vodik, v obliki samostojnega strateškega dokumenta v povezavi s prenovo Direktive 2014/94/EU in sprejetjem nove Uredbe o vzpostavitvi infrastrukture za alternativna goriva (Alternative Fuels Infrastructure Regulation – AFIR).</p>	<p>Predlog izhaja iz izkušenj pri razvoju projektov na področju vodika v Republiki Sloveniji ter dobremu poznavanju razmer in potreb za spodbujanje tovrstnih investicij na območju RS. Težnja po tem, da se Strategija RS za vodik izvede kot samostojni strateški dokument in s strani oz. pod nadzorom ustreznega državnega organa oz. pristojnega ministrstva, je s potrditvijo predloga UREDBE EVROPSKEGA PARLAMENTA IN SVETA o vzpostavitvi infrastrukture za alternativna goriva ter razveljavitvi Direktive 2014/94/EU Evropskega parlamenta in Sveta, z dnem 25. 7. 2023, postala še večja, saj bo nova uredba v kratkem tudi javno objavljena v uradnem listu EU. Nova uredba o vzpostavitvi infrastrukture za alternativna goriva, med drugim za področje vodika, predstavlja ključne cilje uvajanja vodikove tehnologije v povezavi s področjem trajnostne mobilnosti, ki jih bo potrebno doseči do leta 2025, oz. vsaj do leta 2030, zlasti:</p> <ul style="list-style-type: none"><li>I) Maksimalna razdalja med dvema vodikovima polnilnicama na TEN-T omrežju je z novo uredbo omejena na 200 km,</li><li>II) Vodikove polnilnice morajo biti postavljene na vseh pomembnih prometnih vozliščih (“urban nodes”),</li><li>III) Najmanjša kumulativna zmogljivost vsake vodikove polnilnice mora dosegati vsaj 1 tona skladiščenega H2 na lokaciji.</li><li>IV) Na vsaki polnilnici mora biti poleg razpršilnikov pod pritiskom 350 barov, namenjenim kategorijam vozil M3, O in N, na voljo še vsaj en razpršilnik pod pritiskom 700 barov, namenjen kategorijam vozil M1 in M2.</li></ul>

	<p>Dosegljivost teh ciljev v RS je nujno povezana s celovitim strateškim načrtovanjem (razvojem strategije, ki mora nujno vključevati vse aspekte ekonomije uvajanja vodikovih tehnologij), ter z razvojem dodatnih kapacitet (akcijski načrt in tehnične smernice, za posamezna področja uvajanja omenjene tehnologije). Težnja po tem še posebej poudarja predstavljena točka II, saj nova uredba AFIR poudarja da morajo biti vodikove polnilnice postavljene na vseh prometnih vozliščih, tudi izven jedrnega omrežja TEN-T, kar popolnoma izničuje dosedanjo prakso sofinanciranja nacionalnih pilotnih projektov, po metodi maksimalne razdalje oddaljenosti od TEN-T omrežja (10km). Dodatno z ukrepoma minimalne kumulativne vsote skladiščenega vodika in zahtev po različnih vrstah razpršilnikov, ta pravni ukrep dodatno sproža večje CAPEX stroške, zaradi česar je potreba po strateškem so-financiranju, dodatnih pilotnih projektov in pripravi strateških dokumentov, kot podlag za pripravo tehničnih smernic za vodikove polnilnice sedaj še večja.</p>
<p>Nujnost razvoja Strategije RS za vodik, v povezavi z nejasno zakonodajo glede potrebnih dovoljenj za postavitve polnilne infrastrukture za vodik in nadaljnji razvoj podrobnih tehničnih smernic za posamezna področja uvajanja vodikove polnilne infrastrukture.</p>	<p>Predlaga se pripravo strateške podlage (npr. Strategije RS za vodik, akcijskega načrta ipd.) za izdelavo tehničnih smernic, v povezavi z nejasnostjo potrebnih dovoljenj in upravnih postopkov v povezavi s postavitvijo polnilne infrastrukture za vodik. Zakon o infrastrukturi za alternativna goriva in spodbujanju prehoda na alternativna goriva v prometu (Uradni list RS, št. 62/23) ter AKCIJSKI PROGRAM ZA ALTERNATIVNA GORIVA V PROMETU ZA LETI 2022 IN 2023, v povezavi z omenjeno nejasnostjo navajata le prilogo II, Direktive 2014/94/EU, ki bo vsak čas nadomeščena z novo Uredbo o vzpostavitvi infrastrukture za alternativna goriva (AFIR), in v kateri so predstavljene le tehnične specifikacije, katerim mora vsa polnilna infrastruktura za vodik zadostovati, ne opisuje pa vseh nujnih upravnih postopkov in dovoljenj, katerim morajo investicije zadostiti.</p>
<p>Integracija strateškega načrtovanja ekonomije vodikovih tehnologij in pripadajoče polnilne</p>	<p>Predlog izhaja iz izkušenj pri razvoju projektov na področju vodika v Republiki Sloveniji ter</p>

infrastrukture ter Nacionalnega Energetskega in Podnebnege Načrta ni smiselna.

dobremu poznavanju razmer in potreb za spodbujanje tovrstnih investicij na območju RS. Celovitost strateškega načrtovanja razvoja vodikovih tehnologij je ključna na nacionalni ravni, saj je vpeljava vodikove polnilne infrastrukture na obeh obstoječih TEN-T odsekih države RS, zaradi strateške geografske lokacije RS in velikega odstotka pripadajočega tranzita, nujna in pomembna, ne le na nacionalni ravni, pač pa tudi za doseganje ciljev EU, predvsem pa za sproščanje nepovratnih sredstev (na območju države RS), ki so v danem VFO namenjena vpeljavi omenjene infrastrukture. V javno dostopnem Osnutku predloga posodobitve NEPN-a, ki je bil v mesecu juniju posredovan Evropski komisiji, obravnava zelenega vodika, kot enega izmed pomembnejših nosilcev razogljčenja, ni vseobsegajoča, primanjkuje tudi strokovne razlage. Vodik je v dokumentu sicer večkrat le posredno omenjen, a načrtovanje ekonomije vodikovih tehnologij še ni strateško in načrtno opredeljeno. V osnutku sta večkrat omenjena dva dvosmerna vodikova koridorja (HU-SI-IT, HR-SI-AT), ki naj bi bila pretežno integrirana z obstoječim prenosnim omrežjem zemeljskega plina, kar je zelo skrb vzbujajoče, saj je vodik eden izmed najbolj reaktivnih plinov in je kot najlažji in najbolj enostaven kemijski element, zelo izmuzljiv. Zadrževanje vodika v prenosnem plinovodnem omrežju, brez oz. z minimalnim uhajanjem, je povezano z visokimi kapitalnimi stroški investicij v omenjeno omrežje, zato je potrebno strateško načrtovanje tovrstnih investicij podpreti s strokovnimi študijami in jasnim regulatornim načrtom za izvajanje nadzora varnosti vzpostavljenih distribucijskih in hranilnih sistemov. V danem osnutku se prav tako prioritizira in favorizira izgradnjo dveh večjih enot SHEE z namenom izrabe viškov EE. Verjetno gre za navezavo s projektom SLOP2G. Dokument pa ob enem ne omenja tudi drugih že obstoječih lokacij, kjer je izgradnja SHEE možna, smiselna in rentabilna v danem trenutku (NEK, TEŠ, HESS, Prapretno pri Hrastniku ipd.). V dokumentu ni govora o omejitvah, in upravnih postopkih, tudi

	<p>dovoljenjih za obratovanje ter seveda še o ključu so-financiranja tovrstnih projektov. V osnutku je prav tako večkrat omenjen sistem certificiranja obnovljivih plinov, ki bo omogočil razvoj trga obnovljivih plinov, a je o tem napisano bore malo. Nujno bi bilo prepoznati ključne deležnika, državna telesa in strokovne institucije, ki bodo omenjen sistem certificiranja izvajale. Kot že rečeno je v grobem smislu v preučevanem dokumentu vodik večkrat posredno omenjen in favoriziran, vendar različni sklopi (zagotavljanje varnosti polnilne in proizvodne infrastrukture, ter sistem certificiranja potrebne opreme, izobraževanje bodoče »vodikove« delovne sile in varnost pri delu v povezavi z vse večjo implementacijo vodikovih tehnologij, zagotavljanje varnosti na vodikovih koridorjih in splošna stopnja varnosti, načrt so-financiranja, skladi in stopnje sofinanciranja različnih projektov v dani tehnologiji, državna regulacija trga obnovljivih plinov in zagotavljanje ekonomike, ipd.) in aspekti omenjene ekonomije in tehnologije, niso razčlenjeni, zato ne moremo trditi, da gre za strateško načrtovanje omenjenega sklopa.</p>
<p>Nujnost razvoja Strategije RS za vodik, v povezavi s komponentami, ki bi se morale nujno natančneje nasloviti v sklopu ekonomije vodika in varnostni vidik.</p>	<p>Predlog izhaja iz izkušenj pri razvoju projektov na področju vodika v Republiki Sloveniji ter dobremu poznavanju razmer v partnerskih (projekt H2MA) in v državah, z visoko stopnjo integrirane pilotne tehnologije (Nemčija, Francija ipd.). Predlagamo in spodbujamo, da se v Strategijo RS za vodik oz. Strateško načrtovanje, doda komponente s katerimi posredno zagotovimo varnost, celovitost, nadzor in kvaliteto integracije vodikovih tehnologij v slo. energetske sistem. Nujne komponente, za katere menimo, da bi jih v strateško načrtovanje, po različnih sklopih morali nujno vključiti, so sledeče:</p> <p>SKLOP A) Javna politična zaveza in podpora k uvedbi vodikovih tehnologij</p> <p>-Razvoj ključnih nacionalnih (SMART) ciljev po različnih scenarijih (2030, 2040, 2050)</p>

	<p>integracije zelene H2 tehnologije, v različnih sektorjih</p> <ul style="list-style-type: none"> <li>-Davčne spodbude za uporabo vozil z gorivnimi celicami itn.</li> <li>-Standardizacija upravnih postopkov in izdaje dovoljenj</li> <li>-Poenostavitev administrativnih postopkov</li> </ul> <p>SKLOP B) Ekonomika in regulacija trga obnovljivih plinov</p> <ul style="list-style-type: none"> <li>-Zniževanje kapitalnih (CAPEX) stroškov investicij z davčnimi spodbudami in sofinanciranjem</li> <li>-Zagotavljanje virov nepovratnih sredstev vključno s standardizacijo so-financiranja pilotnih projektov</li> <li>-Dodatne nepovratne finančne spodbude v gospodarskem sektorju in izven TEN-T jedernega omrežja</li> <li>-Regulacija in nadzor nad monopolom in kartelnim dogovarjanjem (primer naftnega trga)</li> </ul> <p>SKLOP C) Varnost</p> <ul style="list-style-type: none"> <li>-Izobraževanje in prekvalificiranje delovne sile</li> <li>-Izobraževanje končnih uporabnikov</li> <li>-Izdaja licenc in certificiranje na trgu obnovljivih plinov</li> <li>-Inšpekcijski nadzor povezane infrastrukture</li> <li>-Zagotavljanje varnosti pri transportu in na plinovodnem omrežju (inšpekcijski nadzori, sledljivost materialov, ISO standardi, licenciranje ipd.)</li> </ul> <p>SKLOP D) Samozadostnost z obnovljivim vodikom</p> <ul style="list-style-type: none"> <li>- Strateško načrtovanje SHEE in P2G infrastrukture na nacionalni, regionalni in lokalni ravni</li> <li>- Internacionalno sodelovanje</li> </ul>
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### 3. REFERENCE

Resolucija o Dolgoročni podnebni strategiji Slovenije do leta 2050. (2021). Uradni list RS, št. 119/21 in 44/22 – ZVO-2. [https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/redps50/redps50\\_dz\\_jul2021.pdf](https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/redps50/redps50_dz_jul2021.pdf)

Ministrstvo za infrastrukturo Republike Slovenije. (2017). *Resolucija o nacionalnem programu razvoja prometa v Republiki Sloveniji za obdobje do leta 2030.* <https://www.gov.si/assets/ministrstva/MOPE/TRAJNOSTNA-MOBILNOST-STMPP/Resolucija-o-nacionalnem-programu-razvoja-prometa-do-2030.pdf>

Ministrstvo za infrastrukturo Republike Slovenije. (2017). *Strategija razvoja prometa v Republiki Sloveniji do leta 2030.* <https://www.gov.si/assets/ministrstva/Mzl/Dokumenti/Strategija-razvoja-prometa-v-Republiki-Sloveniji-do-leta-2030.pdf>

Zakon o infrastrukturi za alternativna goriva in spodbujanju prehoda na alternativna goriva v prometu (ZIAG). (2023). Uradni list RS, št. 62/23. <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO8771>

Vlada RS. (2017). *Strategija na področju razvoja trga za vzpostavitev ustrezne infrastrukture v zvezi z alternativnimi gorivi v prometnem sektorju v Republiki Sloveniji.* [https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/alternativna\\_goriva/strategija\\_alternivna\\_goriva\\_final.pdf](https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/alternativna_goriva/strategija_alternivna_goriva_final.pdf)

Vlada RS. (22.junij 2023). *Osnutek predloga posodobitve CELOVITEGA NACIONALNEGA ENERGETSKEGA IN PODNEBNEGA NAČRTA REPUBLIKE SLOVENIJE.* [https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/nepn/dokumenti/nepn\\_posod\\_jun2023.pdf](https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/nepn/dokumenti/nepn_posod_jun2023.pdf)

Vlada RS. (2020). *CELOVITI NACIONALNI ENERGETSKI IN PODNEBNI NAČRT REPUBLIKE SLOVENIJE.* [https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/nepn/dokumenti/nepn\\_5.0\\_final\\_feb-2020.pdf](https://www.energetika-portal.si/fileadmin/dokumenti/publikacije/nepn/dokumenti/nepn_5.0_final_feb-2020.pdf)

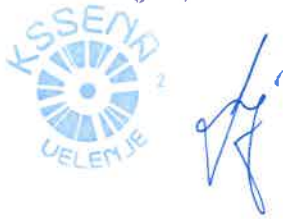
Ministrstvo za Kohezijo in Regionalni razvoj. (2022). *Program evropske kohezijske politike v obdobju 2021-2027 v Sloveniji.* <https://evropskasredstva.si/app/uploads/2022/12/Program-evropske-kohezijske-politike-sprejeta-verzija-12.-12.-2022.pdf>

Operativni program ukrepov zmanjšanja emisij toplogrednih plinov do leta 2020. (2014). <https://www.gov.si/assets/ministrstva/MOPE/Okolje/Podnebne-spremembe/optgp2020.pdf>

Vlada Republike Slovenije. (2021). *Akcijski program za alternativna goriva v prometu za leti 2022 in 2023.* <https://www.gov.si/assets/ministrstva/MOPE/TRAJNOSTNA-MOBILNOST-STMPP/Alternativna-goriva/Akcijski-program-za-alternativna-goriva-v-prometu-za-leti-2022-in-2023.pdf>

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Kraj in datum: Velenje, 27.11.2023



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## Empfehlungen zur Anpassung der »Wasserstoffstrategie für Österreich«

Sehr geehrte Damen und Herren,

Die österreichischen Partner des H2MA-Konsortiums, namentlich die 4ward Energy Research GmbH und CODOGNOTTO Austria GmbH möchten die Möglichkeit wahrnehmen, einige Empfehlungen zur Anpassung der vorliegenden »Wasserstoffstrategie für Österreich (Stand 2022)« an das Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie zu übermitteln.

Das Projekt »H2MA – Green Hydrogen Mobility for Alpine Region Transportation«, welches vom Europäischen Fonds für regionale Entwicklung über das Interreg-Alpenraumprogramm kofinanziert wird, hat sich zum Ziel gesetzt, die transnationale Einführung einer grünen Wasserstoff-Mobilitätsinfrastruktur im Alpenraum zu koordinieren und zu beschleunigen. Weitere Informationen zum Projekt und den bisherigen Ergebnissen sind unter <https://www.alpine-space.eu/project/h2ma/> abrufbar.

Im Rahmen des Projektes wurde die Ausgangssituation der Wasserstoffmobilität mit Fokus auf den transnationalen Güter- und Personenverkehr im Alpenraum (Österreich, Deutschland, Slowenien, Italien und Frankreich) erhoben und die bestehenden nationalen Wasserstoffstrategien miteinander verglichen. Darüber hinaus werden im Projekt Planungsinstrumente entwickelt, die die Routen- und Infrastrukturplanung unterstützen. Auf Basis dieser Erkenntnisse, möchten die österreichischen Partner des H2MA Konsortiums die auf den nachfolgenden Seiten beschriebenen Empfehlungen zur Anpassung der nationalen Wasserstoffstrategie speziell für die Punkte betreffend »Wasserstoff in der Mobilität« abgeben.



Generell wird **eine Harmonisierung der Ziele mit Nachbarländern bzw. auf EU-Ebene**, zur Unterstützung des systemischen Ansatz beim Auf- und Ausbau der benötigten Infrastruktur empfohlen.

Wir begrüßt den systemischen Ansatz, der in der Österreichischen Wasserstoffstrategie auf Seite 30 beschrieben wird, allerdings wird empfohlen, weitere konkrete, auf die europäischen Ziele abgestimmte, Ergänzungen für den Bereich Mobilität zu erarbeiten, die den relevanten Stakeholder:innen als Ausgangspunkt für Investitionsentscheidungen dienen können. Diese Ergänzungen sollte auch die Definition des rechtlichen Rahmens für die Wasserstoffmobilität einschließen, um die entsprechenden Hürden in Bezug auf Anforderungen und Genehmigungen zu verringern. Relevante Akteure aus Wirtschaft, Wissenschaft, Verbänden, NGOs und Politik sollten in diesen Prozess eingebunden werden. Dabei wird empfohlen Ergänzungen und Konkretisierungen für die folgenden Punkte vorzunehmen:

### 1. Konkrete Formulierung von Ausbauzielen für das H2-Tankstellennetz für den Transitverkehr

Wasserstoff hat das Potential einen wichtigen Beitrag zur Dekarbonisierung im Mobilitätsbereich zu leisten. Auch wenn der Hochlauf der Technologie erst in den kommenden Jahren zu erwarten ist, müssen die Weichen für den Auf- und Ausbau der Infrastruktur bereits jetzt gestellt werden, um das Ziel der Klimaneutralität Österreichs bis spätestens 2040 erreichen zu können. Ein Vergleich der bestehenden Strategien im Alpenraum zeigt, dass in Deutschland, Italien und Frankreich konkrete Ziele einerseits zum Ausbau der (Betankungs)Infrastruktur und andererseits der Fahrzeugflotten vorliegen. Dieser Aspekt gewinnt auch im Hinblick auf die Erfüllung der in der AFIR-VO festgelegten Ziele an Bedeutung, um den Unternehmen (z.B. im Bereich Logistik, Gütertransport) die benötigte Sicherheit für die Anschaffung / Umrüstung auf emissionsfreie Antriebe zu geben. In der österreichischen Wasserstoffstrategie sind keine konkreten Ziele für den Ausbau der Wasserstoffinfrastruktur im Mobilitätsbereich definiert, daher wird empfohlen, die bestehende Strategie dahingehend anzupassen und Zielwerte für

- Anzahl der Tankstellen
- Kapazität der Tankstellen
- Maximale Entfernung der Tankstellen zueinander

zu definieren. Diese Zielwerte sollten als Stufenplan über einen längeren Zeitraum (2030, 2050) definiert werden und für ausgewählte Transitstrecken gelten (siehe Punkt 3).



## 2. Formulierung von Zielwerten für die in der Strategie definierten Anwendungsfälle für 2030 und 2050 (auch im transnationalen Kontext)

In Anlehnung an Empfehlung 1 und dem Vergleich der unterschiedlichen bestehenden Strategien in den Ländern des Alpenraums wird auch die Definition von Zielwerten für die in der Strategie auf Seite 28 genannten möglichen Anwendungsfälle empfohlen, um den Bedarf für den Aus- und Aufbau der Infrastruktur besser abschätzen zu können und den relevanten Stakeholder:innen eine gewisse Investitionssicherheit zu vermitteln.

## 3. Definition und Festlegung von Transitrouten an denen eine definierte Mindestanzahl an Tankstellen vorhanden ist

Ergänzend zu Punkt 1 („Tankstellenplan“) sollte auch ein grober Zeitplan zum Ausbau, unter Berücksichtigung geplanter Straßeninfrastruktur-Projekte erstellt werden und auch ein Konzept zur Versorgung der Tankstellen (Leitungen, Vor-Ort-Produktion, etc.), in Anlehnung an die *„Langfristige und integrierte Planung 2022 für die Gas Verteilernetzinfrastruktur in Österreich für den Zeitraum 2023– 2040“* mitgedacht werden. Überlegungen sollten sich dabei nicht nur auf die Infrastruktur entlang der TEN-T-Korridore beschränken, sondern auch weitere relevante Abschnitte des (höherrangigen) Straßennetzes in Österreich berücksichtigen. Dabei ist es notwendig, sich mit den Nachbarländern über potenzielle internationale Wasserstoffkorridore abzustimmen. Nur so kann ein ausreichend dichtes Streckennetz für Fahrten mit Wasserstoff-Fahrzeugen innerhalb der gesamten EU gewährleistet und der Markthochlauf der Wasserstoff-Mobilität unterstützt werden.

Dies kann durch die Entwicklung und den Einsatz geeigneter Planungsinstrumente unterstützt werden, um den Wasserstoffbedarf (ähnlich wie im Industriebereich) besser abschätzen zu können und den Aufbau der Infrastruktur optimal zu gestalten.

Im Zusammenhang mit dem Ausbau an den TEN-T-Korridoren, der primär Autobahntankstellen betrifft, sind die rechtlichen und regulatorischen Aspekte der Umsetzung der AFIR-Verordnung zu klären, im speziellen, ob die ASFINAG als Infrastrukturbetreiber der Verpflichtung unterliegt bzw. unterliegen sollte, die erforderlichen Investitionen in den Aufbau der Infrastruktur zu tätigen. Diese Aspekte gilt es zu berücksichtigen, jedoch sollten sie nicht im Rahmen der Anpassung der Wasserstoffstrategie erörtert werden.



#### 4. Bestehende Tankstellen

Die aktuell in Österreich vorhandenen öffentlichen Wasserstofftankstellen werden nicht mit grünem Wasserstoff versorgt. Diesbezüglich wäre die Ausarbeitung von Handlungsschritten zu begrüßen, um eine Versorgung mit grünem Wasserstoff auch bei bestehender Tankstelleninfrastruktur zu gewährleisten. Es wird daher empfohlen das in der Wasserstoffstrategie definierte Ziel »Einsatz von klimaneutralem Wasserstoff: Weitestgehende Substitution von fossilem mit klimaneutralem Wasserstoff in der energieintensiven Industrie bis 2030« auch für den Einsatz von Wasserstoff im Mobilitätsbereich festzulegen.

#### 5. Bedarf an Fachkräften

Die bisherigen Erkenntnisse aus H2MA zeigen auch, dass das benötigte Fachwissen und die Arbeitskräfte zur Umrüstung bestehender Flotten, dem Aus- und Aufbau sowie dem Betrieb der notwendigen Infrastruktur derzeit nicht im erforderlichen Umfang vorhanden sind. Um einen raschen Ausbau der Wasserstoffmobilität zu fördern, müssen geeignete (Weiter-) Bildungsangebote entlang der gesamten Wertschöpfungskette geschaffen werden. Es wird empfohlen diesen Aspekt im Aktionsfeld 5 der nationalen Wasserstoffstrategie zu berücksichtigen.

Wir würden uns über die Berücksichtigung unserer Empfehlungen freuen.

Mit freundlichen Grüßen,



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Graz, 22.12.2023

*The H2MA project is co-financed by the European Regional Development Fund through the Interreg Alpine Space programme.*



Für etwaige Rückfragen stehen wir Ihnen gerne zur Verfügung.

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Turin Metropolitan City

Strategia		Innovazione e sviluppo dei servizi logistici	
<b>Nome Misura</b>	<b>Strategia per lo sviluppo e la diffusione degli e-fuels, dell'idrogeno e dei biocarburanti</b>	<b>ID:</b>	<b>1.7</b>
<b>Descrizione:</b>	La misura prevede la redazione di un "Piano di azione" per la promozione e la diffusione di trasporti a fonti alternative per la logistica per aumentare l'eco-sostenibilità del settore. Il Piano di azione definirà la road-map per la creazione degli impianti per la produzione energetica in area metropolitana e la rete di rifornimento (pubblica e privata) che dovrà essere allestita per garantire l'approvvigionamento ai mezzi. Il Piano terrà conto dell'attuale constatazione che per raggiungere gli obiettivi previsti in tema di eco-sostenibilità da parte della UE sarà necessario puntare su diversi tipi di fonti energetiche. Il tema della neutralità tecnologica è garantito dalla presenza di più fonti energetiche, lasciando quindi libera		
<b>Territori coinvolti:</b>	Tutti		
<b>Stato attuale:</b>	Si rilevano iniziative in corso da parte di enti di ricerca a livello locale che hanno avviato studi di fattibilità ed analisi per valutare l'esistenza di una "potenziale" filiera per le PMI interessate al settore idrogeno. La Regione Piemonte ha approvato la "Strategia Regionale dell'idrogeno" e La Città metropolitana di		
<b>Attuazione:</b>	La Città Metropolitana di Torino propone una cabina di regia, raccogliendo le esperienze e le attese degli stakeholder in collaborazione con la Regione Piemonte, per la redazione di un Piano di Azione per lo sviluppo e la diffusione degli e-fuels, dell'idrogeno e dei biocarburanti. Il Piano verrà poi anche portato al Coordinamento (Misura 2.1) per essere condiviso con le Amministrazioni Territoriali al fine di darne una valenza attuativa.		
<b>Effetti attesi:</b>	Maggior chiarezza strategica per Operatori e Amministrazioni territoriali nell'affrontare le decisioni pertinenti la sfida dell'ecosostenibilità (quali mezzi di trasporto adottare, dove ubicare gli impianti di rifornimento, necessità produttive...)		
<b>Beneficiari:</b>	Operatori dell'autotrasporto, Amministrazioni comunali, cittadini		
<b>Indicatori:</b>	Piano di azione (Sì/No); Numero di amministrazioni comunali aderenti.		
<b>Realizzazione:</b>	1. Raccolta esperienze ed aspettative degli operatori al Tavolo Stakeholder; <sup>1</sup> 2. Raccolta di eventuali pianificazioni o iniziative in corso da parte degli enti territoriali in sede di Coordinamento; <sup>3</sup> 3. Scambio informativo con le maggiori società impegnate nella creazione di impianti di produzione di idrogeno e/o e-fuels; <sup>4</sup> 4. Redazione della sintesi degli elementi raccolti; <sup>5</sup> 5. Redazione del Piano di azione; <sup>6</sup> 6. Condivisione del Piano di azione per approvazione presso il Coordinamento degli enti territoriali.		
<b>Stima dei costi:</b>	La misura può essere prendere avvio all'interno del Tavolo degli Stakeholder e trovare successiva realizzazione con la Cabina di Regia. Si prevede l'impegno di risorse umane per la raccolta e elaborazione delle informazioni. Da valutare di concerto l'impegno dei Comuni e della Regione Piemonte. A tali costi vanno aggiunti anche quelli relativi al RUP che seguirà la misura.		