

European roadmap on Hydrogen Valleys – ERRIN’s input paper

August 2023

ERRIN and its members welcome the process of gathering feedback and inputs for the European roadmap on Hydrogen Valleys. This document builds on the [Hydrogen Valleys S3 Partnership position paper](#), but also brings together comments and recommendations received from 25 regional and local governments, from nine countries, committed to hydrogen development in their territories.

General remarks

Hydrogen Valleys are place-based innovation ecosystems bringing together the key stakeholders engaged in developing and implementing hydrogen solutions. To strengthen the European hydrogen policy and hydrogen uptake at the European level, those Hydrogen Valleys need to be reinforced and better connected.

However, according to ERRIN membership, the territorial dimension of Hydrogen Valleys and the importance of local and regional governments in hydrogen-related projects and initiatives is not yet sufficiently recognised. Ensuring a strong engagement of local and regional stakeholders will be one of the key success factors for impactful Hydrogen Valleys.

Local and regional governments play a crucial role in supporting hydrogen-related policies and programmes through local and regional hydrogen strategies or roadmaps. They can also facilitate collaboration between various stakeholders working on hydrogen, including the engagement of the wider society, and thus be important enablers of Hydrogen Valleys. Therefore, it is also important that Hydrogen Valleys are seen as broader than the physical infrastructure or technological challenges related to hydrogen. Even if tackling those challenges is essential, questions related to governance, collaboration and skills gaps are equally important.

This paper outlines how local and regional governments address hydrogen-related challenges, building on their existing local strategies and/or roadmaps¹. Extensive work is taking place at the local and regional levels to reinforce the research and innovation agenda for clean hydrogen, enabling the development and implementation of Hydrogen Valleys. However, it is crucial to develop those local and regional sustainable energy ecosystems further as they have an important role to play in reaching the overall objective of climate neutrality. To achieve this objective, this input paper will call for more dedicated support in setting up and implementing Hydrogen Valleys, as well as a stronger role of local and regional governments in the Clean Hydrogen Partnership.

Key aspects to be tackled by the Hydrogen Valleys Roadmap

The Hydrogen Valleys S3 Partnership identified four main areas to be included in the future Hydrogen Valleys Roadmap: **regulatory incentives; dedicated projects pipeline and financial incentives; R&I, skills and public acceptance; and cooperation between Hydrogen Valleys in Europe.**

¹ Annex 1 - Existing local and regional strategies and roadmaps on hydrogen-related policies

ERRIN's members who contributed to this paper, all identified the same topics as key levers to develop and support Hydrogen Valleys. Therefore, this paper strongly calls for the inclusion of the Hydrogen Valleys S3 Partnership inputs in the roadmap. At the same time, ERRIN members also added other areas and topics to be included, as summarised below.

A comprehensive support mechanism for Hydrogen Valleys development and implementation

As an integrated ecosystem approach, Hydrogen Valleys development is deeply rooted in local and regional contexts. Many local and regional governments already have roadmaps for energy transition or more broadly on sustainability, and an increasing number of those strategies are also tackling hydrogen. However, the levels of development of those strategies or roadmaps vary and therefore the European roadmap should include dedicated support for the development of hydrogen strategies and roadmaps.

Indeed, the development of Hydrogen Valleys across the EU will require a more systematic integration of hydrogen into all local and regional strategies. The future Hydrogen Valleys roadmap is, thus, an opportunity to develop a coherent and comprehensive approach for Hydrogen Valleys, building on local and regional expertise and context. A better understanding of local initiatives and contexts is necessary to recognise regional diversity in energy resources, industrial sectors and infrastructure requirements. More than focusing mainly on large-scale projects, the roadmap should consider this diversity as an important asset for developing targeted policies, effectively driving hydrogen deployment at the local level and thus strengthening the work towards broader hydrogen uptake across Europe.

Main recommendations

- The roadmap should offer **financial and technical support to help local and regional governments develop or strengthen local hydrogen strategies/roadmaps** across the EU. The roadmap should provide additional resources in the strategic level to the “Project Development Assistance for Regions” initiative that was launched by the Clean Hydrogen Partnership to directly provide support to specific regions across Europe in the development of their hydrogen projects. This would have a positive impact on coordinating and planning hydrogen infrastructure development and implementation at EU level, and on developing Hydrogen Valleys as a wider pan-European initiative, building on strong local and regional commitment.
- Local and regional governments should be guided in identifying technologies and solutions to support the early development of hydrogen-related initiatives, best suited to specific territorial contexts. The roadmap could further promote **smaller-scale calls, incentivising the development of solutions on a limited perimeter but with high added value for innovation and territorial development.**

Better connected Hydrogen Valleys

As more and more hydrogen-related projects and initiatives are being developed, within the scope of the Clean Hydrogen Partnership but also more broadly, there is an immense potential for cooperation, enhanced dialogue as well as exchange of use-cases, challenges and solutions.

The Hydrogen Valleys S3 Partnership rightly calls for a stronger collaboration between Hydrogen Valleys at European level. Indeed, Hydrogen Valleys across Europe have **different scales, ambitions and levels of maturity**. The roadmap should promote cooperation and twinning between **more mature and less advanced valleys** to solve potential problems and accelerate the development of new Hydrogen Valleys.

Main recommendations

- The roadmap should **support and strengthen regional participation in the Hydrogen Valleys S3 Partnership**, as a body linking and fostering exchange between Hydrogen Valleys in Europe.
- The roadmap could support an **enhanced dialogue between all stakeholders involved in Hydrogen Valleys and other hydrogen-related projects and initiatives**. A dedicated communication channel would help local or regional stakeholders by fostering cross-border collaboration, providing expertise, mapping competencies, linking and twinning existing initiatives to foster mutual learning and harnessing the potential of local and regional stakeholders.

Multilevel governance

The roadmap should also recognise the **role of local and regional governments in the relevant hydrogen-related policy and funding frameworks**. Regardless of the “regional window” in the Clean Hydrogen Partnership, it is still perceived as a rather closed circle. Local and regional governments are not yet fully integrated in providing inputs to the funding priorities nor considered full partners in hydrogen-related projects. Therefore, their role in relevant governance structures and decision-making bodies related to hydrogen policy and funding should be strengthened.

Such a role would also be beneficial to identify existing barriers in creating or implementing hydrogen-related projects and initiatives and potential solutions to address them. One key example provided by ERRIN membership was the regulatory framework for hydrogen production and deployment. As pointed out in the Hydrogen Valleys S3 Partnership input paper, regulatory incentives can play a crucial role in supporting Hydrogen Valleys. For example, Hydrogen Valleys could be used as regulatory sandboxes and test beds for designing a new hydrogen regulatory framework. In this case, ensuring local governments’ presence in governance structures would allow their perspectives, expertise and local priorities to be considered in policy formulation.

Main recommendations

- **The roadmap should support further integration of local and regional governments in the governance of Clean Hydrogen Partnership**, as well as other hydrogen-related initiatives. They could act as facilitators in developing Hydrogen Valleys and help designing more effective hydrogen policies and related funding instruments, thus accelerating the development of new Hydrogen Valleys and facilitating their cooperation in future joint investment projects.
- **Regional and local authorities should be involved as early as possible in the design and planning of future Hydrogen Valleys calls and activities** to ensure the possibility to concretely implement synergies between European, ERDF and regional funds.

Up-skilling and re-skilling

For ERRIN membership, one key first step would be to strengthen funding for skills, in order to build internal capacities within local and regional governments. Indeed, many stakeholders are confronted with a shortage of strategic skills in terms of management of integrated projects such as Hydrogen Valleys. Supporting technical skills development is necessary, however, specific attention should also be paid to up-skilling and re-skilling the public administration and supporting workforce, such as project managers, permitting agents, auditors, etc.

Main recommendations

- The roadmap should propose funding to support **'soft' projects** related to building interregional partnerships. Such collaboration could support **cross-regional learning and cooperation** and focus on sharing of knowledge, good practice, operational capacity and skills development in local and regional governments. It could include workshops, training programmes and educational campaigns.
- **The roadmap should propose wider capacity building and project development assistance for local and regional governments.** A comprehensive vision of the hydrogen academy and related activities, applicable to all calls in the Clean Hydrogen Partnership, could integrate up-skilling and re-skilling the public sector workforce, including permitting offices. This could also be an opportunity to create synergies with other initiatives proposed at the European level, such as the Green Industrial Plan or the Net Zero Industry Act.

Stakeholders' engagement and enhanced uptake of hydrogen solutions

The establishment of a Hydrogen Valley relies on the involvement of all relevant stakeholders, to ensure local understanding and value creation. Regional and local governments are in a good position to engage in collaborative planning and strategy development processes related to hydrogen, including working **with industry, research institutions and civil society**. Regional governments have a key role in carrying out a transparent discussion on the uptake of energy-related solutions, including

hydrogen. In addition, a more dedicated focus should be put on citizens' engagement. Objections to renewable energy production in a territory can have significant consequences in terms of opportunities and diversification. Public awareness and social acceptance of hydrogen solutions are crucial for their wide implementation and realising their benefits.

Main recommendations

- The roadmap should **recognise the role that regional and local governments can have as facilitators in mobilising various stakeholders**, including industry, research institutions and civil society.
- The roadmap could integrate a **stakeholder mapping of relevant actors engaged in hydrogen policies and projects**, with tools to replicate this analysis at local and regional levels.
- The roadmap should **include citizen engagement methodologies** and dedicated use cases implemented at local and regional levels.

Hydrogen infrastructure

Regional and local governments are important stakeholders in coordinating and planning hydrogen infrastructure development: identifying suitable locations for hydrogen production, storage and distribution facilities; co-investing in hydrogen refuelling stations; integrating hydrogen into existing energy and transportation infrastructure. The participation of local and regional governments in the identification of Projects of Common Interest (PCI) and Projects of Mutual Interest (PMI) can be an excellent opportunity to take advantage of the full potential of these entities.

At the same time, the cost of infrastructure, technology, production and end-use was identified as the main barrier for hydrogen-related projects. Many ERRIN members provided examples from the transport sector. Offering solutions for financing the conversion of transport to hydrogen, for mobility fleets or dedicated solutions for heavy-duty vehicles, were mentioned as a key lever to develop hydrogen strategies at regional level.

Another issue identified was uncertainty and time delay in the construction of the necessary infrastructures. Various permits are needed to ensure compliance with various environmental and land use regulations. These processes can be time-consuming and complex, particularly when dealing with multiple jurisdictions. Currently, many regulatory experts have gained experience in permitting hydrogen-related demonstration projects, but the availability of personnel is limited and the workload is heavy.

An innovative framework for public procurement could also be a useful tool to answer those challenges for local and regional governments involved in Hydrogen Valleys. On different topics, innovative procurement is already developed to support green transition in European territories.

Main recommendations

- **The roadmap could include the possibility of a large-scale tendering framework to support hydrogen production.** Such an addition would give an opportunity to technology developers to quote with a long-term view and reduce the entry barrier price. The transport sector could be an interesting use-case to test such a framework.
- The roadmap should include **specific and dedicated support to permitting authorities at local and regional levels**, to help them with complex regulatory issues and support the implementation of Hydrogen Valleys in a responsible and timely manner. As similar challenges are met by different renewable energy sectors and in the implementation of different types of valleys (renewables valleys, regional innovation valleys linked to the energy sector), stronger collaboration and knowledge exchange could provide interesting and useful inputs and solutions for hydrogen-related initiatives.
- The roadmap could include **a repository of use cases and good practices to facilitate knowledge sharing on innovative procurement.**

A need for comprehensive funding mechanisms

The question of funding, covering the whole hydrogen value chain, was largely addressed by ERRIN members. The inputs provided by the Hydrogen Valleys S3 Partnership on funding and financing were strongly shared by ERRIN members. However, some additional key issues at local and regional levels were pointed out, as follows.

Funding scheme in line with local and regional Hydrogen strategies and roadmaps

Many hydrogen-related strategies have already been developed at local and regional level. These strategies, either focusing on hydrogen or being part of wider energy and/or climate strategies, already provide clear plans for the creation and scale-up of hydrogen-related projects and initiatives. The roadmap should foster and support **additional financial opportunities** in implementing the actions of already existing hydrogen strategies. As highlighted in the first part of the document, further support is still needed for both development and implementation of these strategies, and the current funding mechanisms are not in line with the needs of local and regional governments.

A key aspect is to unlock additional funding and support in the **initial phases** of Hydrogen Valleys to conduct a **project development analysis** and stakeholder involvement. These steps are necessary to prepare hydrogen strategies and transform concepts into concrete actions, but are not yet adequately funded. Calls for projects should accompany the **various stages of development process**, with a sufficient budget for each step.

Local and regional governments also pointed out some difficulties in navigating the complex European funding landscape and accessing highly competitive funding schemes. The current funding schemes are seen as mostly suited for already established stakeholders.

Main recommendations

- The roadmap should propose funding mechanisms to **accompany public governments at all the different steps of the creation of hydrogen valleys**, from development to scale-up.
- The support should cover the **entire cycle of Hydrogen Valley development and implementation**, starting from the planning and design phase.
- **The roadmap should propose integrating cascade funding mechanisms in the Hydrogen Valley calls**, based on the model of Regional Innovation Valleys call. Regional ecosystems widely welcome this type of funding, ensuring easier access to funds for smaller local and regional stakeholders (SMEs, clusters, etc.) with simplified submission and reporting.
- The roadmap should also help stakeholders to navigate the existing funding landscape and **identify, connect and guide the stakeholders in finding relevant funding opportunities**.

Supporting sectoral activities as hydrogen test beds

ERRIN members noted that funding instruments for hydrogen test-beds and demonstrations are currently too difficult to access for local and regional governments. Moreover, clear financial schemes, subsidies at each stage of the projects and incentives for sectoral hydrogen production and end-use could support the overall pathway to climate neutrality.

Considering that the participation of local and regional governments in hydrogen projects is dependent on their current infrastructure, further funding is needed. But more than only developing new infrastructures, **retrofitting was also identified** as a sector to be financed and supported through demonstration projects and initiatives.

Aside from this development, a **long-term perspective on hydrogen production** should be coordinated with the local and regional levels to ensure that the cumulated production capacity can reach the European targets. The roadmap should also focus on the need for **renewable sources** to produce hydrogen, thus promoting synergies between local hydrogen actions and wider energy transition strategies and objectives to reach climate neutrality.

Main recommendations

- The roadmap should allocate funding to build **test-beds for hydrogen-related solutions and create experimental areas**. For instance, the roadmap should integrate targeted funding for the **Hydrogen Corridors at local and regional level**. It could lead to the development of a wider portfolio of projects, essential for the creation of a local hydrogen ecosystem in energy, environmental, social and industrial sectors.
- The roadmap should provide further financing on infrastructure, production and **end-user applications**. For instance, funding **vehicles** would provide an opportunity to expedite the development of hydrogen-heavy mobility and road transportation sector. The **funding of carbon-free hydrogen fleets** for example for urban vehicles or shipping is needed.

Creating funding synergies

Creating **synergies between local, regional, national and European level funding** is important as the investment costs of implementing hydrogen strategies, initiatives or projects are very high. This often requires using multiple sources and types of funding, depending on the scale and nature of the project. It was noted by ERRIN membership that hydrogen development is not only about research and development. Investments in infrastructures are key to scaling up hydrogen solutions and ensuring market deployment. To this end, coordination between Clean Hydrogen Partnership and Connecting Europe Facility in the area of Transport has already started and should be further encouraged. This will serve as an example for collaboration with other EU programmes and initiatives, such as the Innovation Fund or the Regional Innovation Valleys on hydrogen-related topic. On the other hand, the roadmap should help operationalising funding synergies with the Structural Funds to support the development and implementation of Hydrogen Valleys, for example with the end-use of hydrogen solutions, small-scale industrial pilots or skills development.

Addressing the synergies in funding should also take into consideration **the need to associate public funding with private investments**, to scale up hydrogen projects. Instruments for blended finance, fostering Public Private Partnerships at local and regional level, as well as clear guidelines on what type of funding and/or financing is best suited for each activity and phase of a Hydrogen Valley development and implementation would help to further engage the local and regional governments.

Main recommendations

- **The roadmap should promote and provide concrete solutions for cumulative funding in Hydrogen Valleys projects.** Those synergies between different sources would be fundamental to support the development of Hydrogen Valleys and could for instance be fostered by aligning call closing dates.
- The roadmap could promote **good practices and use cases in linking private and public funding** to help the development of Hydrogen Valleys.
- The roadmap could promote the use of **Hydrogen Valleys and local and regional hydrogen strategies/roadmaps as test-bed for launching the Hydrogen Bank initiatives.**

ERRIN (European Regions Research and Innovation Network) is a Brussels-based platform that gathers around 120 regional organisations in more than 20 European countries. ERRIN aims to strengthen the regional and local dimension in EU Research and Innovation policy and programmes. ERRIN supports members to enhance their regional and local research and innovation capacities and further develop their research and innovation ecosystems.

The ERRIN members primarily collaborate through 13 Working Groups (WG) and two Task Forces (TFs), covering both thematic areas and overarching policy issues. The Working Groups and Task Forces are based on members' priorities and current funding opportunities. The WG meetings are at the heart of ERRIN's activities, as this is where our members meet regularly to exchange information, present regional examples, build new partnerships, develop joint projects, network and much more.

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ANNEX - Existing local and regional strategies and roadmaps on hydrogen-related policies

From the 25 local and regional governments that provided input for this paper, 18 already have a local strategy or a roadmap tackling hydrogen and seven are currently developing such a document. It is important to note the differences between these strategies/roadmaps in terms of their scope (solely dedicated to hydrogen or integrated into a wider energy and climate plan), their elaboration process, the objectives, the stakeholders represented and the actions implemented. The table below provides an overview of existing strategies and/or roadmaps.

Local and regional governments	Existing roadmap	Comments
Ringkøbing-Skjern Municipality (DE)	Local Climate Plan 2023-2026	The Local Climate Plan of Ringkøbing-Skjern Municipality includes a dedicated part on hydrogen development. A dedicated strategy will be created for renewable energy in the frame of the Climate Plan.
Normandie (FR)	Dedicated regional Hydrogen roadmap	Consisting of 9 objectives and 46 tasks, the plan draws on the region's assets and the hydrogen sector's skills and stakeholders. In addition to the development and management of the hydrogen ecosystem, the roadmap includes priorities on mobility, logistics, industry and renewable hydrogen production. Projects were selected and listed to create an ecosystem around hydrogen production and use.
Wielkopolska (PL)	Strategy for the development of Hydrogen Wielkopolska until 2023	The hydrogen strategy of Wielkopolska region addresses the questions of skills, regulatory environment and market demand, taking into account their local context. The development of the strategy was co-financed by the European Union from the European Regional Development Fund under the Wielkopolska Regional Operational Program for 2014-2020 and the budget of the Local Government of the Wielkopolska Region.

<p>Trento (IT)</p>	<p>Environmental Energy Plan of the Autonomous Province of Trento 2021-2030 (“PEAP” – in Italian)</p>	<p>The Provincial Environmental Energy Plan (PEAP) of the Autonomous Province of Trento sets out ambitious targets in the reduction of gas emissions. This global strategy integrates several renewable energy sources, including hydrogen. Within this document, a dedicated stakeholder was identified to carry out activities related to modelling the scenarios and development paths for hydrogen. Moreover, with the National Recovery and Resilience Plan, 14 million euros from the Italian Ministry of Environment and Energy Security were allocated to the development of an Hydrogen Valley and to build green hydrogen production plants.</p>
<p>Emilia-Romagna (IT)</p>	<p>Three year energy implementation Plan</p>	<p>The Hydrogen strategy of Emilia-Romagna Region is included in the “Regional Energy Plan” that sets out ambitious targets of production of renewable energy and in the reduction of GHG emissions. In the recently approved “Three Years Energy Action Plan 2022-2024” Emilia-Romagna Region has recognised the development of renewable sources and green hydrogen as a key enabling factor for the ecological transition and the decarbonisation of the regional energy system. In particular, in order to develop green hydrogen the Region has joined various international alliances (Clean Hydrogen Partnership, Vanguard Initiative, Hydrogen Europe) and is promoting initiatives, including prototypes and research, linked to the development of plants and infrastructures for the production and use of green hydrogen, particularly in the industrial sector and in local public transport.</p> <p>Moreover, with the National Recovery and Resilience Plan, 19,5 million euros from the Italian Ministry of Environment and Energy Security were allocated to the development of an Hydrogen Valley in the region and to build a green hydrogen plant.</p>
<p>Occitanie (FR)</p>	<p>Green H2 plan (in French)</p>	<p>In Occitanie, the hydrogen sector is historically linked to its strong aerospace ecosystem. The Hydrogen Plan published in May 2019 aims to develop the sector through the whole value chain. The plan consists of €100M of regional investments and €50M of European investments.</p>

<p>Toulouse Metropole (FR)</p>	<p>Existing Climate Plan (in French) with a dedicated action on creating a Hydrogen strategy</p>	<p>A dedicated hydrogen strategy is planned to support innovation in this sector and to foster the development of a hydrogen ecosystem in the region that combines public projects and private initiatives. Clear targets for the production and use of Hydrogen will be elaborated.</p>
<p>Northern Netherlands (NL)</p>	<p>Northern Netherlands Investment Plan for Hydrogen</p>	<p>The Northern Netherlands has set in place a systemic approach to create integrated self-sustaining value chains for hydrogen end use. The main objectives of the plan are divided in two phases, namely ‘Maturing and scaling (2020-2025)’ and ‘Expanding to northwestern Europe (2025-2030)’.</p>
<p>Ostrobothnia (FI)</p>	<p>Process is engaged to create a dedicated roadmap tackling hydrogen</p>	<p>This project aims to build a regional network of actors with an interest in green hydrogen, create a knowledge base for the role of green hydrogen technology as part of system level energy solutions, support the development of new business opportunities related to green hydrogen, and promote the regional transition to CO2 neutral society. The project is funded by the REACT-EU instrument, as part of the actions taken by the European Union in response to the COVID-19 pandemic.</p>
<p>Brittany (FR)</p>	<p>Dedicated roadmap for renewable hydrogen</p>	<p>Based on an overall strategy to accelerate the implementation of all transitions in Brittany (green transition, climate transition, economic transition, societal transition but also the methodology transition), a dedicated roadmap has been created on the specific objectives related to hydrogen. It focuses on three main areas: developing the first local loops to instigate the use of hydrogen; positioning Brittany’s hydrogen industry among the region’s field of excellence and innovation; launching a collaborative foundational investment plan in the region.</p>
<p>Lower Saxony (DE)</p>	<p>Joint work on the North German Hydrogen Strategy</p>	<p>In November 2019, Lower Saxony launched together with four other north regions north German coastal regions (Bremen, Hamburg, Mecklenburg-Western Pomerania, Schleswig-Holstein) the Hydrogen Strategy for North Germany. It is implemented within the framework of a dedicated governance structure by interdisciplinary working groups from business, science and public services</p>

<p>Hamburg (DE)</p>	<ol style="list-style-type: none"> 1. Joint work on the North German Hydrogen Strategy 2. Strategy for green hydrogen import in 2022 (in German) 3. Hydrogen part of the local Climate Plan 	<p>In addition to the interregional strategy mentioned, Hamburg has developed two other strategies- one dedicated to the import of green hydrogen with 9 concrete action points, such as proactive subsidy management to identify funding opportunities and to support their use, development of rail-based import, development of a flexible import terminal infrastructure in the Port of Hamburg as well as certification of green hydrogen.</p> <p>Moreover, Hamburg established a climate plan as a politically binding document in 2015, in which green hydrogen plays an important part in establishing a green economy. The plan is under revision every fourth year (2019/2023).</p>
<p>Pays de la Loire (FR)</p>	<p>Hydrogen roadmap for Pays de la Loire (in French)</p>	<p>The roadmap's main objectives are to support the development of emerging local hydrogen ecosystems to establish a Hydrogen Valley by 2030 (based on green hydrogen). This development will rely on regional characteristics (maritime and inland waterways sectors, manufacturing, car racing, etc.). The overall objective is to make the use of hydrogen accessible to all as of 2030.</p> <p>More concretely, the roadmap supports the deployment of hydrogen through dedicated funding, grants and loans (creation of refuelling stations, deployment of hydrogen production units, hydrogen fleets). It also supports research, development, and innovation activities, based on the local know-how and forces on river, maritime, port, and aeronautical matters.</p>
<p>Košice Region (SK)</p>	<p>Dedicated Hydrogen Roadmap</p>	<p>This strategy discusses the region's potential in the production and consumption of hydrogen in the region. In addition, the region has a clear low-carbon strategy until 2030, which also includes hydrogen, especially in auto transport. The national government of the Slovak Republic supports the development of hydrogen technologies, the result of which is the approved national hydrogen strategy and the recently approved action plan for hydrogen in Slovakia.</p>

<p>Nouvelle Aquitaine (FR)</p>	<p>Dedicated Hydrogen Roadmap (in French)</p>	<p>The aim and ambition of this regional roadmap is to structure and develop a hydrogen industry across the entire value chain, with a range of products and services for all low-carbon hydrogen applications. The challenges of developing the hydrogen industry in the Nouvelle-Aquitaine region are based on: the structuration of the industrial ecosystem; developing a culture of hydrogen and its potential; making hydrogen accessible and competitive; developing the Hydrogen value chain to encourage development.</p>
<p>Baden Wurttemberg (DE)</p>	<p>Dedicated Hydrogen Roadmap</p>	<p>The Baden-Württemberg Hydrogen Roadmap identifies the main areas of action to be taken by the state, defines the goals and outlines the measures required to achieve them. During the development of the roadmap, an accompanying participation process was carried out that took into account the perspectives of stakeholders and experts. This constructive exchange with companies, research institutions, associations and other stakeholders in the state will continue as part of the implementation of the goals set. The state government will develop further approaches for the successful transition to a hydrogen economy and actively support the shift in the industry.</p>
<p>Catalunya (ES)</p>	<p>Dedicated Hydrogen Valleys strategic plan</p>	<p>The Hydrogen Valley of Catalonia is based on previous work done by the Green Hydrogen Platform Southern Catalonia, created in October 2020 with the foundational purpose of bringing together around 50 stakeholders from the quintuple helix. The current valley gathers the different value chain actors of green hydrogen and is driving forward the understanding, production and implementation of this alternative source of energy.</p>
<p>Scotland and Aberdeen (UK)</p>	<p>Scotland Hydrogen Action Plan (2022)</p>	<p>Five-year action plan to support the development of a hydrogen economy to further our efforts to reduce greenhouse gas emissions from Scotland's energy system, while ensuring a just transition.</p>

	<p>Aberdeen City Region Hydrogen Strategy & Action Plan (2015)</p>	<p>This strategy builds on the framework, providing a detailed action plan to help realise the vision to be a world-class energy hub leading a low-carbon economy and at the forefront of hydrogen technology in Europe.</p>
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Additional regional and local governments preparing a dedicated hydrogen roadmap or strategy are: Castilla y Leon (ES); Andalucia (ES); West Finland (FI); Turku (FI); Małopolska (PL); Lower Silesia (PL); Pomorskie Voivodeship (PL).