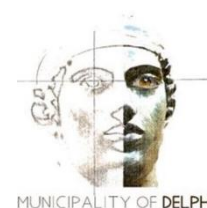


SMART solutions for HYdrogen potential AWAReness Enhancing

NEWSLETTER 5. AUGUST 2022

SMART-HY-AWARE aims to promote hydrogen-electric mobility by tackling the main infrastructural, technological (range anxiety related) and market uptake barriers, through the improvement of Policy Instruments linked to Structural Funds in Europe, addressing the **transition to a low carbon economy**. Specific sub-objectives of the project are:

- Exploiting the potential of hydrogen technologies for electro-mobility, involving the whole supply chain;
- Improving regional and local strategies which focus on the real needs for implementation, such as promoting the integration of new models of fuel cells;
- Increasing the efficiency of green propulsion in transport;
- Improving renewable energy grids to cut down electrolysis costs, and IT management applications to enable advanced planning of short-to-mid-term power productions, thus fostering the use of hydrogen power within distributed networks;
- Increasing the deployment and the accessibility to refuelling infrastructure for both public and private sector in urban and rural areas;
- Supporting the deployment of alternative fuel vehicles in public transport by setting up regional financial support schemes;
- Promoting and assessing new measures favouring public-private partnership (PPP) in e-mobility sector;
- Enhancing the capability of public Authorities in developing effective policies for reducing the carbon footprint of transport activities.





SMART HY AWARE ACTIVITIES

This 5th edition of our Newsletter outlines the main outcomes and activities of the last stage of Phase 1.

These last months have been very active, returning to face-to-face Interregional Site Visits: Budapest-November'21, Rotterdam-May'22 and Aberdeen-June'22, still combined with some virtual events: IRSV of Delphi-June'22, Mid-term Conference-June'22 and workshop "*Boosting hydrogen-electric mobility*" during the 19th European Week of Regions & Cities-October'21.

Complementing these networking activities, the Smart Hy Aware team participated in a number of webinars coordinated by the Policy Learning Platform ("*Integrated low-carbon strategies*"-October'21, "*Mobilising Citizen Financing for Renewables*"-May'22); Interreg ("*Europe, let's cooperate*"-November'21 and "*Project Management*"-June'22); and "*Climate-Neutral and Smart Cities Mission*"-June'22, our project is closely following the EU Mission Cities initiative.

Following the completion of the activities of Phase 1, many relevant documents have been produced in Semester 6: a selection of **Good Practices**, **Regional Action Plans** and **Recommendations Report** of the project.

Read on to learn more!

INTERREGIONAL SITE VISITS

- **IRSV SOUTH HOLLAND (The Netherlands)**

Province of South Holland hosted the Interregional Site Visit from 9th to 10th of May in Rotterdam.



The Smart Hy Aware team visited the Hydrogen Refueling Station in Heinenoord, open on March 2022 to supply a fleet of 20 fuel cell buses with green hydrogen. Everfuel coordinated a guided tour of the station and demonstrated how buses are refuelled. This station can be scaled up to accommodate in the future 50+ hydrogen buses and other fuel cell vehicles such as cars or trucks.

During the plenary sessions, participants learnt about best practices of the hydrogen bus journey in the Dutch provinces of Noord-Brabant, Zuid-Holland and Groningen-Drenthe. These case studies were presented as an example of the

different approaches set out in each region towards reaching the Dutch ambition of Zero Emission public transport by 2030, sharing knowledge about how to take essential steps leading to success: key items to look at the start of the hydrogen project, policy framework, relevant legislation, subsidies, economic indicators, technical aspects, struggles with tendering, challenging the market to create competition, risk management and lessons learned.

A specific session was scheduled to deepen in procurement procedures in The Netherlands, in particular public tendering rules of HRS in South Holland: publication, pre-selection of parties, evaluation criteria and awarding of contracts. The prior market consultation was key to ensure a competitive dialogue with the market and actively approach to figure out expectations and needs in an evolving environment. Essential: include a clear definition on what exactly is green hydrogen.



- **IRSV ABERDEEN CITY COUNCIL (United Kingdom)**

A very inspiring IRSV was organized by Aberdeen City Council on June '22.



ACC presented the *scene for tomorrow* set by the Scottish Government with the “Hydrogen Policy Statement” and supporting documents, providing context to what’s done with a lot of activity going on, particularly in Edinburgh, Aberdeen and Orkney.

On day 2, partners and stakeholders visited the Anaerobic Digestion Plant and Energy Center and Aberdeen City Hydrogen Energy Storage-ACHES, learning more about the Energy Transition plans of the region, shared by Scottish Enterprise and ETZ-Energy Transition Zone.

Aberdeen is at the forefront of UK Energy Transition with hydrogen already embedded in all public documents. The oil-gas sector has a massive impact on the local economy, nearly 70% of workers employed directly by that sector could be retrained to work in hydrogen-low carbon sector. The future is in hydrogen: it hosts the larger Offshore Wind with highly skilled workforce, having one of the largest and most varied fleet of hydrogen vehicles in Europe with regular buses, double deckers, waste trucks, road sweepers, official cars and the first cargo pedelecs in UK. Two hydrogen refuelling stations operate since 2017, in Cove and nearby the airport.

Sustainability is guaranteed through the Aberdeen Hydrogen Hub founded by ACC and BP. Launched in 2022, it plans to create a large green hydrogen production onsite, primarily for transport, expanding later to heat, industry, maritime and export.

Scottish Enterprise is the National Economic Development Agency, which assesses opportunities to guarantee support in all economic growth areas, seeking inward investment and actively looking for international partners. Policy development is key to Scotland’s hydrogen position, the ongoing Hydrogen Economy Programme ensures capability, networking (SHINE-Scottish Hydrogen Innovation Network), infrastructures and market entry support: production requires demand.

ETZ accelerates the transition, repositioning North East Scotland as a globally recognised integrated energy cluster focused on delivering net zero, securing opportunities for sustainable jobs and investment in partnership with the local community. With many ongoing projects, ETZ coordinates the ERM Dolphyn initiative, which develops a production of large scale green hydrogen from offshore floating wind, having the potential to supply energy to heat more than 1.5 million homes with no carbon emissions. The concept employs a modular design, integrating electrolysis and wind turbine on a moored floating sub-structure to produce hydrogen from seawater using wind power as the energy source.



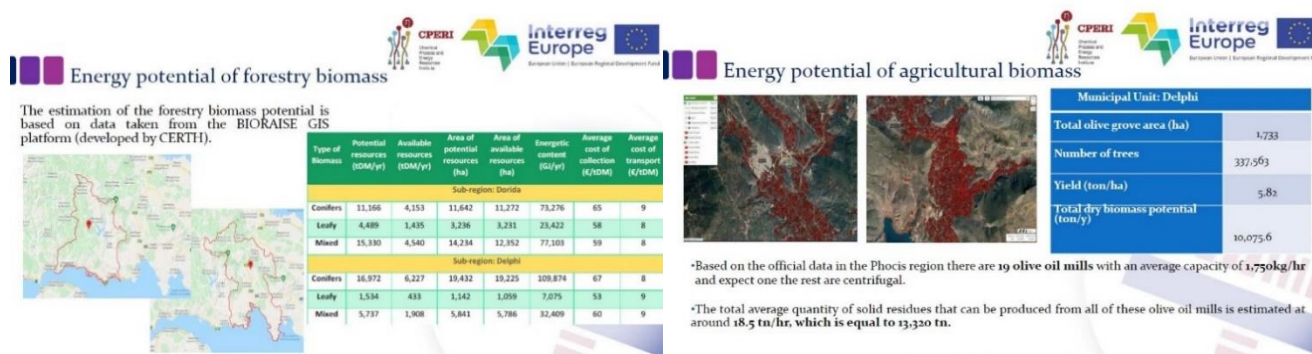
- **IRSV MUNICIPALITY OF DELPHI (Greece)**

During the virtual IRSV of 7th June, CPERI-Chemical Process & Energy Resources Institute, presented the “*Energy potential from biomass & other RES in Phocis Region*” and how to capitalize projects in different Greek regions, specifically in Delphi.

Statistics show the majority of actions focused on olive groves (concentrated in Central and South Greece), followed by vineyard areas and fruit trees in third place. The extensive study gathers the data in categories: energy potential, agriculture biomass, production rate, exploitation and efficiency. It also includes an analysis of the potential of forests, being conifers the main source of energy. The variation of heights in Delphi region enables three additional RES: wind, solar and small hydro. More information available in platform BIORAISE.

The Hellenic Institute of Transport offered an overview of the “*Production and exploitation of hydrogen for use in public transport*”, analysing all aspects involved: potential investors, supply chain, technical characteristics, production types and methods, refuelling stations, storage, distribution, best practices, etc.

The FCH Observatory provides comprehensive data about the current status of Fuel Cell Electric Vehicle use in the transportation sector by mapping EU projects, private investors and the countries with highest market share (now Germany, the Netherlands, UK, France, Norway, Denmark and Switzerland).



GOOD PRACTICES

Discover [here](#) the most successful Good Practices identified within Smart Hy Aware. Consortium and selected Stakeholders visited each other in their respective regions to get first hand insights of successful approaches on site.

Very inspiring practices gained from Interregional learning process on topics as diverse as: hydrogen trucks, buses, trains, boats and submarines; multi-modal refuelling stations; energy potential from biomass; population and policy engagement; outreach activities; strategy; hydrogen corridors and hubs.

RECOMMENDATIONS REPORT

Don't miss the Recommendations Report for “*Innovative Models for Energy Production and Storage from Hydrogen*”.

Effective guidelines for the design of policy instruments: role of hydrogen in the energy transition; support policies; creation of integrated systems based on the hydrogen technology for production, storage, and final uses (i.e., Hydrogen Valley); implementation of technologies in the SMART-HY-AWARE regions; and outlook on the main technological/commercial barriers to the development of hydrogen transition.



REGIONAL ACTION PLANS

The Smart Hy Aware Regional Action Plans approved by the Joint Secretariat are now available through the [Library section](#) of our website. An overview:

- RAP ARAGON (Spain)

PIP addressed: *“Hydrogen Master Plan of Aragon Region”*. The objective is to demonstrate the technical and economic feasibility of the implementation of a hydrogen fuel bus route to connect the centre of the city of Huesca with public education centres and the main technological & commercial hubs.

The demonstration project will operate two fuel cell buses in an already existing route with high demand, using a hydrogen refuelling station located on the facilities of Aragon Hydrogen Foundation. Based on the lessons learned from the good practices shared by Aberdeen City Council related to their Hydrogen Bus Project, the Action will transfer citizens the advantages of hydrogen in daily mobility and ensure training in safety and maintenance of the new equipment and vehicles.

Sustainability is confirmed, funded through a recently approved project under the I3 instrument.

- RAP LAZIO REGION (Italy)

PIP addressed: *“Lazio Regional Energy Plan-REP”*, study of Lazio energy system, trend scenarios and targets for increasing energy efficiency and development of renewable sources, offering intervention policies to be concretely implemented within 2050.

The Smart Hy Aware *Regional Action Plan* of Lazio Region involves a strong policy component, preparing amendments with strategic intervention to the “Policies and Programming” section of the new version or the REP, to be approved by the Energy Commission of the Council. Mainly to reinforce the role of green hydrogen in the REP, as central resource to make the decarbonization process more efficient and cheaper, reaching regional objectives by 2030.

The insertion of priority guidelines addressing hydrogen will be influenced by the most interesting results and best practices of Smart Hy Aware, acting as reference and inspiration.

- RAP SOUTH HOLLAND (The Netherlands)

PIP addressed: *“Kansen for West III”*. The objective is to design one or multiple calls for proposals to support the deployment of hydrogen trucks for last-mile transportation, from inland ships to the final transport destination, and guarantee that carriers and shippers can apply for local funding.

The South-Holland region - port of Rotterdam - is characterized by a dense transportation of goods over water, road and rail. To meet climate goals, all 3 transportation infrastructures need to lower their carbon emissions and make the complete logistic chain more sustainable.

The first steps imply understanding the regulatory, tendering and financial needs for hydrogen truck application in last-mile transport, defining the scope and objective of demonstration projects.

Province South Holland is actively looking for external partners related to TEN-T corridors, one to the South (Brussels) and other to Germany, both areas with strong economic activity. Likewise, they are now in conversations with clusters to team up with commercial partners.

- RAP MUNICIPALITY OF DELPHI (Greece)

Aims to establish a collaborative stakeholders’ cluster *“Delphi Green Hydrogen Association”* which will evaluate hydrogen mobility applications in the region, by informing all regional stakeholders and proposing new schemes through relevant public-private partnerships (PPPs). This will create a strong regional public-private partnership framework boosting the regional green energy capacity, building and providing an additional mechanism to prioritise green hydrogen future PPPs in the existing Delphi SUMP. The expertise of Delphi hydrogen association’s members and the active participation of external stakeholders during the bilateral meetings and open consultation meetings will be capitalised in the final written proposal submission for Delphi SUMP, to be submitted by July 2023.



- RAP ABERDEEN CITY COUNCIL (United Kingdom)

PIP addressed: *“Aberdeen City Region Hydrogen Strategy and Action Plan”*. ACC will create a strategic network of hydrogen refuelling points throughout North East Scotland. Inspired by the Hydrogen Valleys concept, the deployment of this regional hydrogen refuelling infrastructure along the strategic road network will serve demand cross borders, increase the capacity of renewable hydrogen in the region and position cities in the main network of trans-European hydrogen transport corridors.

This will be achieved by upgrading existing assets and developing new sites, which will facilitate remote tube trailer refuelling. It is hoped that hydrogen produced at the refuelling points can be used for existing and future fuel cell hydrogen vehicles in Aberdeen, and also be tube trailered across North East Scotland and potentially beyond, to meet immediate and future demand.

The completion of this Action will result in the outworking of public-private partnership working to foster hydrogen technology development in North East Scotland. ACC is approaching the market, looking for usability of the refuelling infrastructure to foster market uptake.

More information about Hydrogen Transport Legislation and Standards in the North Sea Region.

- RAP SZOMBATHELY (Hungary)

PIP addressed: *“Szombathely 2030 Policy Instrument”*. The 2030 Strategy of the city of Szombathely plans long term, focusing on education, research & development by promoting industrial transformation and enhancing the promotion of green mobility solutions. The overarching goal is to make the city environmentally friendly and to facilitate and influence hydrogen related activities in the region, with one of the hydrogen refuelling stations installed in Szombathely by 2030. Tourism might be the area where a hydrogen-fuelled mobility would be implemented as a pilot project. In later steps, hydrogen-fuelled vehicles might also appear in public transport. The first objective of the action is to demonstrate the technical and economic feasibility of the implementation of a hydrogen fuel-cell forklift in a regional company. In cooperation with Linde Gas Hungary Ltd., this pilot project would test the use of hydrogen in the production of fuel cell forklifts with a mobile refuelling station. Conclusions, experience and lessons learned about the application of hydrogen in industrial production and logistics, would be shared with other companies and stakeholders in the region, so industrial players can widen knowledge in hydrogen technologies and increase demand, influencing policy makers to apply for hydrogen related projects, with direct impact on the objectives of the Szombathely 2030 Strategy.

REGIONAL DISSEMINATION EVENTS

- ARAGON



Chaired by the Vicepresident of the region of Aragón and the DG of Industry of the Government of Aragón, the RDE of July 18th achieved a multiplier effect with extensive media coverage, engaging a wide audience from Industry, Chambers of Commerce, Clusters, City Hall, Ministry of Commerce, cross-border institutions, logistics, University and Technological Centers.

All presentations showcased the journey towards a hydrogen energy transition in Aragón, Hydrogen Masterplan and the vast possibilities of hydrogen uses in the region.

Aragón Development Agency-IAF offered a detailed overview of the RAP of Aragón, linked with upcoming projects and future plans to guarantee sustainability.

A specific session and panel discussion was devoted to Industry, with presentations from two aragoneses companies expert in the hydrogen sector : *ARPA EMC* and *Grupo Zoilo Ríos*, and two american companies targeting Aragón in their overseas strategy : *Hyzon Motors* (production of hydrogen trucks) and *Raven SR* (clean fuels company-production of green hydrogen).



- **ABERDEEN CITY COUNCIL**



During Semester 6, Aberdeen City Council organised a number of dissemination activities to raise awareness of the tender released to deliver the Regional Action Plan in Aberdeen, seeking an Engineering Company and Hydrogen Refuelling Supplier to deliver the first part of the Smart HyAware RAP, which relies on the accessing hydrogen at a central production site and distributing that hydrogen to remote refuelling sites across Aberdeen and Aberdeenshire.

As well as a number of engagement events around the City to show the facilities to potential suppliers, the City Council undertook several presentations and delivered round table discussions on Aberdeen's next steps for hydrogen in partnership with BP, Aberdeen's new Joint Venture Partner to deliver the Aberdeen Hydrogen Hub; the Scottish Government, and potential delivery partners for the Smart HyAware Regional Action Plan and the Aberdeen Hydrogen Hub.

The events included presentations by Dr Oli Taylor, the CEO for the new BP Aberdeen Hydrogen Energy Partnership, presenting an overview of the Aberdeen Hydrogen Hub to an audience interested in supply chain opportunities and accessing hydrogen from the regional refuelling network that has emerged from the Smart HyAware Regional Action Plan. This was also attended by the Scottish Government, who are providing nearly £5m of funding for the delivery of the Smart HyAware Regional Action Plan and Opportunity North East and Energy Transition Zone Ltd who set up the North East Scotland Hydrogen Ambition Group (NESHA) in partnership with Smart HyAware.

In addition, roundtable sessions were held to discuss hydrogen supply chain opportunities, training and skills and wider regional activities that can dovetail with the Aberdeen Hydrogen Hub and Smart HyAware Action Plan. Interest was also generated from across Europe and a Bavarian delegation, who are interested in accessing the hydrogen produced from the Aberdeen Hydrogen Hub, also attended with their Deputy Minister President of Bavaria, Hubert Aiwanger.

- **PANNON BUSINESS NETWORK**



The RDE was held on 10th June 2022. Representatives of Municipality of Szombathely together with the CEO of the car seller Toyota Mirai, coordinated a press conference to highlight the strong connection between the SZOMBATHELY2030 Program and the SMART-HY-AWARE project. SZOMBATHELY2030 Program is indicated as the addressed Policy Instrument from PBN side, and therefore this event was really beneficial since the general public could be also informed about hydrogen as alternative fuel. According to the CEO of the car seller company, hydrogen as fuel can be considered a pioneer in Hungary, but he emphasised that H₂ is totally safe and will be playing an important role in public transport in the near future in Hungary as well. During the event a hydrogen fuel-cell car,

the 2nd generation Toyota Mirai was exhibited and general public was invited to widen their knowledge about hydrogen as alternative fuel, technical parameters and the operation of the fuel cell. During the open day participants could even test drive the Mirai.



Due to PBN's participation in the SMART-HY-AWARE project and their active role in the elaboration of the Szombathely2030 Strategy, the implementation of hydrogen in mobility appeared as one of the proposed actions within the sub-session related to enhancement of green mobility.

According to the city level policy document, one of the Hydrogen Refuelling Stations might be installed in the City of Szombathely by 2030. Furthermore, the policy document is highlighting that tourism might be the area in the county where a hydrogen-fuelled mobility project might be implemented as a pilot project by the end of this decade. In later steps (following 2030) the hydrogen-fuelled vehicles might also appear in everyday public transport as well.

Policy stakeholders from Szombathely Municipality are deeply involved in SMART-HY-AWARE, having attended the Interregional Site Visits held in Rotterdam and Aberdeen to gain new knowledge regarding hydrogen applications in mobility, good practices that might be transferred to Hungary and in particular to the City of Szombathely.

• LAZIO REGION

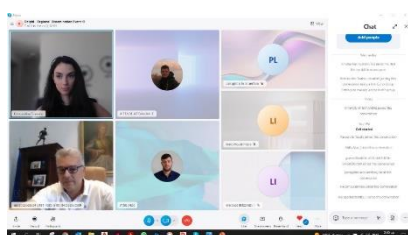


Attended by about 40 people last 18th of July, it was an important occasion to address the relevant issues related to hydrogen, obviously with a particular focus on aspects related to the several opportunities concerning the mobility sector.

In addition to the presentation of the latest activities carried out by the project, university professors and experts on the subject also took part in the meeting, addressing issues such as the industrial uses of hydrogen, its different production methods, applications in the thermal and electrical sectors, as well as hydrogen in the mobility sector and the installation of the related recharging columns. The issue related to the safety of this important energy vector was also addressed.

During the meeting, a specific session was dedicated to have an overview of best practices emerged from the exchange of experiences with partners, carried out by other regions and administrations involved in the partnership itself. Finally, there was also the opportunity for a session dedicated to questions and answers from the audiences.

• MUNICIPALITY OF DELPHI



Municipality of Delphi organized on Monday 25th July 2022 the Regional Dissemination Event within the framework of the Interreg Europe European Program, with the active participation of Regional Stakeholders. The aim of the meeting was to present the Local Action Plan "Delphi Green Hydrogen Association" developed by Municipality of Delphi in collaboration with the National Center for Research and Technological Development (CERTH) in the context of participation of the Smart HY Aware project. All stakeholders congratulated for the Action Plan designed and expressed their feeling that this Plan will fit the area's needs for the introduction of hydrogen technologies in the Municipality of Delphi, making the best possible use of the potential of biomass and RES in the region. In addition, a lot of discussion was about the Phase 2 and the planning of the implementation of the Action Plan designed, as well as for the general results came out in the end of Phase 1 by the other partners.



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