Interreg Europe

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UNIFHY

UNIFHY Interregional Event 1 - Badajoz

GREEN

LP01 - Consortium Extremadura Energy Agency (AGENEX)

29-30th January 2025

02C0503

Content

Aim of the document

The aim of the Interregional Events' Dossier is to summarise the main interregional activities held during the event for publication and dissemination purposes on the project website.

The document includes the agenda, a description of the main activities developed, conclusions of the interregional learning and photos of the event.

Project identification

Acronym: UNIFHY

Title: Unifying policies to support the uptake of green hydrogen to decarbonize Europe
Project ID: 01C0212

Project duration: 01.04.2024 – 30.06.2028
Core Phase: From 01.04.2024 until 31.03.2027
Follow-up Phase: From 01.04.2027 until 31.03.2028
Closure Phase: From 01.04.2028 until 30.06.2028

Partners / associated policy authorities

Project partners

LP01 - Consortium Extremadura Energy Agency – AGENEX (Spain)
PP02 – Aalborg Municipality (Denmark)
PP03 – Energy Agency Southern Sweden (Sweden)
PP04 – Moravian-Silesian Region (Czech Republic)
PP05 – South-West Energy Agency (Ireland)
PP06 – Lubelskie Voivodeship (Poland)

Associated policy authorities

APA01 – Directorate General for Industry, Energy and Mines - Regional Government of Extremadura (Spain, LP01)
APA02 – Region Kalmar County (Sweden, PP03)
APA03 – Waterford City and County Council (Ireland, PP05)

1. Project summary

In the EU Member States and their regions, there are different paces on the way to achieve climate neutrality; some of them are setting more ambitious targets and dates to reach it, while others are lagging to meet the intermediate targets established. For those regions that are in a favourable position, it is important to continue advancing in the more complex aspects of the energy transition, such as the transition of the gas sector to the use of renewable and low-carbon gases.

Although the share of renewable energy is increasing rapidly at EU level, the carbon dioxide emissions worldwide are still increasing. This means that all countries must also increase their efforts to decarbonize the energy sector, and the main challenge is to reduce fossil fuels in the end-use sectors, particularly in industry and transport.

Additionally, there are other challenges that must be overcome to decarbonize the energy sector, such as security of energy supply, environmental sustainability, and socio-economic aspects. To ensure a secure and stable energy supply, it is not enough to deploy new renewable power (wind, solar) if it cannot be stored to be used when demanded.

The set of proposals included in the Fit for 55 package provides a coherent and balanced framework for reaching the EU's climate objectives and it specifically includes shifting from gas to renewable and low-carbon gases, including hydrogen, and proposing a review of the EU gas market design. And in 2020, the European Commission proposed a hydrogen strategy for a climate-neutral Europe, aiming to accelerate the development of clean hydrogen as a cornerstone for a climate-neutral energy system.

UNIFHY will analyse policies and provide insights for policymakers in 6 EU regions: Aalborg Municipality (DK) and the Southern Sweden region (SE) in the North; Moravian-Silesian Region (CZ) and Lubelskie Region (PL) in the East; the South-East region of Ireland (IE) in the West; and Extremadura (ES) in the South.

2. Event Agenda

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INTERREGIONAL EVENT 1: "BETTER MANAGEMENT. IMPROVED GOVERNANCE"

AGENDA

WEDNESDAY, 29th JANUARY 2025

PCTEx – Scientific and Technologic Center of Extremadura
Avd. de la Investigación. 06006 Badajoz
"Salón de actos"

09:00	Registration and welcome
09:15	**Energy context of Extremadura** Cosme Segador. AGENEX Coordinator.
09:30	**Talks**
Talk 1	Biogas Technologic transfer: from Public University to Green Hydrogen Strategic Projects Francisco Cuadros. CEO Metanogenia
Talk 2	Iberian Energy Storage Research Center (CIIAE): Public strategy center and Green Hydrogen Innovation Jose Antonio Villajos Collado. Senior Researcher / Department Hydrogen and Power-to-X
Talk 3	Strategic projects in Green H2 generation and railway field application Gema Alejandra González. CEO Golendus.
10:30	Coffee break
11:00	**Visit 1 – Green Hydrogen pilot plant** Escuela de Ingenierías Industriales (University of Extremadura) Manuel Calderón. Senior Researcher.
12:00	**Workshop 1 – Good Practices**
GP01	Attracting investment in the Green Hydrogen and Biogases field José Manuel López. Invest in Extremadura. -30 minutes, including questions and comments-
GP02 – GP06	Aalborg Municipality / EASS / MSR / SEEA / Lubelskie Voivodeship Partners or their stakeholders share their Good Practices -10 minutes for each one + final round of questions and comments-
13:30	Lunch time | Catering in the hall of PCTEx

WEDNESDAY, 29th JANUARY 2025

PCTEx – Scientific and Technologic Center of Extremadura
Avd. de la Investigación. 06006 Badajoz
"Sala teórica"

14:30	**Workshop 2 – From barriers to solutions** Partners and stakeholders share and discuss the barriers, demands, and incentives in their regions to find common solutions to develop public policies that promote the transition to Green Hydrogen and biogases
15:45	**Steering Committee 2** | Private meeting for partners
16:30	Free time

WEDNESDAY, 29th JANUARY 2025

PLAZA ALTA (CITY CENTER)
Plaza Alta. 06001 Badajoz.

19:00	Guided visit to Badajoz
20:00	Dinner | Bodega San José

Interregional Event 1 (IE1) –
Better Management. Improved Governance
Badajoz (Extremadura, Spain) | 29th - 30th January 2025

THURSDAY, 30th JANUARY 2025

09:15	Pick-up of participants at AC Hotel Badajoz
09:30	Pick-up of participants at Sercotel Gran Hotel Zurbarán
10:30	**Visit 2 – Assembly line for electric and hydrogen engines in vehicles and electrolyser manufacturing** Golendus – Lobón (Badajoz) José Luis Cabrera Ayllón. CTO Golendus.
11:15	Coffee break | Hotel Don Pepo
12:15	**Visit 3 – Biogas pilot plant with agri-food waste in Badajoz.** CTAEX – Villafranco del Guadiana (Badajoz) Rubén Sánchez. Process Manager CTAEX. Mª Carmen Carrillo. I+D+i Sustainability Manager CTAEX
13:30	Lunch time | Restaurante El Boquerón de Plata

3. Summary

The first UNIFHY Interregional Event took place in Badajoz on the 29th and 30th of January 2025 and was organized by the Lead Partner, AGENEX. Within the topic of the project, which addresses a key issue at regional, national and EU level as is the development of green hydrogen and biogas generation, the event focused on improved governance.

On the first day of the event, AGENEX's General Coordinator, Dr. Cosme Segador Vegas, welcomed the participants to the meeting and presented the energy context of Extremadura region.

The event took place in Extremadura's Science and Technology Park (PCTEx), where 24 attendees from six European countries shared their experiences regarding the project's topic and had the opportunity to know the potential of Extremadura in promoting the generation and use of renewable gases.

After the welcome and the overview of the energy system in the region, Rachel Tully, Head of the EU Projects Department, presented the main features of the project and the programme planned for the two-day interregional event.

There were three speakers invited to share regional initiatives developed on green hydrogen and biogas research and generation, but from different points of view: transfer of knowledge from university research to a start-up specialized in the field of biogas and biomethane; research and innovation developed in the Iberian research centre on energy storage and distribution of green hydrogen; and the application and commercialization of innovative technologies to promote green hydrogen in transport, including the railway sector.

Before the lunch break, the participants visited the Technical School of Industrial Engineering, also located on the University of Extremadura campus, where Prof. Manuel Calderón, researcher and project coordinator, presented the funded programmes currently developed by the university for the generation and end-uses of green hydrogen generated on-site with electricity supplied by a PV installation. The attendees also had the opportunity to see the facilities used for this research.

In the afternoon there were two workshops organized by AGENEX. In the first one, UNIFHY project partners and their stakeholders participated in the exchange of best practices previously identified by partners in each European region. Themes such as hydrogen, compressed natural gas, and bio-methanol infrastructures, public hydrogen charging stations, and financial instruments to develop renewable hydrogen and biogas initiatives, were covered during the discussions.

The second workshop focused on the barriers, demands, and incentives detected in each European region by the partners in contact with their local stakeholders. The objective was to share ongoing initiatives and new common solutions to eliminate or reduce the barriers and cover the demand.

Finally, the day ended with a Steering Committee meeting, targeted only to project partners to address the relevant aspects of project implementation and communication activities. More information on the outcomes of the meeting can be found in the meeting minutes.

The second day of the interregional event was dedicated to study visits organized to two regional organizations. The first one is an SME, Golendus, that has its facilities in Lobón and in which the consortium had the opportunity to meet the DG for Industry, Energy and Mines of the Regional Government of Extremadura (participating in the UNIFHY project as the Associated Policy Authority), Mrs. Raquel Pastor. The mayor of Lobón municipality, Mr. Roberto Romero, also attended the visit.

The second visit was carried out in the National Agri-Food Technology Centre of Extremadura (CTAEX), where Mr. Rubén Sánchez and Mrs. Mª Carmen Carrillo, shared the strategy and research that is currently being developed by the research centre, including a pilot plant for the generation of biogas from agri-food waste.

This first face-to-face meeting of the UNIFHY project has been an excellent opportunity to strengthen cooperation between project partners and regional stakeholders, and to exchange valuable experiences and learnings on the project's topic.

4. Technical Talks

As mentioned, there were three speakers invited to give energy talks on the project topic:

1. Mr. Francisco Cuadros, CEO of Metanogenia, a spin-off company from the University of Extremadura, spoke about the technological transfer of biogases from the university to the strategic projects that they are currently implementing. Information on the development of low-cost porous materials, biological pretreatments (quantification of the main microbial

flora involved in the methanogenic phase) and an industrial project to transform biomethane to hydrogen (from pomace) was provided.

2. Mr. José Antonio Villajos, researcher at the Iberian Centre for Research in Energy Storage (CIIAE), presented the strategy and projects of this entity, highlighting those related to green hydrogen and specifically about the research lines of the future Hydrogen and Power-to-X pilot plant: electrolysis and fuel cells, hydrogen storage and transport, CO_2 capture and uses, and chemicals and synthetic fuels.
3. Mrs. Gema Alejandra González, CEO of Golendus, shared the technology in development for the promotion of green hydrogen in transport, including in the railway sector.

5. Workshops

WORKSHOP 1_ GOOD PRACTICES

This workshop allowed project partners and their stakeholders to present the good practices that have been identified in their regions.

On behalf of Extremadura, Mr. José Manuel López, representative of Invest in Extremadura (public entity that depends on the Regional Government), presented a pioneering tool that is being used to facilitate the attraction of foreign investments in the region highlighting the potential of benefitting from renewable energy sources. The tool identifies available land in the region and other key resources for taking decisions on new investments. Among the shared success stories, there is a German company Turn2x working on the production of renewable gases.

A representative of Lubelskie Voivodeship (Poland) shared the initiative for creating cooperation within the Lublin Hydrogen Valley Cluster in the Lubelskie Voivodeship in line with the "Polish Hydrogen Strategy until 2030 with a perspective until 2050" and the use of a subsidy from the local authority of the City of Chełm in the Lubelskie Voivodeship for a more ecological, zero-emission, hydrogen-powered bus fleet.

A representative of Aalborg Municipality (Denmark) presented the project CO2VISION. Through it, North Denmark aims at becoming an international hub for carbon capture, utilization, and storage. The main objective is to create a roadmap for building CO2, hydrogen and methanol infrastructure as well as large-scale test and demonstration of CCUS technologies.

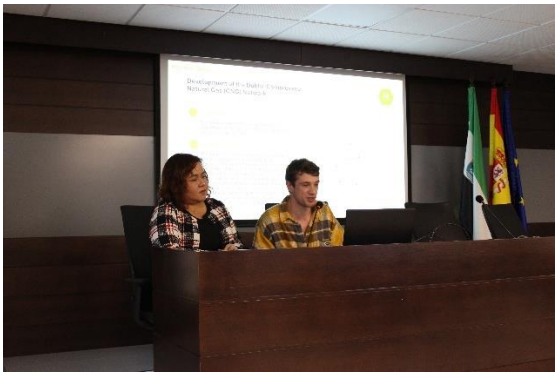
A representative of the Energy Agency of Southern Sweden shared a public hydrogen tank station in Oskarshamn, Kalmar County, partly funded by a governmental authority, The Swedish Energy Agency, through a program designed to accelerate the establishment of charging and hydrogen station infrastructure for heavy transport in Sweden. There was a second presentation of a biogas plant that converts 300.000 tons of manure from local farmers into 125 GWh liquified biogas and 250.000 tons of biofertilizer in Mönsterås, Kalmar County.

A representative of the Moravian Silesian Region (Czech Republic) presented the first low-cost hydrogen refuelling station in the Czech Republic, located in Ostrava, which was developed to

support the early adoption of hydrogen-powered vehicles. He also shared a Hydrogen safety related risks management system developed by the Technical University of Ostrava and the Hydrogen mobility in public transport system in City of Rybnik.

Finally, representatives of South-East Energy Agency (Ireland) presented the Dublin CNG network. Operated by Gas Networks Ireland, it is a flagship initiative aimed at decarbonizing Ireland's heavy transport sector. Comprising three public CNG refueling stations located in Dublin Port, Cashel, and Dublin's Circle K stations, the network supports HGVs, buses, and commercial fleets in transitioning from diesel to Compressed Natural Gas (CNG). The network also facilitates the use of renewable biomethane, significantly reducing greenhouse gas emissions and aligning with Ireland's Climate Action Plan 2023 and the EU's Fit for 55 and Green Deal goals.

All the partners and their stakeholders had the opportunity to ask and discuss more details of the initiatives to extend the knowledge and generate connections.



WORKSHOP 2_ FROM BARRIERS TO SOLUTIONS

As the project partners and their stakeholders have been in contact for some time, this first interregional event was considered to be a good opportunity for developing a workshop to share the different barriers detected in each region for the implementation of new projects on green hydrogen and biogases, as well the existing incentives.

After the previous workshop in which many good practices were presented, partners and stakeholders worked together, rotating around thematic tables, on how to reduce or eliminate the barriers detected. It was a good way to share common visions and define the next steps in the search of solutions to improve public policies.

Considering that it was a first common analysis, the consortium has at its disposal a collaborative online document on which to expand the analysis and potential solutions as the project develops.



6. Steering Committee Meeting

Project partners participated in the 2nd Steering Committee Meeting that focused on the work plan for semesters 2 and 3 (analysis of good practices, local stakeholder meetings, regional self-assessment studies, next interregional events and the Policy Learning Platform activities), clarifications about Progress Report 1 to avoid making the same mistakes in future reports, and communication activities.

7. Study Visits

On the 29th of January, a technical visit was developed at the University of Extremadura in Badajoz:

STUDY VISIT 1_ UNIVERSITY OF EXTREMADURA

The participants went to the School of Industrial Engineering, where Prof. Manuel Calderón, researcher and project coordinator, presented different research initiatives on the generation and use of hydrogen and biofuels that the university is working on. More precisely:

LIA 1: Generation of low temperature green hydrogen from renewable energy.

LIA 9: Uses of hydrogen in the industrial and domestic sector using Fuel Cells.

Some of the research focused on the efficiency of the technologies to generate green hydrogen, and how it can be used in boilers for heating and hot water purposes in buildings.

These projects are developed in the context of national public funding called "Complementary plans", where "Energy and renewable hydrogen" is a specific area of action.

The attendees also had the opportunity to see the facilities they use for this research.

On the 30th of January, two technical visits were developed near Badajoz:

STUDY VISIT 2_ GOLENDUS

After learning about Golendus' projects from the presentation done the previous day, participants visited one of the installations. Their service station, located in the small town of Lobón, in the province of Badajoz, has an assembly line to transform traditional combustion engines to make them compatible with the use of green hydrogen.

During this visit, they were able to learn technical and economic details of the installation of the renewable hydrogen kit developed by them, which is marketed to the fleet of combustion vehicles that will not be replaced by new electric vehicles, but that can be transformed to eliminate their CO2 emissions.

In addition, during the visit more information was provided about their future electrolyser manufacturing plant and how their strategy is being developed for supplying renewable hydrogen.

STUDY VISIT 3_ CTAEX

Rubén Sánchez, Process Manager of the Agro-industrial Technology Centre of Extremadura (CTAEX), welcomed the attendees and presented the different fields of work, their labs, pilot plants and other resources, and some of the most relevant results achieved.

Subsequently, Mª Carmen Carrillo provided details about the ongoing projects related to biogas to transfer and exchange knowledge with other initiatives developed in the participating regions. Further information was provided on:

- METHANWASTE: Energy recovery of agri-food by-products from Extremadura for the production of biomethane.
- BIOLEIC: Research on the bio-methanization of olive by-products. An innovative alternative to ensure the sustainability of olive oil production.
- CH4LPECHIN: Research on the valorisation of Retained by bio-methanization for energy production.
- CH4LPERUJOS: Use of pomace from oil mills for biogas production.
- E-FLUENT-EX: Research on the use of biowaste in Extremadura as a sustainable source of renewable energy, mobility and bioproducts.
- FORESCAMALOTE: Study of the use of forest biomass for the production of biogas and pellets, mixing it with water hyacinth (Eichornia crassipes) from its extraction from the Guadiana River.

Finally, participants visited the laboratories and the biogas pilot plant to complement the previous information on the developed projects.