

SHAREDH2 SUDOE:

The Renewable Hydrogen project: a solution for flexible and distributed energy storage in local energy communities



This project is part of the **Interreg Sudoe Programme**, which supports regional development in south-west Europe by financing transnational projects through the **ERDF Fund**.

MAIN OBJECTIVES

To promote and validate the use of renewable hydrogen as a **flexible and distributed energy storage solution in local energy communities**, serving as an alternative for the empowerment of strategic rural areas through the development of new sustainable economic activities, the mitigation of environmental impacts and the improvement of the quality of life of their inhabitants.

SPECIFIC OBJECTIVES



Use renewable hydrogen as an alternative storage solution in local energy communities.



Reduce the environmental impacts associated with the use of conventional energies.



Promote the development of sustainable economic activities in strategic rural areas.



Improving the quality of life for residents in these rural areas.



WHAT ARE WE DOING?



■ BEMBIBRE CONVERTS SURPLUS ENERGY INTO GREEN HYDROGEN

The Bembibre Town Council, a partner in the project, will transform its surplus CEL into renewable hydrogen for agricultural and personal mobility uses. [More information](#)



■ SHAREDH2 OPENS ITS FIRST GREEN HYDROGEN STATION

The first green hydrogen production station, intended for energy storage and hydrogen bicycle recharging, was launched in October 2025 in Bidart (France), led by ESTIA. [More information](#).



■ HYDROGEN STRENGTHENS RURAL LIVESTOCK FARMING

In Périgord, we are promoting a pilot project for mixed livestock farming with ASSELDOR, combining solar energy, batteries and renewable hydrogen to increase the energy autonomy of a cheese farm. [More information](#).



■ SIGNING OF THE SHAREDH2 PROJECT AGREEMENT

The project promotes the use of renewable hydrogen as an energy storage solution in rural self-consumption communities in Spain, Portugal and France. Through pilot projects, the initiative demonstrates the viability of green hydrogen in moving towards more sustainable and self-sufficient territories. [More information](#).



WHAT ARE WE DOING?



■ HYDROGEN DRIVES SUSTAINABLE MOBILITY

The first hydrogen-powered electric bicycle arrives in Alto Alentejo. The initiative, promoted by AREANATEjo, reinforces practical learning and innovation through a mini-laboratory that covers the entire renewable hydrogen cycle. [More information.](#)



■ ESTIA BRINGS HYDROGEN TO STUDENTS ON WORK EXPERIENCE

The ESTIA higher education institution has welcomed students on work experience placements at its hydrogen station, a pioneering facility that uses surplus photovoltaic energy to produce, store and reuse energy. The initiative reinforces practical training and sustainable mobility within the campus. [More information.](#)



■ THE ENERGY TRANSITION FROM THE TERRITORY

The University of Salamanca is participating in various energy meetings held in October 2024. The project reinforces its role in promoting energy communities and renewable hydrogen as the cornerstones of the energy transition. [More information.](#)



■ WE ATTEND THE 3RD EUROPEAN CONGRESS OF CEL

On 1 and 2 October 2024, the capital of Navarre will host the III European Congress of Energy Communities. Some SHAREDH2 partners will attend the Congress as stakeholders in the development of energy communities. [More information.](#)

PARTNERSHIP MEETINGS



■ 3rd FOLLOW-UP MEETING

The partners met in Leiria, hosted by the Region of Leiria and the Regional Energy Agency of Alta Estremadura, Enerdura. The partners met to advance the project tasks and had the opportunity to visit the facilities of a leading company in hydrogen innovation and development, PRF – Gás, Tecnologia e Construção.



■ 4th FOLLOW-UP MEETING

The partners met in Bidart. During the meeting, the partners shared the latest project outputs, such as the launch of the first green hydrogen production station for energy autonomy and hydrogen bicycle refuelling, by partner ESTIA.

INFOGRAPHICS

Interreg Sudoe

Co-funded by the European Union

SHAREDH2 - SUDOE

Deliverable 1.1. CONJUNCTURAL DIAGNOSIS OF THE USE OF RENEWABLES AND INTEGRATION OF FLEXIBLE AND DISTRIBUTED GREEN HYDROGEN ENERGY IN LECs.

It addresses the diagnosis of the possibilities for the generation, distribution, storage and use of green hydrogen in the SUDOE area.

1. Conjunctural Diagnosis

Evaluation of the introduction of renewable hydrogen technologies in Local Energy Communities (LECs) through a SWOT analysis.

- Identification of relevant stakeholders in the field of energy in the SUDOE area.
- Focus group sessions for discussion and dialogue on the challenges and possibilities for the implementation of renewable energies and green hydrogen in different fields of study.

OPORTUNIDADES

Factores externos a las CEL y al sector del hidrógeno renovable que pueden ser aprovechados para mejorar la posición competitiva de los pilotos propuestos.

(Tendencias del mercado, avances tecnológicos, cambios regulatorios favorables)

DEBILIDADES

Factores internos que limitan el desarrollo o crecimiento de las CEL y la integración del hidrógeno renovable en las CEL.

(Falta de recursos, problemas de gestión e de precios competitivos, fallos de mercado)

PORTALEZAS

Factores internos asociados a los puntos fuertes del desarrollo de las CEL y de la implementación del hidrógeno en CEL.

(Experiencia, ahorro económico, calidad del servicio, sostenibilidad)

AMENAZAS

Factores externos que pueden representar riesgos o obstáculos para el desarrollo de las CEL o la implementación del hidrógeno renovable en ellas.

(Barreras burocráticas y regulatorias, competencia desleal, inseguridad jurídica)

2. Availability of renewable sources

Assessment of renewable energy potential (solar and wind) – Integration of data into GIS platform

SUDOE Territory

Pilot Cases

Potencial solar (W/m²/año)

Potencial eólico (W/m²/año)

3. Legal Framework in Renewable Hydrogen and Local Energy Communities

Analysis of current regulations on Citizen Energy Communities (CECs) and Renewable Energy Communities (RECs), as well as on 'RFNBOs: Renewable Hydrogen', within EU law.

SPAIN	FRANCE	PORTUGAL
<ul style="list-style-type: none"> - Modifications of the RD 413/2014 y RD 1183/2020 - RD project, legal development of RECs 	<ul style="list-style-type: none"> - Code Classified Installations - Environmental Protection - H2 section 3420a - Interpretative Note IR180116 	<ul style="list-style-type: none"> - National H2 Strategy - DL 62/2020 – Gases renewable origin - DL Nº 15/2022, 76/2019 - CE - Tax incentives



■ INFOGRAPHIC DELIVERABLE fi.fi

Infographic on the diagnosis of renewable hydrogen use in energy communities in the SUDOE area. It addresses the diagnosis of the possibilities for the generation, distribution, storage and use of green hydrogen in the SUDOE area.

INFOGRAPHICS

DELIVERABLE 1.2 IDENTIFICATION OF ENERGY COMMUNITIES AND CONSUMPTION ASSESSMENT

Report characterising potential Local Energy Communities (LECs) to be created in the Sudoe area, including the economic model, the scale of their renewable energy production to cover consumption needs, and the production of green hydrogen for identified and authorised uses.

1. Identification and cataloguing of CELs



Sample: 90 LECs from the SUDOUE area

Data collected:

- Generic: Geographical location, size of structure, legal form and energetic objectives
- On energy infrastructure:
 - Energy production capacity
 - Availability of renewable energy production surpluses
 - Historical production and future projections

Opportunities:

- Creation of a centralised platform
- Common protocols for data management
- Participatory involvement of members
- Integration of AI tools to encourage data collection

Difficulties:

- Lack of harmonisation and interoperability of data
- Regulatory uncertainty
- Absence of incentive mechanisms data sharing and centralised tools.

2. Energy consumption assessment & generation opportunities for renewable hydrogen generation from surplus energy

Focus on the CELs in Bembibre (29 users – Industry) and Seville (20 users – Residential)

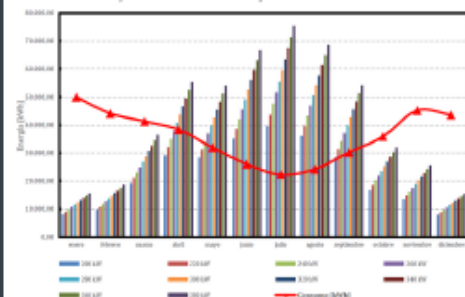
Bembibre:

- Seasonal variations
- Significant PV surpluses from 320 kW installed
- Production H2 :
 - S1 (Power to Power): limited 25%
 - S2 (Direct sales): Viable potential for local industries

Seville:

- Morning/Evening Peak
- Intelligent management of PV surpluses
- Production H2 :
 - S1: H2 production prohibited in the urban area
 - S2: Direct sales H2 oriented towards mobility (public and private individual)

Analyse de sensibilité de la production mensuelle



3. Regulatory framework and local energy policies in the concerned regions

The European directives (RED II & RED III) recognise the existence of Renewable Energy Communities (REC) and Communities of Citizen Energy (CEC). As such, the regulatory framework sets out increased targets for the production and distribution of renewables and encourages the simplification of authorisations and citizen participation.

SPAIN

- Draft Royal Decree (2023): CER open to citizens, SMEs, Local authorities. Exceptions for major energy companies.
- H2 included in the strategy national energy

FRANCE

- Gradual transposition of RED II & III Directives
- Prefectural authorisation with study impact/hazards and public inquiry (9 to 12 months)

PORTUGAL

- National Strategy EN H2 (2030):
 - 5% green H2 in final consumption
 - 15% of the gas network
 - 50 to 100 H2 stations
- 2050: Complete decarbonisation



DELIVERABLE INFOGRAPHIC fi.2

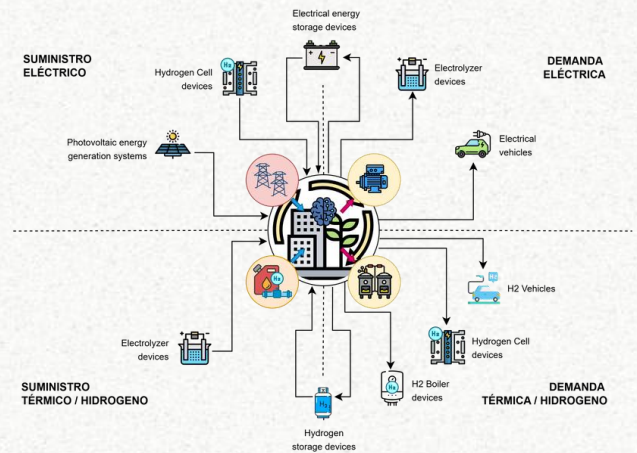
Infographic on the identification of Energy Communities and Consumption Assessment. It addresses the potential ECs that could be created in the Sudoe area, including the economic model, the scale of their renewable energy production to meet consumption needs, and the production of green hydrogen.

NEXT STEPS

SHAREDH2 TOOL

We are making progress in integrating the platform with the various energy models, ensuring smooth communication and automatic information exchange with the generation, pricing and hydrogen modules, which are being developed by the other project partners. At the same time, we are continuing to develop both the user interface and the advanced calculation models and processes that form the core of the platform, with the aim of offering reliable results and tools that provide real value to users, facilitating analysis and supporting decision-making. To speed up this process, we are using simulated data that allows us to validate information flows, operating logic and performance. Thus, when we incorporate real data from companies, the platform will be operational and will offer the same performance from day one.

The next steps will be to continue working on the tool and preparing the dissemination and training sessions, developing content and materials for the seminars within the SUDOE framework, with the aim of transferring knowledge and facilitating adoption.



NEXT FOLLOW-UP MEETING

The next partnership meeting is scheduled to take place on 15 and 16 April 2026 in Bembibre. There, the partners will have the opportunity to learn about the Bembibre Sustainable energy community *in situ*. This initiative is proposed as a public, non-profit model for producing, managing and sharing solar energy generated in municipal facilities, so that the population, including residents, businesses and associations, can reduce their electricity bills without having to install panels in their homes.





SOCIOS DEL
PROYECTO



VNIVERSIDAD
D SALAMANCA

