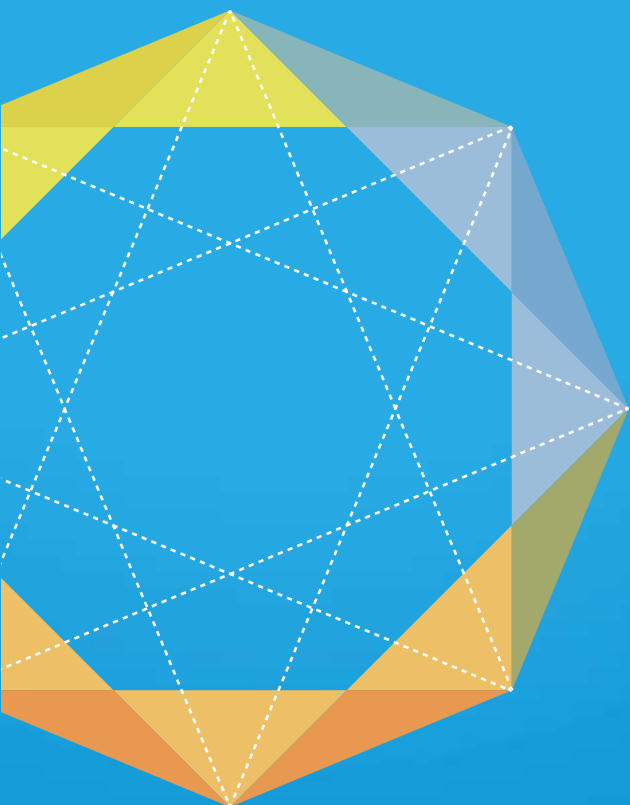




# 16<sup>th</sup> ETIP SNET Regional Workshop

Key Conclusions &  
Recommendations



## ETIP SNET

European Technology and Innovation Platform  
Smart Networks for Energy Transition



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# **16th ETIP SNET Regional Workshop**

## **Key Recommendations & Conclusions**



**ETIP SNET**



## CONTENTS

1. Introduction.....	6
2 Structure of this Document.....	6
3. Recommendations & Conclusions .....	7
3.1.1 GreenH2Atlantique.....	7
3.1.2 REgions .....	7
3.1.3 ENERisla.....	7
3.2.1 FST, RESET .....	8
3.2.2 EPC4SES.....	8
3.2.3 PREDIS.....	8
3.2.4 Prot4HiRES .....	9
3.3.1 EDDIE .....	9
3.3.2 FLEXENER.....	9
3.3.3 GoiENER.....	10
3.3.4 BEYOND.....	10
3.3.5 R2D2.....	11
Conclusions.....	11

## TABLE OF FIGURES

Figure 1: GreenH2Atlantic mapping on HLUC.....	7
Figure 2: REgions mapped onto the HLUC .....	7
Figure 3: ENERisla mapped onto the HLUC .....	7
Figure 4: FST, RESET mapping onto HLUC.....	8
Figure 5: EPC4SES mapping of HLUC .....	8
Figure 6: PREDIS mapping onto the HLUC .....	8
Figure 7: Prot4HiRes mapping onto HLUC.....	9
Figure 8: FLEXENER mapping onto HLUC.....	9
Figure 9: GoiENER mapping of HLUC .....	10
Figure 10: BEYOND mapped onto the HLUC .....	10
Figure 11: R2D2 mapping onto the HLUC .....	11



## 1. Introduction

The 16<sup>th</sup> Regional Workshop invited owners/managers of national or regional funding programs in the Western Region to present and discuss their national energy and innovation programs. The Workshop's goal was to shed light to actual challenges and key topics of sustainable energy system in Europe.

The Workshop was organised on 28<sup>th</sup> of February, on Iberdrola premises in Bilbao allowing for the participation and attendance of a wider range of stakeholders and actors in the energy field.

This session aimed to bring together owners and managers of national and regional funding and development programs with the European Commission and ETIP SNET representatives from research and industry. This exchange fostered direct exchanges between the EU and the regional/national representatives for a common understanding of national and EC programs proposed in the ETIP SNET Implementation Plan (IP) and Roadmap (RM). The moderated discussion was based on the High-Level Use Cases (HLUC) and Project Priority Concepts (PPCs) defined within ETIP SNET IP. Many topics of our future energy system in Europe were covered. Representatives of national and regional funding and support programmes met in order that European Commission and representatives of European Associations in (ETIP SNET) learn from each other, streamline their approaches and create synergies.

The following structure was designed to bring a more coordinated exchange between member state level and EU level state level with respects to the research areas of the ETIP SNET Working Groups and the BRIDGE initiative, as well as with a view to contributing to the ETIP SNET Implementation Plans and Road Map.

The first part of the workshop included an introduction to the overall structure of ETIP SNET and Bridge and an overview of the ETIP SNET Implementation Plan for 2022-2025. The platform's vision for 2050 and the two main concepts – High-level Use Cases (HLUC) and Priority Project Cases (PPC) were shared with the attendees. After a more in-depth analysis of HLUC, from HLUC 1 to HLUC8, national/regional representatives (including SEAI, ADEME) were invited to elaborate on funding priorities for national/regional projects in Western Region.

**Panel Session 1** of the workshop saw the discussion around Western funding program representatives particularly Ireland's SEAI, France's ADEME, Portugal's DGEG and Spain's representative of the national ministry from the ecological transition. Speakers elaborated on the project details, main concept, achievements and progress, as well as barriers and perceived challenges. Additionally, funding programme scopes in comparison to the different HLUC were highlighted.

**Projects Panel Session 1** consisted of presentations from invited speakers regarding national projects with respect to HLUC 1,3,8. The speakers were asked to provide a 3-minute pitch about their respective project, which was then followed by feedback and discussions from the moderator. The session involved presentations of projects GreenH2Atlantique; Regions and ENERisla.

**Projects Panel Session 2** consisted of presentations from invited speakers regarding national projects with respect to HLUC 2,4,6. The speakers were asked to provide a 3-minute pitch about their respective project, which was then followed by feedback and discussions from the moderator. The session involved presentations of projects FST, RESET, EPC4SES, PREDIS and PROT4HiRes.

**Projects Panel Session 3** consisted of presentations from invited speakers regarding national projects with respect to HLUC 5,7,9. The speakers were asked to provide a 3-minute pitch about their respective project, which was then followed by feedback and discussions from the moderator. The session involved presentations of projects EDDIE, FLEXENER, GoiENER, BEYOND and R2D2.

More information concerning these projects and structure of the sessions can be found in the proceedings.

## 2 Structure of this Document

The document is made up of the key comments made by the presenters of each project as well as a mapping of the project's focus onto the ETIP SNET's 9 HLUC. These recommendations are then incorporated into the conclusions drawn by Rainer Bacher, a representative of the ETIP SNET CORE Team.

### 3. Recommendations & Conclusions

#### 3.1.1 GreenH2Atlantique

project / program ... for	HLU C 1	HLU C 2	HLU C 3	HLU C 4	HLU C 5	HLU C 6	HLU C 7	HLU C 8	HLU C 9	othe r
<b>GreenH2Atlantic</b>	●●		●●	●● ●						

Figure 1: GreenH2Atlantic mapping on HLUC

The presenter mentioned the key findings of the project that indicate that H2 has significant potential for seasonal storage, contributing to the security of energy supply. Electrolysers can be instrumental assets, offering essential ancillary balancing services like Frequency Containment Reserves (FCR), automatic Frequency Restoration Reserves (aFRR), manual Frequency Restoration Reserves (mFRR), and Replacement Reserves (RR). These services become particularly valuable in scenarios characterized by large-scale renewable generation. However, these developments also underscore the need for comprehensive market design considerations. To fully leverage electrolysers' capabilities in providing system services, it is crucial to devise specific frameworks and regulations.

#### 3.1.2 REgions

of project / program ... for	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
<b>REgions</b>		●●	●● ●	●● ●	●				●	●● ●

Figure 2: REgions mapped onto the HLUC

The project proposed a new market design for local flexibility markets dealing with congestion management at an electrical regional scale. As part of the project, a Smart Dispatch algorithm is developed to ensure a reliable ancillary service provision of a pool of RES. The concept of energy data spaces and/or common internet of energy promote standardized, interoperable, secure and cross sectoral data sharing, accelerating the energy transition. These efforts should be accompanied by high open data engagement e.g. in terms of spatial congestion management forecasts. As ancillary service provision by RES is not stable during low production, a generation mix including flexible assets (e.g. CHPs, batteries) is recommended for better compensation and reliability. Finally, the experience of frequent communication failure emphasized the need of reliable (redundant) ICT backup strategies and good substitution strategies

#### 3.1.3 ENERisla

of project / program ... for	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
<b>ENERISLA</b>	●● ●	●	●	●● ●	●●	●	●●	●		

Figure 3: ENERisla mapped onto the HLUC

The presenter mentioned the key findings of the project regarding the regulatory barriers to provide remuneration schemes to deploy storage in microgrids. The presenter mentioned the importance of integrating new technologies to provide flexibility services, new generation of renewable energy technology that will promote hybrid electricity generation solutions and the new generation for the microgrid operators of the future.



### 3.2.1 FST, RESET

PROJECT	HLU C 1	HLU C 2	HLU C 3	HLU C 4	HLU C 5	HLU C 6	HLU C 7	HLU C 8	HLU C 9
FST, TIGON, SSTAR	● ●	● ●	●	● ● ●		● ● ●	● ● ●	● ●	●
RESET, PARITY	● ● ●	● ● ●	●	● ● ●	● ●	● ●		● ●	●

Figure 4: FST, RESET mapping onto HLUC

### 3.2.2 EPC4SES

project / program	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
EPC4SES	●●			●	●●		●	●●	●● ●	

Figure 5: EPC4SES mapping of HLUC

The key findings of the project were discussed, highlighting the importance of Transparent Smart Meter Gateways in advancing CO2 responsive demand control using MPC. The cybersecurity aspect of managing the transactions is also mentioned since the adoption of responsive demand control will increase the transactions between the households and the establishment of a transparent and secure framework is required.

### 3.2.3 PREDIS

of project / program ... for	HLU C 1	HLU C 2	HLU C 3	HLU C 4	HLU C 5	HLU C 6	HLU C 7	HLU C 8	HLU C 9	other
PREDIS	●● ●	●●	n/a	●● ●	●	●	●●	●● ●	●● ●	●● ●

Figure 6: PREDIS mapping onto the HLUC

The key findings emphasize the important role of weather data in forecasting load and generation. The findings also affirm the ability to generate reliable estimates of load and generation for the next few days. Furthermore, the possibility of having a comprehensive power flow of the entire grid underscores advancements in grid monitoring and modeling technologies. These findings collectively underscore the increasing sophistication and predictive capabilities in grid management, which are critical for a reliable and sustainable energy future.



### 3.2.4 Prot4HiRES

of project / program ... for	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
Research on the key technology of relay protection for high permeability renewable energy delivery system	●	n/a	n/a	●● ●	●	●●	●	n/a	●	

Figure 7: Prot4HiRes mapping onto HLUC

First of all, the project aims to identify a critical point where traditional protection systems might start to fail, either due to low infeed currents or due to bigger voltage dips. Additionally, the necessity of determining a set of parameters that will enable the design of a new transmission line protection is highlighted. The presenter underlined the importance of generating simulation scenarios that will evaluate new requirements. It was emphasized the development of specifications for protection systems for transmission grids with high penetration of RES.

### 3.3.1 EDDIE

The EDDIE project aims at creating a Sector Skills Alliance (SSA) by bringing together all the relevant stakeholders in the Energy value chain, such as industry, education and training providers, European organizations recruiters' social partners, and public authorities. The main objective of this SSA is to develop a long-driven blueprint (or strategy) for the digitalization of the European Energy sector.

The blueprint of the project has to ensure sustainability after the project ends in order to become a major reference in the education of the sector in the future

### 3.3.2 FLEXENER

of project FLEXENER for	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
Distribution	●	●●●	●●●	●●●	●	●●	●	●	●●	●●●
Renewables	●	●	●	●●●	●	●●●	●●	●●	●	●●●
Retail	●●	●	●●	●	●	●●	●●●	●	●●●	●●●

Figure 8: FLEXENER mapping onto HLUC

The presenter also highlighted the key findings of the project. First, regarding the distribution network, the findings highlight the importance of strategic placement of flexible services within the distribution network. Additionally, DSOs can assist in the provision of flexibility services to the transmission system. Regarding the integration of 100% of renewable energy into the system, the presenter commented that it is costly but feasible, considering the advantages of the grid forming and synchronous compensators models. Additionally, the presenter highlighted the importance of new business models for the retailers for demand flexibility considering the high impact of peak consumption in the energy prices.

### 3.3.3 GoiENER

<i>project / program</i>	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
H2020-WHY	●	●	●●	●●	●●●			●●	●●●	
H2020-BECoop	●				●●				●●	
H2020-CHESTER	●●●	●●●	●●	●●	●					
Euroregion Hidro-Ttipi				●	●●●				●●	
Regional: GoiEner Sozials	●			●	●●●				●●●	

Figure 9: GoiENER mapping of HLUC

The presenter commented that the activities of GoiENER are mainly relevant to HLUC 5 which focuses on a one stop shop and Digital Technologies for market participation of consumers (citizens). The presenter highlighted the willingness of end users to displace their consumption despite the limited controllability and the lack of information for the price signals. The importance of battery energy storage systems in future scenarios is also highlighted in order to increase the renewable generation and the local consumption in the RECs. The presenter also underlined the need for citizen/community-oriented research attempts that will manage and demonstrate better the present-day reality conditions and will increase the willingness of end-customers to contribute to the energy transition.

### 3.3.4 BEYOND

<i>of project / program ... for</i>	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
BEYOND		●●	●●●	●●	●●●		●	●	●●●	

Figure 10: BEYOND mapped onto the HLUC

The presenter highlighted the key findings of the project that are relevant to the HLUCs. End-user flexibility has emerged as a critical resource for DSOs, potentially enabling better coordination with TSOs. Towards this direction BEYOND evaluates an innovative inter-Community trading marketplace, that provides TSOs and DSOs the opportunity to trade or procure flexibility. Additional to this development is the evolving dynamics of consumer-prosumer interactions. The proposed methodologies are able to raise flexibility from local markets and energy communities accounting for the technical grid constraints.

### 3.3.5 R2D2

of project / program ... for	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9
R2D2/HORIZON EUROPE CL5-2021-D3-02	•••	••	•	••	•	•	•••	•	•

Figure 11: R2D2 mapping onto the HLUC

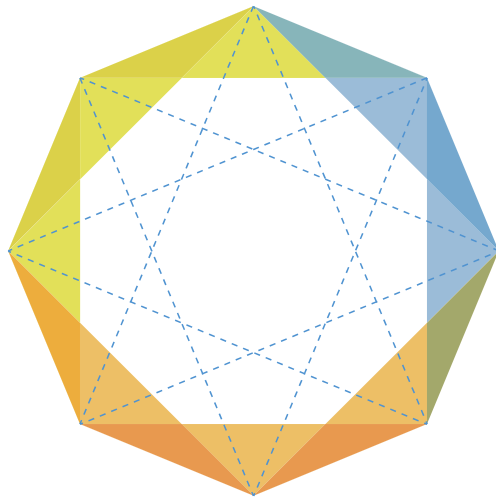
The presenter mentioned that the project has just recently started, therefore there are no key findings yet. The presenter highlighted the need for the definition of risk measurement models against TSO and DSO cybersecurity and resilience risks. Additionally, the presenter mentioned that there is a lack of regulatory framework in European level to support the power system operation risk assessment.

## Conclusions

Rainer Bacher, representative of the ETIP SNET CORE Team, in his concluding presentation, presented an overview of the workshop, highlighting the importance of such regional sessions for exchanging ideas, discussing research progress, and questioning current procedures. He began by referring to the keynote speeches, posing the question of whether the ultimate goal for 2050 needs a revision in light of ongoing developments. Regarding a common understanding of these goals, a discussion was held on aligning national and European efforts, with a focus on understanding the benefits and differences.

The topic of forecasting was central across several projects. Rainer Bacher noted that this term seems to be less clear than it should be, given its significance in the industry.

Additionally, he highlighted the attempts by different participants to associate their projects to the nine High Level Use Cases, suggesting that an effective approach is needed giving as an example the EDDIE project which deals with skills. Concluding he compared the previous roadmap compared to the new roadmap and the need to close the gap between the research area and the use cases that demonstrate the real effects that should be achieved.



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