



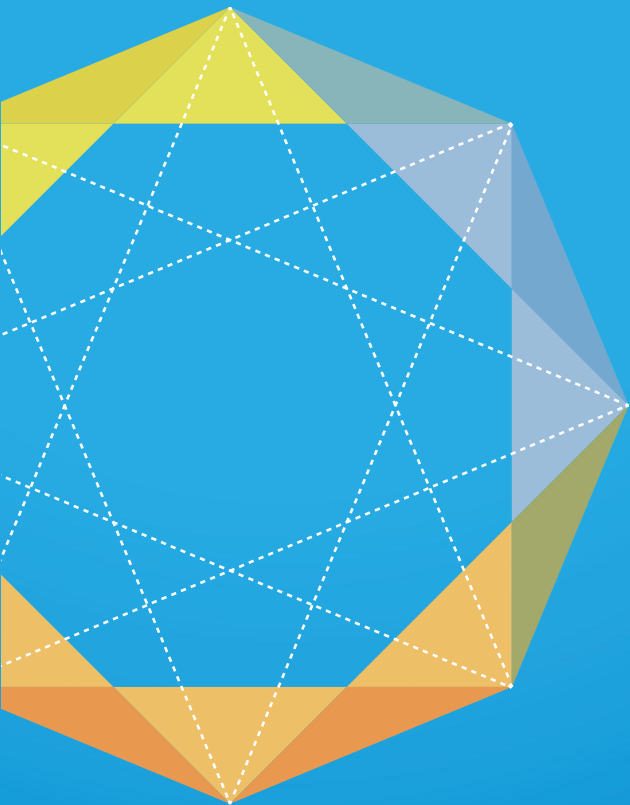
European
Commission

22nd ETIP SNET Regional Workshop

Unleashing Flexibility: Buildings and Industry as Active Grid Players

ETIP SNET

European Technology and Innovation Platform
Smart Networks for Energy Transition



1. Context3

2. Workshop Session #1: Flexibility Provision by Built Environments and Industry4

3. Workshop Session #2: Best practices and use cases of Smart Grids Flexibility from Western European Countries.....5

4. Workshop Session #3: Panel discussion: Energy Flexibility in the world of AI and the EU digital sovereignty6

1. Context

As part of the ETIP SNET initiative, 2 regional workshops are organised for each energy market region ([Western Region](#), [Central Region Workshops](#), [South-Eastern Region](#), [Northern Region Workshops](#)) to identify trends relevant for the energy sector and foster discussions among stakeholders along the energy value chain on specific topics. The main objectives of the ETIP SNET Regional Workshops are:

- To **present national and regional research and innovation projects** that tackle energy system integration challenges;
- To **highlight unresolved research topics**;
- To **ensure coherence between national and European perspectives**;
- To **promote knowledge sharing** among stakeholders and Member States.

The 22nd ETIP SNET Regional Workshop involved the countries of the **Western Europe region**, namely France, Ireland, Portugal and Spain. The main theme of the event was ***Unleashing Flexibility: Buildings and Industry as Active Grid Players***, which focused on advancing smart grid flexibility, by presenting ETIP SNET’s vision and the work of its Task Force on flexibility provision by built environments and industrial sector, including insights from its forthcoming paper. It showcased best practices and real-world applications from Western European countries to enhance flexibility, and concluded with a discussion on energy flexibility in the context of AI and EU digital sovereignty, with a key focus on ETIP SNET’s strategic recommendations for flexibility integration into future energy systems

The workshop attracted **over 40 participants**. Considering the open conference format in the ENLIT designated area, it was not possible to map all individual participants and their affiliations.

The **agenda** of the event is presented below.

10:00	ETIP SNET Presentation <i>By Luis Cunha (ETIP SNET Chairman)</i>
	Flexibility Provision by Built Environments and Industry <i>Moderated by Natalie Samovich (ETIP SNET WG1 Honorary Co-Chair)</i>
10:10	<ul style="list-style-type: none">• <i>Titouan Chilou (Think SmartGrids)</i>• <i>Nuno Souza e Silva (R&D Nester, ETIP SNET WG1 Chair)</i>• <i>Mariana Jimenez (EPRI)</i>• <i>Venizelos Efthymou (EURELECTRIC)</i>
	Best practices and use cases of Smart Grids Flexibility from Western European Countries <i>Moderated by Beatrice Profeta (PwC, ETIP SNET Secretariat)</i>
10:50	<ul style="list-style-type: none">• <i>Flex Ready by Titouan Chilou (Think SmartGrids)</i>• <i>BE Flexible by José Pablo Chaves Ávila (Deputy Director for Research Development at Institute for Research in Technology and Co-Chair of the BRIDGE WG on Regulation) and José Villar (INESTCTEC)</i>• <i>WeForming by Nikos Bilidis (European Dynamics)</i>• <i>Industry Electrification by Klaus Payrhuber (IWG6 Chair)</i>
11:45	Break
	Panel discussion: Energy Flexibility in the world of AI and the EU digital sovereignty <i>Moderated by Natalie Samovich (ETIP SNET WG1 Honorary Co-Chair)</i>
12:00	<ul style="list-style-type: none">• <i>Stavros Stamatoukos (DG ENER)</i>• <i>Charles Esser (E.DSO)</i>• <i>Ilaria Losa (ETIP SNET WG1 Co-Chair)</i>• <i>Michael Villa (smartEn)</i>
12:45	Conclusion and wrap up <i>By Natalie Samovich (ETIP SNET WG1 Honorary Co-Chair)</i>

The workshop started with an introduction by Luis Cunha, ETIP SNET Chairman, providing a comprehensive overview of the ETIP SNET initiative, its governance structure, and workplan. The presentation outlined the initiative’s short- and long-term vision, 2025 priorities, and the ongoing revision of the Roadmap and Implementation Plan, emphasising key milestones and strategic objectives to guide the energy transition.

2. Workshop Session #1: Flexibility Provision by Built Environments and Industry

This session was dedicated to an in-depth presentation of the work carried out by the ETIP SNET Task Force on Flexibility Provisions by Built Environments and the Industrial Sector, offering participants both a preview of its forthcoming paper and a broader understanding of its strategic relevance for Europe's energy transition.

Natalie Samovich, Head of Research and Innovation Programs at ENERCOUTIM and leader of the Task Force, opened the session by illustrating the collaborative effort behind the paper. It was emphasised the cross-functional collaboration behind this paper: being drafted by all view of the Working Groups, it comprehends diverse perspectives and ensure coherence across the broader ETIP SNET framework. The work made by the Task Force did not limit its analysis to demand-side flexibility; instead, it adopted a holistic approach that also encompasses supply-side integration, reflecting the increasing complexity of modern energy systems. A comprehensive historical overview of the topic development was presented along with contribution to the roadmap as well initial conclusions within the chapters.

The session then gave the floor to several chapter leads from the upcoming paper, each providing deeper insight into the themes they developed.

Titouan Chilou, Head of Project at Think Smartgrids and lead of Chapters 1 and 5, presented the outcomes of Chapter 5. This chapter focuses on new and emerging business models and examines how end-user flexibility can be better mobilised as a resource. It was explained that the team conducted a comparative analysis across multiple countries, using these national contexts as case studies to identify common challenges, opportunities, and transferable best practices. These comparative insights are consolidated in Chapter 5, offering readers a clear understanding of how flexibility markets and user engagement strategies are evolving across Europe.

Nuno Souza e Silva, Executive Board Member at R&D Nester and lead of Chapter 4, followed with a strong message on the critical importance of flexibility for Europe's decarbonisation ambitions. He argued that achieving the EU's climate and energy targets is impossible without treating flexibility as a measurable, trackable grid resource. According to Nuno, the need for flexibility is rapidly increasing yet the tools and mechanisms for quantifying and managing it remain insufficient. As a matter of fact, it was stressed the necessity of creating clear, standardised KPIs to ensure consistent measurement, verification, and remuneration of flexibility services. Without harmonised methodologies, he warned, Europe risks fragmented progress, as countries continue to implement divergent solutions in isolation. Addressing this gap is essential for unlocking cross-border synergies and ensuring a fair, efficient, and scalable flexibility market.

This session continued with additional insights from other chapter leads, who expanded on specific use cases and practical demonstrations linked to flexibility deployment.

Mariana Jimenez, Technical Leader at EPRI and leader of chapter 6 of the paper, steered the discussion by showcasing a list of use cases included in the chapter. Among these, particular attention was given to an EPRI initiative focused on leveraging flexibility from data centres. One highlighted use case concerns the shifting of *air-related loads* (referring to cooling or airflow-related workloads) to support grid operations. This initiative is being tested across three demonstration sites:

1. France, where the objective is to assess whether data centres can actively support grid-level power quality.
2. Two sites in the United States, designed to verify whether data centres can sustain grid performance under different system events, particularly during stress conditions.

Despite the promising nature of these demonstrations, interoperability remains a significant challenge, especially at the commercial level. The chapter identifies three priority factors that need to be strengthened to accelerate progress:

- Transparency,

- Integration of system elements,
- Automation of solutions.

These must be complemented by broader harmonisation efforts, as fragmented national initiatives are not sufficient to drive large-scale success and to increase the value proposition.

The discussion then moved to Venizelos Efthymiou, Steering Committee Member at EURELECTRIC and lead of chapter 7, who addressed flexibility within industrial contexts, characterised by a high variability of applications, systems, and solutions. Venizelos highlighted that flexibility could generate even greater benefits when combined with the use of local energy resources, in whatever form they are available, and through resource sharing mechanisms. Although the sector is still at an early stage of this evolution, Venizelos noted that significant economic gains can be unlocked as Europe advances toward the energy transition.

3. Workshop Session #2: Best practices and use cases of Smart Grids Flexibility from Western European Countries

The session opened with an introduction to best practices and use cases for smart grid flexibility in Western Europe. The discussion emphasised the growing role of buildings and built environments as active participants in energy systems, highlighting regulatory developments, technical prerequisites, and economic considerations for flexibility deployment.

Titouan Chilou, representing Think Smartgrids, presented the **Flex Ready initiative** and the **Flexibility Barometer**. Flex Ready was introduced as a collective brand aimed at standardising building energy management systems and promoting coordinated flexibility management. The Barometer was described as a tool structured around four main axes: technical prerequisites, economic conditions, sector-specific insights, and expected impacts. It also addressed the context of negative spot prices and renewable energy curtailment, underlining the urgency of flexibility solutions. The presentation concluded with an overview of pilot projects and the role of building control systems in enabling implicit and explicit flexibility without additional hardware.

José Pablo Chaves Ávila, Deputy Director for R&D at Institute for Research in Technology, presented the **BeFlexible project**, a four-year EU-funded initiative involving 21 partners across seven countries. He shared insights from Spanish demonstrators, which include residential customers, municipal buildings, and electric vehicle aggregation for congestion management. Flexibility use cases were discussed at multiple levels, such as consumer, community, grid, and cross-sector, highlighting the DSO results from “Bilbao tests”, emphasising the importance of accurate baseline calculation for service delivery. Additionally, José Villar, Senior Researcher at INESC TEC introduced the **RECreation platform**, within BeFlexible, which focuses on enabling energy communities to participate in flexibility markets. Functionalities for flexibility bidding, asset dispatch, and settlement within energy communities were showcased, demonstrating how planning and operation scenarios with and without flexibility, have high-cost impacts. The presentation highlighted digital tools for internal settlement and dynamic allocation, enabling REC members to actively engage in flexibility markets. In conclusion, it was noted that energy communities can integrate renewables, reduce costs, and provide flexibility to system operators, while also facing regulatory and digitalisation challenges.

Nikos Bilidis, Senior R&D Project Manager at European Dynamics, presented the **WeForming project**, which redefines buildings as active participants within multi-energy ecosystems through the concept of Intelligent Grid-Forming Buildings (iGFBs). It was proposed a focus on the Portuguese demonstrator, a large shopping mall equipped with co-generation, photovoltaic systems, and ice storage for flexibility. He showcased the Digital Twin platform developed for the project, which uses LSTM models for thermal demand forecasting and optimisation algorithms such as MILP and reinforcement learning for flexibility scheduling.

Finally, Klaus Payrhuber, Strategic Product Development Manager at INNIO Group and IWG-Industry Chair, summarised findings from surveys conducted by the SET Plan **IWG-Industry Task Force on industrial electrification and flexibility**. The analysis revealed that high electricity prices and market volatility remain major barriers to industrial electrification. Grid capacity and hydrogen integration were identified as critical factors for industrial decarbonisation.

4. Workshop Session #3: Panel discussion: Energy Flexibility in the world of AI and the EU digital sovereignty

The third and last session addressed one of the most pressing challenges in Europe's energy transition: how to integrate flexibility into energy systems in a way that is efficient, secure, and inclusive.

The discussion was introduced and moderated by Natalie Samovich, who highlighted the interconnectedness between the EU Data Space in energy through the INSIEME project, with a focus on AI models for the energy sector and the related use cases enabled by EU sovereign infrastructures.

The panel discussion was opened by Stavros Stamatoukos, Policy Officer at DG ENER, who highlighted the priority to provide **both flexibility and accountability**, ensuring that consumers and market participants can access flexibility services seamlessly and be rewarded for their contributions. Additionally, he showcased and outlined the importance of data in an industry where the latter is essential to train AI models.

Following, Michael Villa highlighted that the **flexible demand management industry is already leveraging artificial intelligence (AI)** extensively. According to him, AI is "in the DNA" of this sector, enabling optimisation of operations, storage, and delivery of energy services. AI-driven solutions are being deployed to process large volumes of data, forecast demand, and improve system efficiency. However, despite these technological advancements, the panel agreed that the **main barrier is not interoperability but the absence of a fully functioning flexibility market**. Without clear market structures and incentives, consumers and aggregators face significant hurdles in monetising flexibility.

To address this, it was emphasised the urgent need to **standardise interfaces and harmonise access across all European markets**. This would allow flexibility services to be activated seamlessly, regardless of geography or market design, and create a level playing field for all participants.

Charles Esser, Secretary General at E.DSO further highlighted that data is essential for **DSOs** particularly as distributed energy resources become more prevalent. He noted that DSOs rely on accurate and timely data from aggregators and consumers to manage grid operations effectively. Another challenge lies in establishing different protocols for data models, which the EU is actively addressing to ensure interoperability. In addition, cybersecurity was identified as a critical priority, with the creation of secure European data spaces seen as vital for safeguarding sovereignty and trust in the energy system. A number of distinguished use cases were brought into the discussion.

Successively, Ilaria Losa, Researcher at RSE, presented insights from three Italian pilot projects launched under the R&A framework in 2025. These projects aimed to test local flexibility services within ancillary markets and involved major Italian DSOs. The pilots successfully demonstrated the technical feasibility of creating a flexibility market and contracting significant capacity. However, activation rates remained **very low**, revealing a gap between theoretical potential and practical implementation. Key lessons from these pilots include: 1) The necessity of **standardised technical and market interfaces** to ensure interoperability. 2) The importance of **open data repositories** to facilitate innovation and transparency. 3) The need to move beyond conventional deterministic power flow models and adopt **stochastic approaches** that account for uncertainty in grid planning and operations. AI can play a critical role in developing advanced solvers capable of handling these complexities.

Overall, several systemic challenges were identified during the discussion:

1. **Data Access and Sharing:** before AI can deliver its full potential, stakeholders must have access to high-quality, standardised data. This data should be shared across market players, DSOs, and TSOs to enable optimisation and innovation. Lack of data availability remains a critical bottleneck.
2. **Cybersecurity and Digital Sovereignty:** the creation of secure European data spaces is essential to protect consumer data and maintain sovereignty, enabled by infrastructures
3. **Skills and Workforce Development:** the integration of AI into grid operations raises questions about workforce readiness. DSOs must determine which tasks can be automated and which require human oversight, while regulators need to anticipate new skill requirements.
4. **Inclusivity for Small DSOs:** smaller DSOs face structural limitations in participating in pilot schemes

and adopting advanced technologies. The panel recommended regulatory measures such as **sandbox frameworks** to ensure that smaller players can benefit from innovations.

In conclusion, Stavros Stamatoukos stressed the importance of investing in research and innovation, not only within the energy sector but across all industries. He noted that Europe lacks adequate structures for AI governance and collaboration, calling for the creation of a broader platform. In addition, Charles Esser highlighted the need for common data protocols and robust cybersecurity measures, including mechanisms for consumer opt-out. This discussion underscored that while AI is already embedded in the flexibility industry, its transformative potential will only be realised through coordinated action on data, standards, and governance. Europe's ability to harmonise these elements will determine the success of its energy transition.