FlexCHESS

Horizon Europe Programme
Research and Innovation Action

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D5.4 Joint Actions

Flexibility services based on Connected and Interoperable Hybrid Energy Storage

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Glossary

Abbreviation	Description
AEIT	Associazione Elettrotecnica Italiana
AI	Artificial Intelligence
BM WG	Business Model Working Group
CEL	Community Energy Lab
CEO	Chief Executive Officer
CHESS	Connected Hybrid Energy Storage System
CPMR	Conference of Peripheral Maritime Regions
D4E	Data for Energy
DER	Distributed Energy Resources
DES	Distributed Energy Storage
DHN	District Heating Network
DLT	Distributed Ledger Technology
DT	Digital Twin
EC	Energy Community
ETIP SNET	European Technology and Innovation Platform Smart Networks for Energy Transition
EUSEW	European Sustainable Energy Week
EV	Electric Vehicles
FlexCHESS	Flexibility services based on Connected and interoperable HESS
H&C	Heating & Cooling (system)
HESS	Hybrid Energy Storage System
ICT	Information and Communication Technologies
IEEE	Institute of Electrical and Electronics Engineers (Standard)
IMM	Interoperability Maturity Model
IWG	Implementation Working Group
NGO	Non-Governmental Organization
PCM	Phase Change Material
PtH	Power-to-Heat
REC	Renewable Energy Community
RER	Renewable Energy Ratio
RES	Renewable Energy Sources
REV	Renewable Energy Valley
SME	Small and Medium-sized Enterprises
TCM	Thermochemical Material
TES	Thermal Energy Systems
VESS	Virtual Energy Storage System
VPP	Virtual Power Plant

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Executive Summary

The FlexCHESS project is designed to enable a more resilient, sustainable, and flexible energy system in Europe by facilitating the integration of Renewable Energy Sources (RES), enhancing grid stability, and supporting the evolution of energy communities. Through the integration of innovative solutions including Digital Twin (DT) technology, Virtual Energy Storage Systems (VESS), Distributed Ledger Technology (DLT) and Connected Hybrid Energy Storage Systems (CHESS), the project ensures scalable and interoperable energy management. Within this framework, "Task 5.4: Joint Actions" fosters collaboration and synergies between EU-funded projects and connection with project consortia funded under Horizon Europe and H2020 through strategic clustering activities, knowledge sharing, and stakeholder engagement.

This report presents an overview of the Joint Actions implemented between Month 3 and Month 30 of the project, under the coordination of CIP Citizens in Power (CIP). The main objective of this task was to identify common goals, explore collaborative opportunities, and build meaningful partnerships with ongoing and complementary EU-funded projects. In this context, regular online and in-person cluster meetings, joint workshops, webinars, and publications were organized, focusing on thematic areas such as flexibility services, energy storage systems, interoperability, and digitalisation in energy systems.

Through a series of well-structured engagements, FlexCHESS collaborated with sister projects including VPP4ISLANDS, THUMBS UP, MASTERPIECE, InterSTORE, PARMENIDES, INT:NET, and CRETE VALLEY. The clustering process enabled the exchange of insights and best practices, alignment of technical developments, and joint visibility of outcomes. Emphasis was also placed on linking science actors and civil society, involving researchers, policy stakeholders, and community representatives in open dialogue about energy transition challenges and solutions.

Despite the diversity of approaches and pilot environments across projects, the joint actions highlighted shared challenges, such as interoperability, user engagement, and regulatory barriers. The collaborative environment fostered through Task 5.4 created a platform for dialogue and strategic alignment that will continue beyond the project's lifetime.

This report documents the methodology, outcomes, lessons learned, and the added value generated through FlexCHESS's participation in EU-level clustering activities. It reflects the project's commitment to strengthening the European Research Area and advancing the collective impact of EU-funded innovation actions in the energy sector.

1. Introduction

The complexity and urgency of Europe's energy transition requires coordinated responses that transcend individual projects. No single initiative can tackle the multifaceted challenges related to energy flexibility, renewable integration, digitalisation, and citizen engagement in isolation. In this landscape, collaborative innovation is not merely complementary but essential. By building bridges between Horizon Europe and Horizon 2020 projects operating in adjacent or overlapping domains, the European Commission encourages the development of coherent strategies and interoperable solutions that can scale across contexts and regions. Joint actions are therefore a vital tool in increasing the efficiency, visibility, and societal relevance of EU-funded innovation projects.

Within this context, Task 5.4 of the FlexCHESS project aimed to develop meaningful synergies with other ongoing EU initiatives. These collaborations were not limited to thematic alignment alone but extended to practical engagements such as joint webinars, workshops, working groups, communication and dissemination actions, and shared stakeholder networks. By connecting with other consortia, FlexCHESS was able to share its technical insights while benefiting from the lessons learned and methodologies applied by peer projects. This reciprocal learning process allowed for more robust approaches to interoperability, virtual storage systems, community engagement, and digital twin integration-core components of the FlexCHESS innovation agenda. The added value of these joint actions was particularly visible in efforts to address common technical and regulatory bottlenecks, coordinate dissemination efforts, and provide a united front for stakeholder engagement. By speaking with a collective voice, the projects involved in these clustering activities were better positioned to influence policy dialogues, reach broader audiences, and improve their overall impact.

FlexCHESS also played a proactive role in integrating civil society perspectives into traditionally technical discussions, a move that helped demystify energy technologies and promote trust in smart energy solutions. In this spirit, the FlexCHESS consortium engaged in a structured process to identify related EU projects and facilitate mutual cooperation. This included an evolving schedule of online and in-person meetings, collaborative workshops, shared visibility through newsletters and social media, and joint planning of thematic events. These efforts were designed not only to support the ongoing implementation of FlexCHESS but also to contribute to the long-term resilience of Europe's innovation ecosystem in the energy domain.

This deliverable of the FlexCHESS project, D5.4, documents the results achieved by these joint actions across multiple collaborative environments. This document outlines the methodology applied in these engagements, highlights the key results and

findings, and reflects on the challenges and lessons learned throughout the process. It also provides practical supporting material such as agendas, flyers, invitations, and registration forms, to support the replication or adaptation of these activities by future projects. The sections that follow delve deeper into the strategy, execution, and outcomes of these joint actions, illustrating how clustering serves as a driver for innovation, inclusion, and collective impact within the Horizon framework.

2. General Implementation and methodology

The implementation of Task 5.4 followed a structured yet adaptive methodology aimed at fostering meaningful synergies with other Horizon Europe and Horizon 2020 projects. The approach was grounded in three key pillars: (1) identification of relevant projects; (2) establishment of collaborative frameworks; (3) and co-implementation of joint actions. These activities were designed not only to exchange knowledge but also to ensure alignment of technical themes, increase project visibility, and contribute to the broader EU energy research landscape. CIP, as the Task Leader, coordinated these efforts with the support of RDIUP and in close collaboration with all the FlexCHESS consortium.

2.1 Project identification and Mapping

The process began with thematic mapping and stakeholder analysis, where FlexCHESS partners, under the lead of CIP, reviewed ongoing EU projects in the domains of energy communities, virtual power plants, digitalisation, energy flexibility, and smart storage systems. Using platforms such as the CORDIS database, BRIDGE initiative, and project clustering sessions promoted by the European Commission, FlexCHESS identified a series of potential partner projects with complementary objectives and overlapping use cases. Key collaborations were formed with projects VPP4ISLANDS, THUMBS UP, MASTERPIECE, InterSTORE, PARMENIDES, INT:NET, and CRETE VALLEY. Once relevant synergies were established, bilateral and multilateral meetings were organized to discuss possible areas of collaboration. These meetings often served as preparatory sessions for co-creating joint actions. During these exchanges, shared thematic interests were identified - such as interoperability in distributed energy systems, the role of flexibility services in

community energy, and data space architectures for energy market integration. These meetings evolved into a series of clustered online and in-person events, including technical webinars, open-access workshops, and communication campaigns. In all cases, joint actions were co-branded and promoted via project websites and social media platforms, leveraging collective outreach channels to maximize visibility and stakeholder engagement.

2.2 Collaborative implementation model

To ensure consistency and added value, the joint actions followed a collaborative implementation model, in both communication and dissemination. This included shared definition of objectives, joint development of event content and agendas, co-moderation of sessions, and post-event dissemination. Each activity was designed to provide value not only to FlexCHESS but to all participating projects. Topics were chosen based on mutual relevance, such as the role of interoperable digital platforms, flexibility in energy storage systems, and real-world implementation of VESS and CHESS models. While some events were more technically focused, others provided a platform for engaging energy communities, policy makers, SMEs, and young researchers. Documentation and evaluation were integral components of the methodology. All actions were recorded, archived, and internally reviewed to assess participation, relevance, and dissemination outcomes. Recordings, presentation materials, participant lists (where applicable), and links to social media or public coverage were collected for inclusion in this deliverable. In some cases, joint actions resulted in contributions to newsletters or informal articles (e.g. non-scientific) to further enhance the dissemination of insights. While the methodology remained flexible to respond to the evolving project landscape, the emphasis on co-creation, inclusivity, and impact-oriented design remained constant throughout the task implementation.

2.3 Overview of Cluster Partners

2.3.1 InterSTORE Project

InterSTORE (Interoperable opeN-source Tools to Enable hybRidisation, utiliSation, and moneTisation of stORage flexibility) is a Horizon Europe-funded project focused on unlocking the full potential of Distributed Energy Storage (DES) and Distributed Energy Resources (DER) through interoperable, open-source digital tools. The project aims to facilitate the hybridisation, utilisation, and monetisation of energy storage systems by deploying and demonstrating a suite of middleware technologies in real-life environments.

At the core of InterSTORE lies the development of an innovative middleware layer that virtualises various types of storage technologies. This approach enables hardware-independent integration and promotes a technology-agnostic model that is crucial for avoiding vendor lock-in and ensuring broad compatibility across systems. By simplifying the integration of diverse storage assets into energy management platforms, the middleware enhances system flexibility while simultaneously enabling new business models and revenue streams for energy stakeholders.

The project targets several key objectives:

- Develop and release four open-source software tools to support interoperability, flexibility, and data standardisation.
- Consider the diverse application areas of hybrid energy storage systems (HESS), including electric vehicles (EVs), industrial, residential, and commercial sectors.
- Demonstrate the real-world applicability of its solutions through seven high-impact use cases deployed across four living labs.
- Advance data space standardisation in line with the European Commission's digitalisation agenda, ensuring InterSTORE's alignment with broader EU policy frameworks.

The implementation process is structured into several interlinked phases:

1. Use Case Identification: Gather technical and functional requirements based on preliminary analysis of high-impact applications.
2. Protocol Design: Build on existing standards and frameworks to define interoperable protocols that support integration with other tools and platforms.
3. Adoption of State-of-the-Art Solutions: Rather than developing new proprietary systems, InterSTORE adapts and extends existing open standards to promote reuse and scalability.
4. Integration into a Data Space Vision: Ensure that the middleware supports the FledgePower approach and integrates with Europe's evolving energy data space ecosystem.
5. Validation through Living Labs: Conduct demonstrations and validations in controlled and real-life conditions, with a strong focus on data modelling, protocol flexibility, and system integration.

Official project website: https://interstore-project.eu/

Figure 1.1 : "InterSTORE" Project official logo

2.3.2 PARMENIDES Project

PARMENIDES (Plug&plAy eneRgy ManagEmeNt for hybrID Energy Storage) is a Horizon Europe-funded research and innovation project that aims to advance the seamless integration and smart management of hybrid energy storage systems (HESS) within energy communities. The project focuses on designing a modular, interoperable, and secure ICT framework that enables the plug-and-play deployment of diverse storage technologies across different usage environments.

At its core, PARMENIDES is developing an innovative middleware and energy management system that virtualizes storage technologies, making them easier to deploy, operate, and monetize. This solution enables hardware-independent integration, supporting a wide range of storage configurations—including electrical and thermal systems—without requiring vendor-specific adaptations. The project also addresses the need for semantic interoperability through the creation of a new ontology tailored to the electricity and heating domains, applicable to individual buildings, end-users, and energy communities. The project will validate its technical architecture through pilot demonstrations in Austria and Sweden, showcasing real-life applications of its technologies in urban and community-scale settings. These pilots are designed to test and refine system functionalities such as real-time monitoring, energy optimization, interoperability protocols, and user interaction models.

The key objectives of PARMENIDES include:

- Designing and implementing a plug-and-play ICT architecture for hybrid energy storage integration.
- Delivering an open-source middleware solution to simplify deployment and coordination of HESS.
- Enhancing the flexibility, interoperability, and security of energy management platforms.
- Promoting vendor-agnostic solutions that increase investment in storage assets and reduce deployment barriers.
- Contributing to standardisation and data modeling efforts across the EU energy sector.

Official project website: https://parmenides-project.eu/

Figure 1.2: “PARMENIDES”Project official logo

2.3.3 VPP4ISLANDS Project

VPP4Islands (Virtual Power Plant for Interoperable and Smart isLANDS) is a Horizon 2020-funded project that aims to revolutionize energy management for islands by designing a next-generation Virtual Power Plant (VPP) tailored to the specific needs and constraints of island environments. The project introduces a flexible, scalable, and smart energy management system that promotes the large-scale integration of Renewable Energy Sources (RES) while maintaining grid stability and reducing dependence on fossil fuels.

The VPP4Islands concept reimagines the traditional VPP as more than just a network of small distributed energy resources. Instead, it positions the VPP as a green, adaptable energy plant capable of storing surplus energy, responding to fluctuating demand, and adapting to evolving climatic, technological, and market conditions. This novel approach ensures the robustness and sustainability of island energy systems while enabling the development of advanced Energy Communities (ECs).

The project is built around three core technological pillars:

- Digital Twin Technology, enabling real-time synchronization between physical and virtual energy assets for predictive maintenance and optimization.
- Distributed Ledger Technology (DLT), ensuring secure, transparent, and decentralized management of energy transactions.
- Virtual Energy Storage Systems (VESS), providing flexibility and ancillary services such as frequency control, voltage stabilization, balancing, and load dispatch.

Central to the project is the development of the VPP4I Platform, a data-driven decision-support system that collects and processes real-time and historical data from generation, consumption, and environmental sources (e.g. weather data, market signals). Using Artificial Intelligence (AI), machine learning, and advanced analytics, the platform empowers system operators and communities to make more informed energy decisions and forecasts. Rather than acting as a centralized operational center, the platform supports distributed, community-level engagement with clear strategies for data transparency and privacy. The platform’s digital twin environment integrates:

- Historical data to analyze past performance and propose improvements.
- Real-time data for ongoing system monitoring and optimization.
- Predictive analytics to forecast trends, identify risks, and improve responsiveness.

VPP4Islands is expected to deliver a broad range of economic, technological, environmental, and social impacts, particularly by:

- Enhancing the performance and flexibility of distributed RES systems.
- Promoting energy self-sufficiency and decarbonisation on European islands.

- Strengthening European innovation capacity and competitiveness.
- Supporting the creation of new business models and market opportunities for clean energy stakeholders.

Official project website: https://vpp4islands.eu/

Figure 1.3: “VPP4ISLANDS” Project official logo

2.3.4 MASTERPIECE Project

MASTERPIECE (Multidisciplinary Approaches and Software Technologies for Engagement, Recruitment and Participation in Innovative Energy Communities in Europe) is a Horizon Europe-funded initiative aimed at facilitating the creation and operation of energy communities across Europe. The core objective of MASTERPIECE is to develop a digital coordination and cooperation modular platform of services that supports the establishment and management of energy communities. This platform is designed to be participative by design, enabling community members to contribute to services and other developments actively. Key innovations and objectives of the project include:

- Empowering traditional energy consumers to become active agents in collaborative energy communities
- Creating solutions based on participatory approaches, such as co-creation, to naturally accelerate citizen involvement.
- Proposing new strategies and mechanisms that activate market participants seeking business opportunities related to energy use and cost reduction.
- Configuring a standardized and robust cyber-security infrastructure to protect active citizens against cyber-attacks
- Demonstrating the applicability and replicability of methodological, technical, and business innovations in various real-life pilots across different geographical locations

The project encompasses several pilot sites in countries including Italy, Türkiye, France, Sweden, and Spain (proof of concept), each selected to test and validate the platform's effectiveness in diverse settings. MASTERPIECE also places significant emphasis on its Intervention Program, which aims to implement and test strategies for facilitating the expansion of energy communities.

Objectives of this program include:

- A 30% increase in adhesion to energy communities.
- A 20% increase in federated services within each community.
- Development of embryonic models of mobility services in the four pilot sites.

To achieve these goals, the program employs participatory practices, automation systems for data aggregation and simulation, and an experimental plan to evaluate economic, behavioral, and cultural moderators influencing community participation.

Official project website: https://masterpiece-horizon.eu/

Figure 1.4: “Masterpiece” Project official logo

2.3.5 THUMPS UP Project

THUMBS UP (Thermal energy storage solUtions to optimally Manage BuildingS and Unlock their grid balancing and flexibility Potential) is a Horizon Europe-funded programme that aims to achieve high-performance results to significantly contribute to the development of a sustainable economy in the European Union. The project aims to develop and demonstrate thermal energy storage (TES) at daily (based on environmental friendly PCM) and weekly level (based on PtH) solutions to be easily integrated in EU buildings (both connected and not-connected to DHN) to increase their energy efficiency as well as to exploit Power-to-Heat (PtH) approaches also to make EU Buildings as grid flexibility actors. THUMBS UP wants to overcome all the limits of state-of-the-art building-integrated PCM and TCM TES technologies, increasing TES energy density and reducing CAPEX.

To capitalize on already available know-how, THUMBS UP promotes complementary digital innovations, aimed at simulating, optimizing and maximizing the technical, operational and economic benefits of the proposed solutions, through:

- the Smart Building Energy Management System to integrate, control and manage design solutions at the building level, maximize the use of local RER, optimize the efficiency of H&C – Heating & Cooling systems and coordinate operation with other building assets and with energy demand;

- the Digital Twin to (i) optimise and maximise the energy flexibility and load-shifting benefits that building-integrated solutions provide to the electricity grid (through supply services for heating/cooling and grid in aggregation) and (ii) (for buildings connected to DHN) to coordinate the operation of the solutions with the supply of thermal energy from DHN, reduce peak thermal power and enable a more flexible use of heat.

Official project website: https://www.thumbsupstorage.eu/

Figure 1.5: “Thumps Up“ Project official logo

2.3.6 INT:NET Project

INT:NET (Interoperability Network for the Energy Transition) is a Horizon Europe-funded project designed to establish a unified framework for interoperability across the European energy sector. In a rapidly evolving energy landscape where digitalisation, decentralisation, and sector coupling are reshaping the ecosystem, INT:NET addresses the critical need for systems and services that can work together seamlessly, securely, and efficiently across domains. At its core, INT:NET aims to create a cross-sector Interoperability Community, connecting stakeholders from energy, transport, buildings, agriculture, and industrial production. This community is envisioned as an open innovation ecosystem where interoperable energy services can be developed, tested, harmonised, and deployed in a collaborative, transparent environment. The project recognizes that enabling such services requires more than just technical compatibility—it demands alignment in semantics, governance, business models, and regulations.

To this end, INT:NET is developing a comprehensive Interoperability Maturity Model (IMM). This tool will assess and guide the evolution of interoperability practices within projects, companies, and public authorities, enabling them to benchmark their progress and systematically improve. The model supports harmonisation across domains and encourages the adoption of best practices based on real-world experience and stakeholder needs. The project also engages policymakers, standards organizations, and regulatory bodies from the outset to ensure that the insights and tools developed feed directly into the shaping of future energy regulation. This inclusive approach ensures that interoperability is not just a technical feature but a pillar of energy policy and governance. A central component of the project is the development of a FAIR Knowledge Platform—a user-friendly resource hub designed

to provide guidance, tools, reference architectures, and case studies on achieving interoperability in the energy transition.

Official project website: https://intnet.eu/

Figure 1.6: “int:net“ Project official logo

2.3.7 CRETE VALLEY Project

CRETE VALLEY is a Horizon Europe-funded initiative aimed at transforming the island of Crete into a sustainable, decentralised energy system powered entirely by renewable sources. The project seeks to establish a Renewable Energy Valley 'Living Lab' (REV-Lab) that will serve as a model for similar transitions in other European regions. At the heart of CRETE VALLEY are four Community Energy Labs (CELs) strategically located across Crete. Each CEL is designed to demonstrate a data-driven, multi-carrier grid system that enables the sustainable and cost-effective production and storage of energy. These labs will utilize various renewable energy sources tailored to their specific geographical and climatic conditions, promoting active participation from local communities to achieve both energy independence and energy democracy.

Key objectives of the project include:

- Development of Renewable Energy Valleys (REVs) through decentralized energy systems that integrate advanced ICT technologies, interoperable digital solutions, social innovation processes, and economically viable business models.
- Empowerment of local communities through co-design and co-creation processes, ensuring that the energy transition is inclusive and benefits all stakeholders.
- Implementation of a system-of-systems digital twin to enhance multi-carrier grid management and provide additional services for consumers and REV-level energy autonomy.
- Deployment of energy management tools and applications that enable consumers to make informed decisions and facilitate renewable energy consumption.

- Demonstration and validation of the CRETE VALLEY solutions across different climatic areas and stakeholder operations, with the aim of replicating successful models in other regions.

The project anticipates engaging approximately 2,000 citizens, achieving a 10-15% reduction in energy bills, covering 22,840 MWh of annual energy needs through renewable sources, and having 70% of community members using data-driven services.

Official project website: https://cretevalley.eu/

Figure 1.7: “CRETE VALLEY“ Project official logo

3. Overview of Joint Actions

3.1 AEIT Online International Workshop (No.1)

Title: Towards an EU-wide Energy Transition: From Energy Communities to Virtual Power Plants through Advanced Energy Storage Systems

Format: Online Workshop / English language

Cluster partners involved: FlexCHESS, VPP4ISLANDS, THUMBS UP, MASTERPIECE

Date: 23/03/2023

This workshop was the first official milestone in the implementation of Task 5.4 and served as a launching point for structured cooperation between FlexCHESS and other Horizon Europe sister projects. Organized by L' Associazione Elettrotecnica Italiana (AEIT), the event provided a cross-project platform to explore how advanced digital tools and storage solutions can support the EU-wide energy transition, particularly in decentralised environments.

The session featured presentations from all four participating projects, offering an early glimpse into the complementary approaches being pursued. FlexCHESS introduced its concept of Virtual Energy Storage Systems (VESS) and Connected Hybrid Energy Storage Systems (CHESS), with a strong focus on predictive energy management and interoperability. VPP4ISLANDS showcased strategies for deploying Virtual Power Plants on island territories, emphasizing resiliency and grid independence. MASTERPIECE presented tools for citizen engagement and digital platforms to support energy communities, while THUMBS UP explored innovations in thermal energy storage and integrated flexibility. Key technical intersections such as the use of Digital Twin technology, flexibility provision at community level, and multi-domain data integration emerged during the roundtable discussion.

These intersections highlighted not only the complementary technological focus of the participating projects but also the potential for deeper cooperation on shared objectives, such as grid modernisation and user-centred innovation. The workshop drew a diverse audience that included engineers, researchers, university faculty, municipal energy officers, policymakers, and representatives from energy cooperatives and EU energy networks. Their engagement during Q&A segments and live chat discussions signalled a high level of interest in both the technical and socio-political dimensions of the presented solutions. Questions were raised on topics such as: (1) the governance of data flows in energy communities; (2) interoperability across legacy and next-gen systems; (3) and the capacity of digital twins to model seasonal variability in storage output.

This workshop not only set the tone for the collaborative spirit of Task 5.4 but also provided the first public-facing proof of how EU-funded projects working in parallel could actively align their communication, technical vision, and stakeholder outreach. The quality and openness of the exchange helped shape future planning around co-organised webinars, technical workshops, and joint dissemination strategies, and strengthened cross-project visibility and mutual understanding.

- **Number of participants:** 100

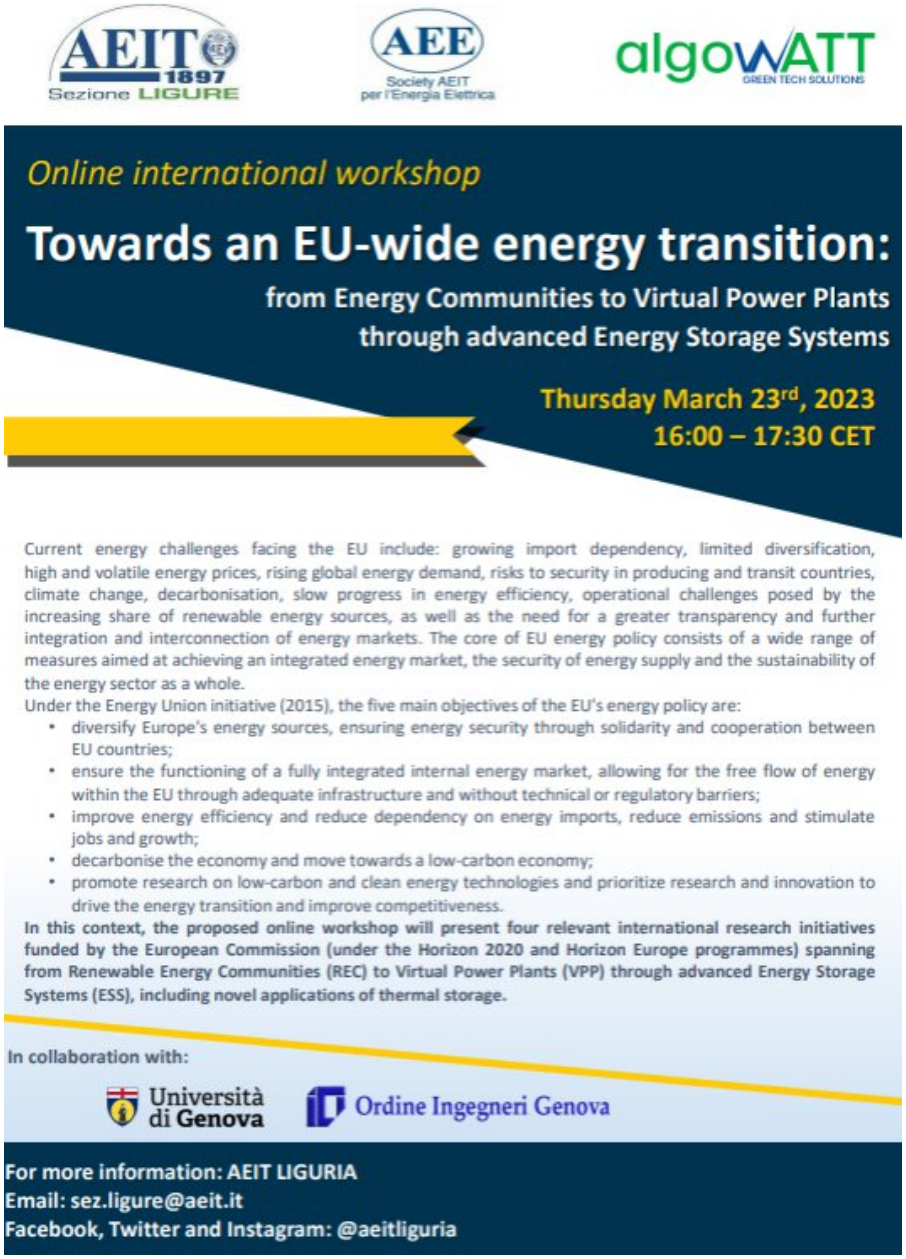


Figure 2.1: AEIT Online International Workshop No.1 – Agenda page 1

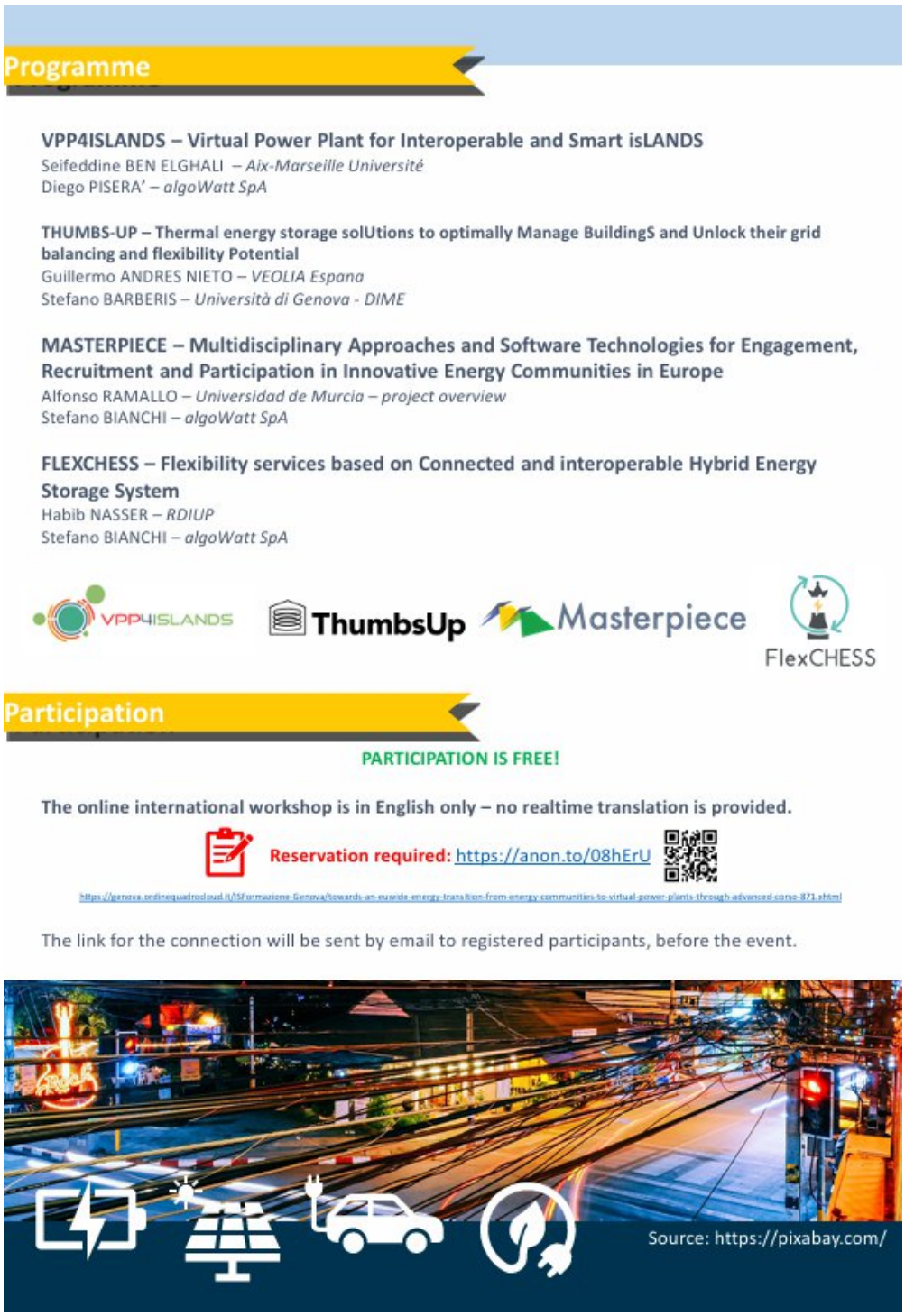


Figure 2.2: AEIT Online International Workshop No.1 – Agenda page 2

Figure 2.3: AEIT Online International Workshop No.1 – Event publication in AEIT official website (https://www.aeit.it/)

3.2 Cluster Coordination Meeting No.1

Title: Initial Cluster Coordination Meeting – Aligning Strategies for Joint Actions

Format: Online Meeting

Cluster partners Involved: FlexCHESS, InterSTORE, PARMENIDES

Date: 06/06/2023

The FlexCHESS consortium held its first formal clustering coordination meeting with two key Horizon Europe sister projects to initiate structured collaboration under Task 5.4. This pivotal session brought together both technical and dissemination leaders from all three consortia and laid the foundation for a shared roadmap of joint actions, events, and strategic communication. The preparation for the meeting began weeks in advance, with a separate coordination call held exclusively among the dissemination leaders of the three projects. The goal of this pre-meeting was to shape a common agenda, align expectations, and clarify internal workflows for collaborative visibility. During this preparatory session, partners agreed on key discussion points and developed a shared understanding of how dissemination objectives could reinforce technical themes across the upcoming webinar series and other clustering activities.

To facilitate ongoing communication, a dedicated Microsoft Teams group was created, enabling instant exchange of drafts, visuals, minutes, and coordination updates. This channel played a crucial role in enhancing:

- Rapid dissemination of shared materials (flyers, invites, speaker bios, etc.);
- Joint branding efforts for events and campaigns;
- Agile co-review of communication outputs (e.g. social media posts, newsletter drafts);
- Streamlined coordination among WP5 and other WP leaders across the three consortia.

During the coordination meeting, each project presented its main focus areas and clustering priorities. The dialogue quickly advanced to joint planning, where partners identified three thematic clusters around which to design joint events:

1. Interoperability and middleware in community energy systems;
2. Data space integration and semantic alignment for flexibility services;
3. The role of local actors and civil society in driving innovation and trust.

By the end of the session, the following steps were agreed:

- Development of a joint webinar and workshop series to be implemented between October 2024 and October 2025;
- Coordination of communication material and scheduling through the newly created Teams group;
- Establishment of regular quarterly coordination calls to maintain alignment;
- Identification of possible contributions to the European Sustainable Energy Week (EUSEW) platform.

This meeting formalised a spirit of collaboration and laid the cornerstone for long-term alignment between FlexCHESS, InterSTORE, and PARMENIDES in areas such as digitalisation, flexibility, and stakeholder engagement. The professionalism and mutual respect demonstrated by all partners confirmed a shared commitment to going beyond visibility toward co-creation of meaningful outcomes across projects.

To maximize visibility, the meeting and its outcomes were featured on the official project websites (InterSTORE official website), social media platforms (dissemination via FlexCHESS Facebook account), and highlighted in the FlexCHESS Newsletter Vol. 2 (December 2023).

InterSTORE-FLEXCHESS-PARMENIDES
Clustering meeting – Agenda

Date: 6th of June 2024

Agenda

1. **Introduction – 15 min**
   - Overview of the meeting agenda
   - Explain the purpose of this meeting and the upcoming webinar
   - Introduction of communication leaders and partners (name, position, location, member, and project)
2. **Procedure of the Meeting/Breakout Rooms – 25 min**
   - Present the two main topics and concerned partners
   - Breakout Rooms for setting up the topics for the agenda
3. **Aim of the Meeting: Building an Agenda for the Upcoming Webinar – 15 min**
   - Review proposed dates for the webinar (Sept/Oct)
   - Webinar title
   - Develop the general concept and objectives
   - Outline the common content to be covered
   - Required material from technical partners
4. **Wrap-Up and Next Steps – 5 min**
   - Summarize key points and resolutions from breakout sessions
   - Outline next steps and responsibilities

Funded by the European Union

Figure 3.1: FlexCHESS – InterSTORE – PARMENIDES Cluster Meeting No.1 Agenda

Figure 3.2: FlexCHESS – InterSTORE – PARMENIDES Cluster Meeting No. 1 featured in InterSTORE official website

Figure 3.3: FlexCHESS – InterSTORE – PARMENIDES Cluster Meeting No.1 featured in FlexCHESS Newsletter Vol.2 (December 2023)

3.3 Participation at ENLIT Europe 2023

Cluster projects involved: FlexCHESS, InterSTORE, PARMENIDES

Date: 28-30/11/2023

Number of cluster flyers: 100

The cluster was proudly represented at Enlit Europe, one of the continent's largest and most influential gatherings for energy stakeholders. Held annually, Enlit Europe brings together utility companies, grid operators, technology providers, policy actors, and research institutions to collectively explore the future of Europe's energy systems. At Enlit Europe 2023, FlexCHESS played a leading role in promoting the emerging synergies among EU-funded projects working on flexibility, energy communities, and digitalisation. The project, represented by partner RDIUP, hosted a dedicated booth within the EU Projects Zone, providing a central visibility point for the FlexCHESS vision and its cluster collaboration with projects PARMENIDES and InterSTORE.

Throughout the three-day event, RDIUP Team took part in a range of high-level speaking engagements, including technical panels on interoperability, market innovation, and data spaces. Also, FlexCHESS was featured in a recorded interview session with the BRIDGE Initiative, focusing on digital flexibility services and cross-project clustering under Horizon Europe. This provided an opportunity to showcase the joint strategic messaging developed across the cluster and to present use cases from FlexCHESS pilots.

As part of its broader dissemination strategy, FlexCHESS also featured the joint cluster flyer created in collaboration with the sister projects. This visual material served to consolidate and communicate the shared objectives of the three projects, emphasizing interoperability, civil society engagement, and digital tools for the energy transition. Visitors to the booth, including representatives from utilities, SMEs, national regulators, and European institutions, expressed strong interest in the clustered approach and welcomed the cross-project knowledge-sharing it enabled.

The event reinforced FlexCHESS's position as a communication and dissemination anchor within the cluster, demonstrating how coordinated visibility tools and in-person participation can accelerate stakeholder engagement. The participation at ENLIT 2023 served as an early proof of concept for the cluster's joint outreach methodology, which continued to evolve in subsequent events.

Figure 4.1: FlexCHESS – InterSTORE – PARMENIDES Cluster representation at Enlit Europe 2023

3.4 Cluster Coordination Meeting No.2

Title: Collaborative Strategy Alignment

Format: Online Meeting

Cluster partners Involved: FlexCHESS, InterSTORE, PARMENIDES

Date: 11/01/2024

The dissemination leaders of the InterSTORE, FLEXCHESS, and PARMENIDES projects convened for a strategic meeting focused on enhancing synergies between the three initiatives. The session served as a critical checkpoint for aligning communication goals and exploring impactful collaboration opportunities. A central outcome of the meeting was the reaffirmation of the importance of engaging technical

partners in joint dissemination and outreach efforts to ensure that content is both accurate and meaningful to diverse audiences.

One of the key actions discussed was the identification of relevant external events—such as industry conferences, exhibitions, or thematic forums—where all three projects could be jointly represented. The group agreed to assign a dedicated team to explore and shortlist events that align with the thematic focus areas of InterSTORE, FLEXCHESS, and PARMENIDES, particularly in the fields of energy flexibility, interoperability, smart storage, and community engagement.The group also underlined the value of integrating technical partners into upcoming joint activities. Their participation would enrich presentations and demos with detailed insights and strengthen the scientific and technological credibility of the cluster's presence at external events. To ensure this, the meeting participants proposed the establishment of dedicated communication channels between the technical and dissemination leads, enabling smoother coordination on content creation and event planning.

Further deliverables included the decision to initiate a joint dissemination video that would feature each project's objectives, key outcomes, and shared values. This audiovisual tool would be jointly scripted, produced, and distributed across platforms, reflecting a unified narrative of the cluster's collective mission. In parallel, the group agreed on the creation of a common flyer, visually coherent and co-branded, to summarise each project's goals, innovations, and contact points—ideal for physical distribution at conferences and events.

To maintain momentum, the dissemination teams agreed to organise regular follow-up meetings for progress tracking, idea sharing, and refinement of the joint communication roadmap. Additional ideas included co-hosted webinars, cross-posted news articles, and possibly collaborative inputs into EU-level publications or events. A feedback mechanism was also proposed, allowing both dissemination and technical partners to evaluate the success of joint actions, share lessons learned, and propose new approaches. These coordinated efforts are designed not only to amplify the visibility of the individual projects but to elevate the collective impact of the cluster as a whole. The Cluster Meeting was featured in InterSTORE official website.

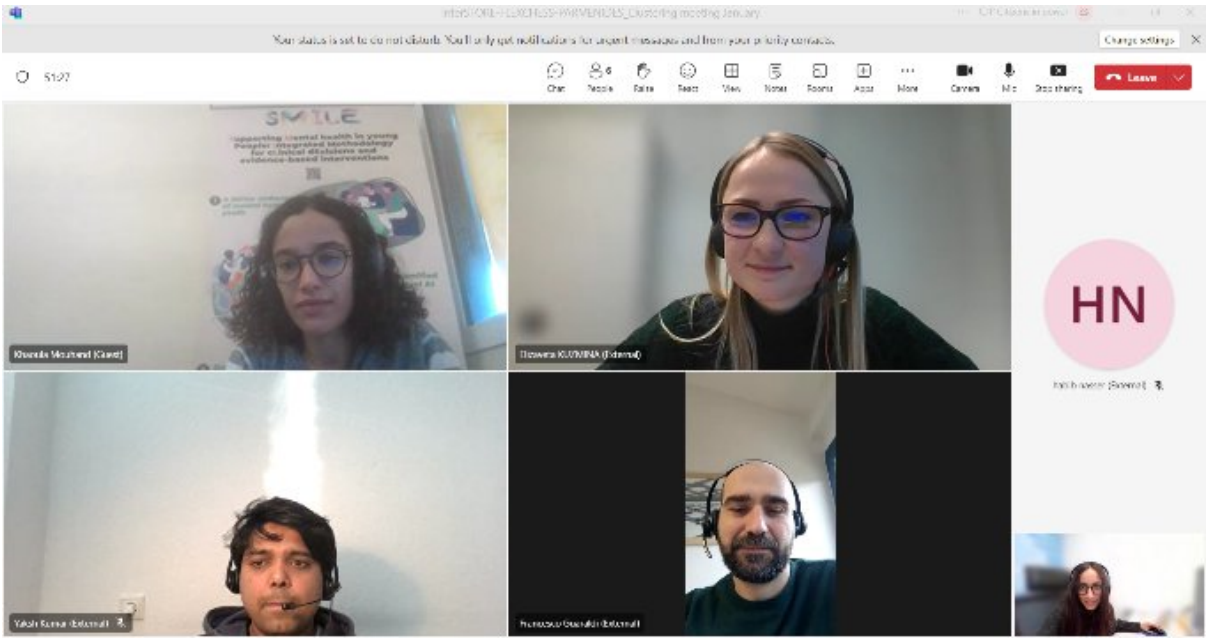


Figure 5.1: FlexCHESS – InterSTORE – PARMENIDES Cluster Meeting No.2

3.5 Cluster Coordination Meeting No.3

Title: Final Preparations for Joint Webinars

Format: Online Meeting

Cluster partners Involved: FlexCHESS, InterSTORE, PARMENIDES

Date: 20/02/2024

This coordination meeting marked the final planning stage for the upcoming joint webinars. Partners reviewed speaker line-ups, confirmed technical logistics, and aligned on outreach strategies. The session focused on ensuring seamless delivery, consistent messaging, and strong audience engagement. Particular emphasis was placed on accessibility options such as language support and post-event availability. The cluster meeting was disseminated via the FlexCHESS Facebook account and the PARMENIDES X account.

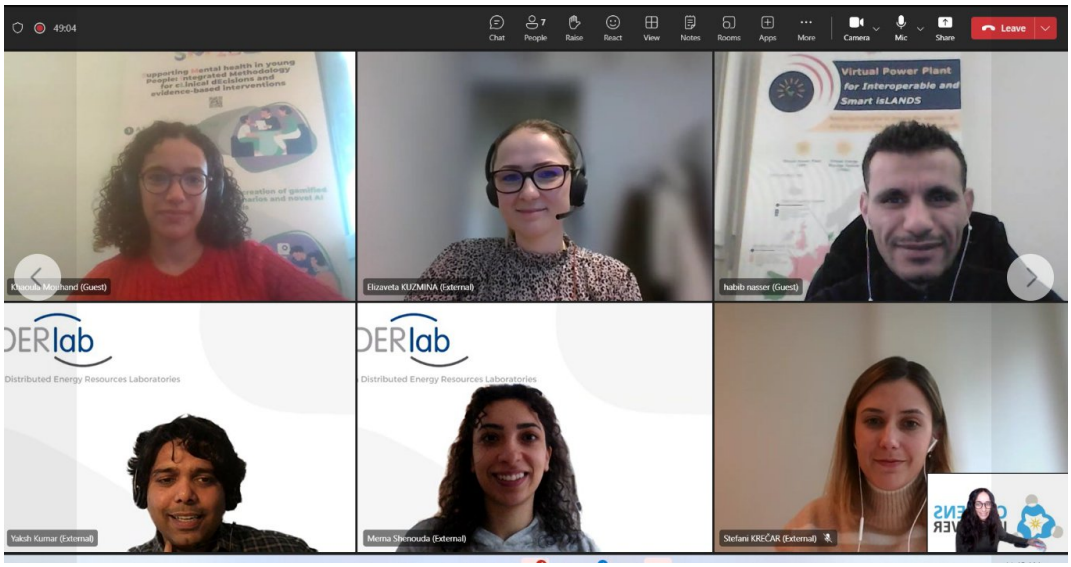


Figure 6.1: FlexCHESS – InterSTORE – PARMENIDES Cluster Meeting No.3

3.6 AEIT Online International Workshop (No. 2)

Title: Flexibility in Energy Systems: Trends and Perspectives (Energy Communities, Virtual Power Plants, Energy Storage Systems

Format: Online International Workshop

Cluster partners involved: FlexCHESS, VPP4ISLANDS, THUMBS UP, MASTERPIECE

Date: 08/05/2024

This second AEIT-organized international workshop built on the success of the initial event in 2023, served as a critical mid-project milestone to examine how digitalisation, flexibility services, and integrated energy systems are progressing across Horizon Europe initiatives. The online format allowed for broad participation from stakeholders across the EU, including researchers, technology providers, municipal representatives, and energy policy stakeholders.

The session brought together the four EU-funded projects; FlexCHESS, VPP4ISLANDS, MASTERPIECE, and THUMBS UP that each presented their progress, tools, and use cases related to flexible energy systems. Discussions revolved around the current state of flexibility-enabling technologies, community participation in energy planning, and emerging challenges in regulatory frameworks for energy storage and distribution. FLEXCHESS presented its advancements in the deployment of Virtual Energy Storage Systems (VESS) and the CHESS model, focusing on predictive analytics and distributed control. VPP4ISLANDS showcased updates from its island pilots, emphasizing the role of virtual power plants in managing

isolated grids. MASTERPIECE shared insights into its participatory platforms that empower citizens and local stakeholders, while THUMBS UP presented updates on thermal storage technologies and user-centric flexibility design.

The session concluded with an interactive panel where synergies between the projects were explored, and opportunities for future co-publications, policy dialogues, and citizen engagement initiatives were identified. Participants expressed high interest in continuing the clustering momentum through focused thematic events and joint dissemination.The second AEIT International workshop created a renewed clustering momentum, advanced cross-project visibility, and identified emerging policy gaps related to energy flexibility and digital infrastructure. The workshop was disseminated via two FlexCHESS Facebook posts on 12/04/2024 and 09/05/2024, and in FlexCHESS Newsletter Vol.3 (June 2024).

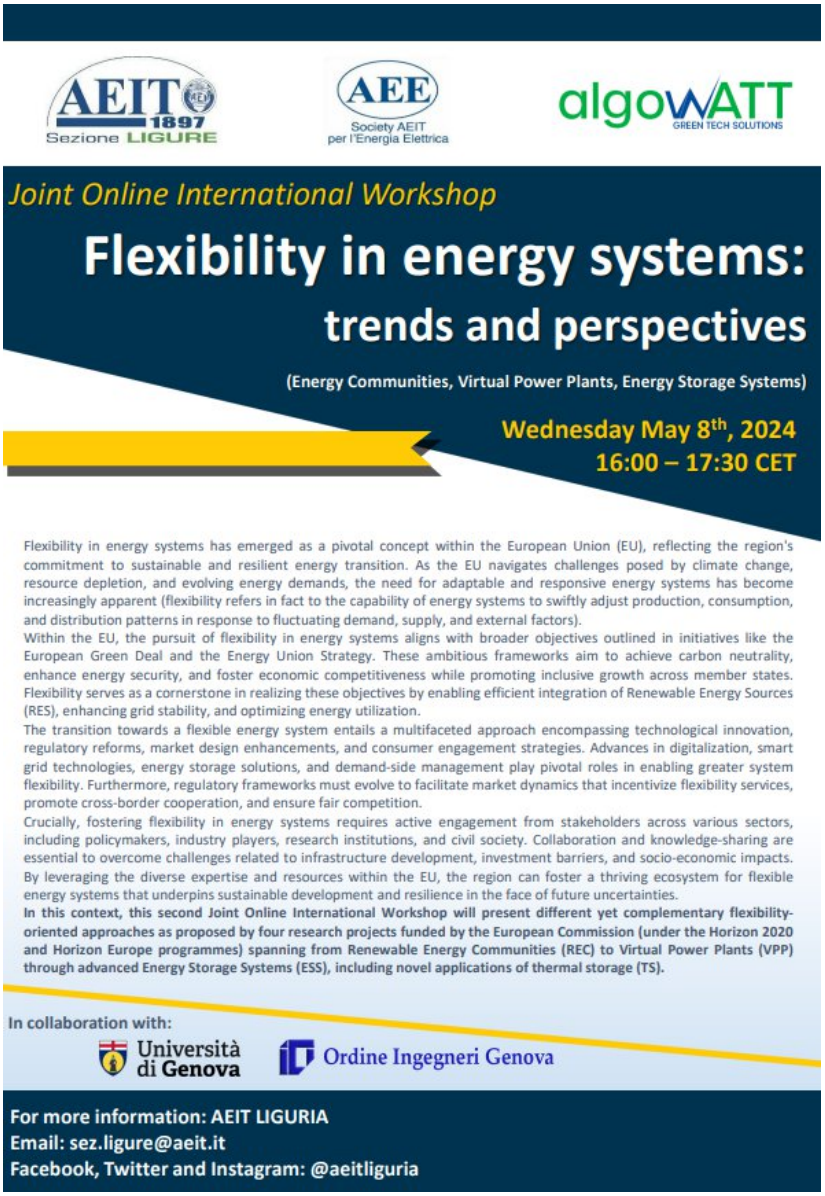


Figure 7.1: AEIT Online International Workshop No.2 – Agenda page 1

Figure 7.2: AEIT Online International Workshop No.2 – Agenda page 2

Figure 7.3: AEIT Online International Workshop No.2 – Promotional joint flyer

May 08 2024

OnLine - Lecture (virtual)

Flexibility in energy systems: Trends and perspectives

Organization: AEIT - Sezione Ligure

in cooperation with:: ALGOWATT

La flessibilità dei sistemi energetici è emersa come concetto cardine all'interno dell'Unione Europea (UE), riflettendo l'impegno della regione verso una transizione energetica sostenibile e resiliente questo workshop internazionale congiunto online presentera' approcci diversi ma complementari orientati alla flessibilita', proposti da quattro progetti di ricerca finanziati dalla Commissione europea (nell'ambito dei programmi Horizon 2020 e Horizon Europe) che spaziano dalle Comunità per l'energia rinnovabile (REC) alle centrali elettriche virtuali (VPP), passando per i sistemi avanzati di stoccaggio dell'energia (ESS), comprese le nuove applicazioni dello stoccaggio termico (TS). Iscrizione sul sito Ordini Ingegneri di Genova ma CFP solo a ing della provincia di Genova-

for info: 0 sez.ligure@aeit.it

PDF download info & brochure

Figure 7.4: AEIT Online International Workshop No. 2 – Event publication in AEIT official website (https://www.aeit.it/)

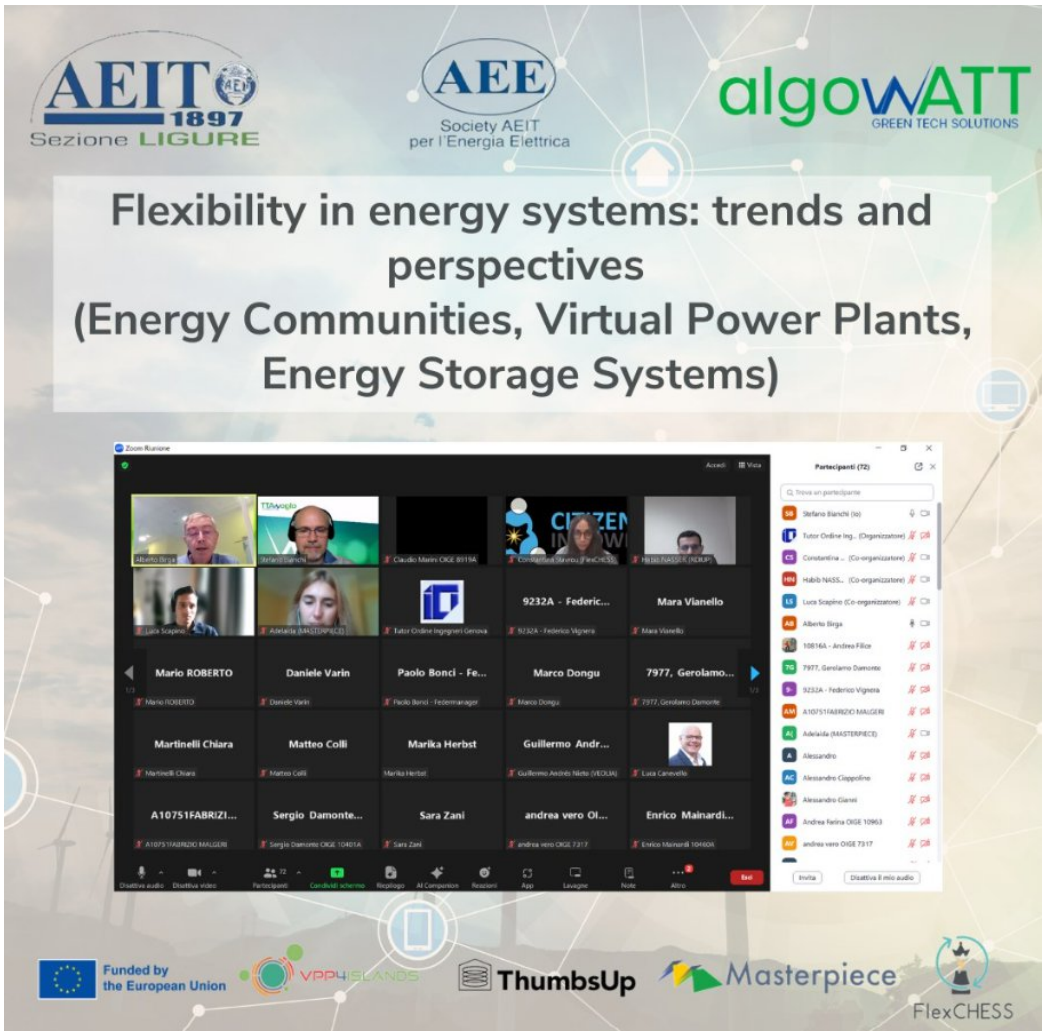


Figure 7.5: AEIT Online International Workshop No.2 – Joint session promotion

3.7 Participation in EUSEW 2024 – BRIDGE Joint Stand

Format: Joint Exhibition Stand at the EUSEW 2024 Energy Fair

Cluster partners involved: FlexCHESS, VPP4ISLANDS, MASTERPIECE

Date: 11–13/06/2024

During the European Sustainable Energy Week (EUSEW) 2024, held from June 11 to 13, cluster projects FlexCHESS, VPP4ISLANDS, and MASTERPIECE actively participated in the Energy Fair as part of the BRIDGE initiative's joint stand. This collaborative exhibition, organized alongside ETIP SNET, IWG4, ETIP Hydropower, and the ETIPs Forum, provided a platform to showcase the latest achievements and results of various Horizon Europe projects, fostering discussion and knowledge

sharing among a diverse audience of experts, innovators, public authorities, private companies, NGOs, researchers, and consumers.

The joint stand served as a convergence point for projects focusing on smart and sustainable energy transitions, aligning with EUSEW 2024's theme: “Net-zero energy solutions for a competitive Europe.” The presence of FlexCHESS, VPP4ISLANDS, and MASTERPIECE at this event underscored their commitment to collaborative efforts in advancing energy innovation and interoperability across Europe. The participation was shared in RDIUP X account and featured in the official website of the European Commission.

Figure 8.1: RDIUP representatives (Habib Nasser; Khaoula Mouhand) at the EUSEW 2024 representing the FlexCHESS, VPP4ISLANDS, and MASTERPIECE cluster projects

3.8 Contribution to BRIDGE Business Models Working Group Annual Report 2023–2024

Cluster partners involved: FlexCHESS, VPP4ISLANDS, MASTERPIECE

Date: 30/09/2024

In the 2023–2024 period, FlexCHESS actively contributed to the BRIDGE Business Models Working Group (BM WG), specifically within Task 3, which focuses on data

valorisation and the integration of data value chains into business models. This involvement was part of a broader collaboration with cluster projects VPP4ISLANDS and MASTERPIECE, aiming to enhance the understanding and application of data-centric business strategies in smart energy systems.

RDIUP, a key partner in FlexCHESS, co-led the drafting of the BM WG Annual Report 2023–2024. As part of this effort, RDIUP conducted in-depth interviews with FlexCHESS partners MIW and LASOLAR to gather insights on the project's approach to data management and monetisation. These discussions provided valuable feedback on the practical challenges and opportunities associated with implementing data-driven business models in the energy sector.

The insights from FlexCHESS and its cluster partners contributed to the development of a comprehensive set of building blocks designed to guide BRIDGE projects in designing quantitative business models. These building blocks address various aspects of data handling, including acquisition, analysis, storage, and usage, and are intended to support projects in effectively leveraging data as a key exploitable result. The activity was disseminated via social media accounts and via the FlexCHESS Newsletter Vol.4 (December 2024).

Report: BRIDGE Working Group Business Model - Annual report 2023/2024

Figure 9.1: Bridge Annual Report 2023 – Business Model Working Group – FlexCHESS project represented by RDIUP CEO Habib Nasser (Task 3 co-leader)

3.9 InterSTORE & PARMENIDES Cluster Webinar (No. 1)

Title: Interoperable Concept for Energy Communities – Different Perspectives from the InterSTORE-FlexCHESS-PARMENIDES Projects

Format: Online Cluster Webinar

Cluster partners involved: FlexCHESS, InterSTORE, PARMENIDES

Date: 16/10/2024

This webinar was the first in a thematic cluster series jointly organised by the InterSTORE, FLEXCHESS, and PARMENIDES consortia, showcasing how each project approaches the concept of interoperability within energy communities. It marked a significant step in transforming early-stage cooperation into structured knowledge-sharing around one of the most complex challenges in distributed energy systems: ensuring seamless interoperability across technical domains, governance structures, and user engagement layers. The event brought together technical representatives from the three projects to present their visions, solutions, and lessons learned. The panel discussion that followed explored both technical and regulatory implications, including the role of distributed ledger technologies (DLT), semantic data models, and the need for common standards in cross-border implementations. It also highlighted the mutual need for agile data architectures, modular integration, and alignment with the evolving regulatory frameworks promoted by the European Commission.

The session attracted a diverse audience from academia, the energy industry, and local public authorities, fostering a dynamic exchange of ideas and questions. The high level of engagement underscored the relevance of interoperability as a cross-cutting issue across all three projects, while also highlighting the need for collaborative solutions that bridge both technological and governance dimensions. The webinar successfully facilitated a cross-project exchange on interoperability frameworks, showcased complementary approaches developed by each consortium, and significantly increased stakeholder awareness on the importance of data governance within energy communities. It also laid the groundwork for upcoming joint activities in the cluster webinar series. The dissemination efforts from all participating projects were extensive, reflecting a strong collective commitment to visibility and stakeholder engagement. The Cluster webinar was prominently featured in the News sections of official project websites (e.g. FlexCHESS; InterSTORE; PARMENIDES) widely promoted across all project social media platforms, and highlighted in FlexCHESS Newsletter Vol.4 (December 2024).The outcomes of the webinar were also summarised in the Non-Scientific Article: Insights from RDIUP's Intervention in Cluster Webinar [InterSTORE – FlexCHESS – PARMENIDES] providing an accessible overview of the discussion for a broader audience.

- **Number of participants:** 42

Figure 10.1: FlexCHESS – InterSTORE – PARMENIDES Cluster Webinar No.1 – Joint promotional flyer

AGENDA

Time	Topic	Speaker
10:00 – 10:10	Introduction of the webinar	Moderator: Alexandre Lucas, INESC TEC, InterSTORE
10:10 – 10:25	Parmenides project: Interoperable concepts for energy communities	Mark Stefan, AIT Vieri Emiliani, MAPS GROUP
10:25 – 10:40	Flexchess project: Flexibility services based on connected and interoperable HESS	Habib Nasser, RDIUP
10:40 – 10:55	InterSTORE project: Interoperable concept for the energy communities InterSTORE perspective	Nikolaj Candellari, CyberGRID
10:55 – 11:45	Panel Discussion on interoperability and energy communities, hybrid energy storage systems + Q&A session	Moderator: Ludwig Karg, BAUM Group, Int:net project
11:45 – 11:50	Closing Remarks	Alexandre Lucas, INESC TEC, InterSTORE

Figure 10.2: FlexCHESS – InterSTORE – PARMENIDES Cluster Webinar No.1 – Agenda

3.10 Participation at ENLIT Europe 2024

Cluster partners involved: FlexCHESS, InterSTORE, PARMENIDES

Date: 22-24/10/2024

This strategic forum offered the ideal setting for elevating the visibility of the cluster partnership formed by InterSTORE, PARMENIDES, and FlexCHESS. InterSTORE took the lead in showcasing the cluster's collaborative ambitions and technical innovations, offering insight into the collective goals around data-driven flexibility, digital interoperability, and citizen-centric energy solutions. Promotional efforts emphasized how the three projects are jointly advancing EU priorities in smart grid development, storage integration, and local energy market participation.

Alongside technical exchanges and project showcasing, the event also served as a touchpoint for the cluster's communication and dissemination strategy. Discussions among the cluster partners focused on the creation of a shared communication toolkit, including the design of a common flyer, unified visual branding elements, and coordinated messaging for upcoming events. This initiative further reinforced the importance of presenting the cluster as a cohesive and forward-looking alliance within Europe's evolving energy research ecosystem. The joint representation at Enlit Europe 2024 was prominently featured in the News sections of official project websites, widely promoted across all project social media platforms, and highlighted in FlexCHESS Newsletter Vol.4 (December 2024).

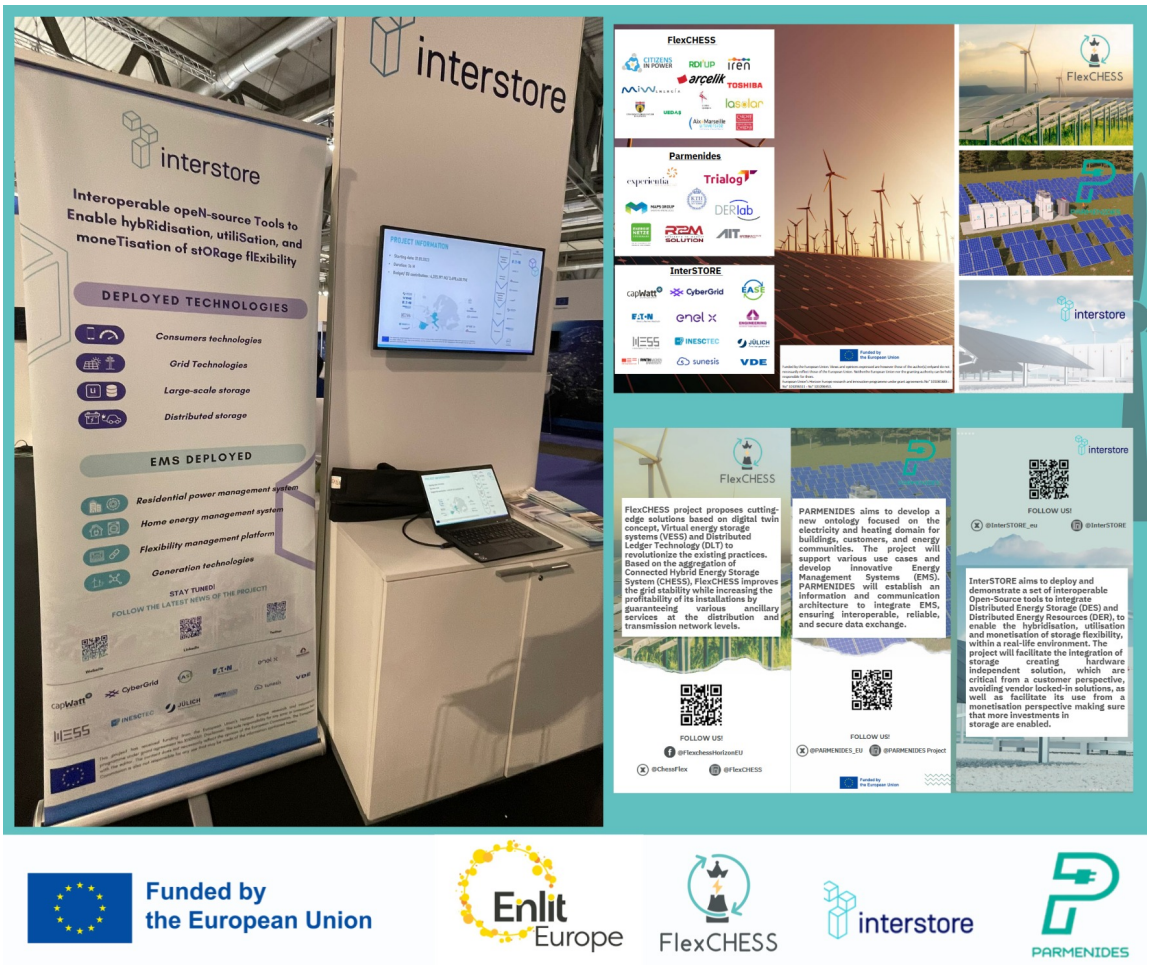


Figure 11.1: FlexCHESS – InterSTORE – PARMENIDES Cluster representation at Enlit Europe 2024

3.11 InterSTORE & PARMENIDES Cluster Webinar (No. 2)

Title: Implementation of Data Space and Interoperability for Flexibility Services Using DES: Perspectives from the InterSTORE-FlexCHESS-PARMENIDES Projects

Format: Online Cluster Webinar

Cluster partners involved: FlexCHESS, InterSTORE, PARMENIDES

Date: 06/11/2024

This second webinar in the InterSTORE-FlexCHESS-PARMENIDES cluster series offered an in-depth exploration of how interoperability and data spaces can underpin future flexibility services, especially those leveraging Distributed Energy Storage (DES). The session was designed to build upon themes raised in the first webinar and to move discussions toward more tangible implementation models, focusing on the

technological and regulatory infrastructure needed to enable secure, scalable, and cross-border energy data exchange. Each project brought a unique perspective to the discussion:

- **FlexCHESS** presented ongoing developments in predictive flexibility modelling, CHESS/VESS integration, and the requirements of interoperable architectures within distributed energy systems.
- **InterSTORE** introduced its middleware solutions designed to decouple hardware and software layers, ensuring modularity and standardisation while supporting the EU's data space vision.
- **PARMENIDES** contributed insights from its work on user-centred and policy-aligned design of digital platforms that empower local energy communities.

Key discussion points included the governance of shared energy data spaces, the interoperability between decentralised energy assets, and strategies for monetising flexibility while ensuring privacy and security. The session highlighted the importance of harmonised digital frameworks and secure data handling practices in enabling real-time responsiveness across distributed systems. A dynamic Q&A session brought in valuable insights from stakeholders in grid operations, digital governance, and public authorities, reflecting strong engagement and common concerns. The exchange also explored alignment with EU Data Space initiatives, identified technical synergies between projects, and outlined practical opportunities and challenges for scaling interoperability and flexibility services in future energy systems. The Cluster webinar was prominently featured in the News sections of official project websites (e.g. FlexCHESS; InterSTORE; PARMENIDES) widely promoted across all project social media platforms, and highlighted in FlexCHESS Newsletter Vol.4 (December 2024).

- **Number of participants:** 44

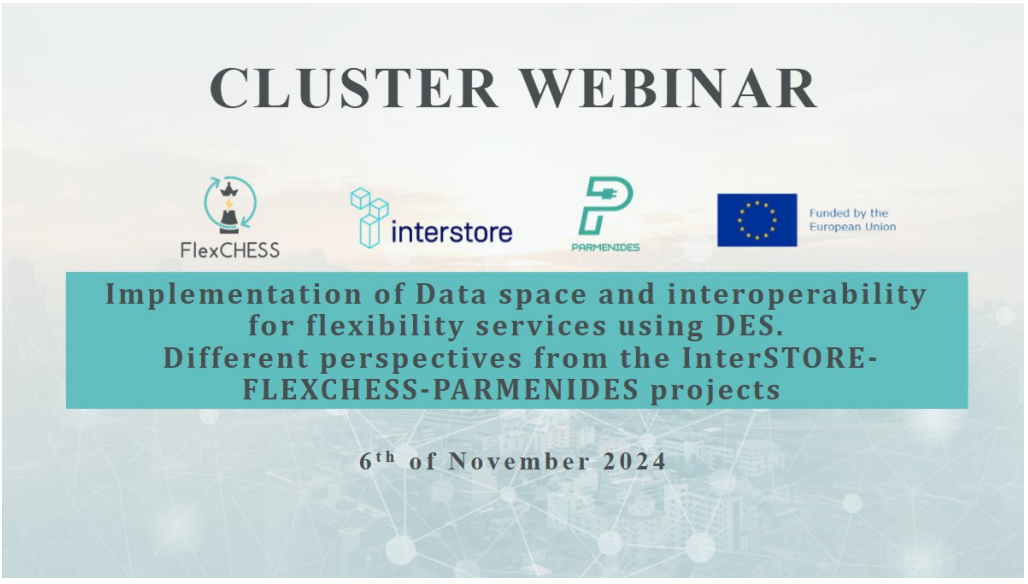
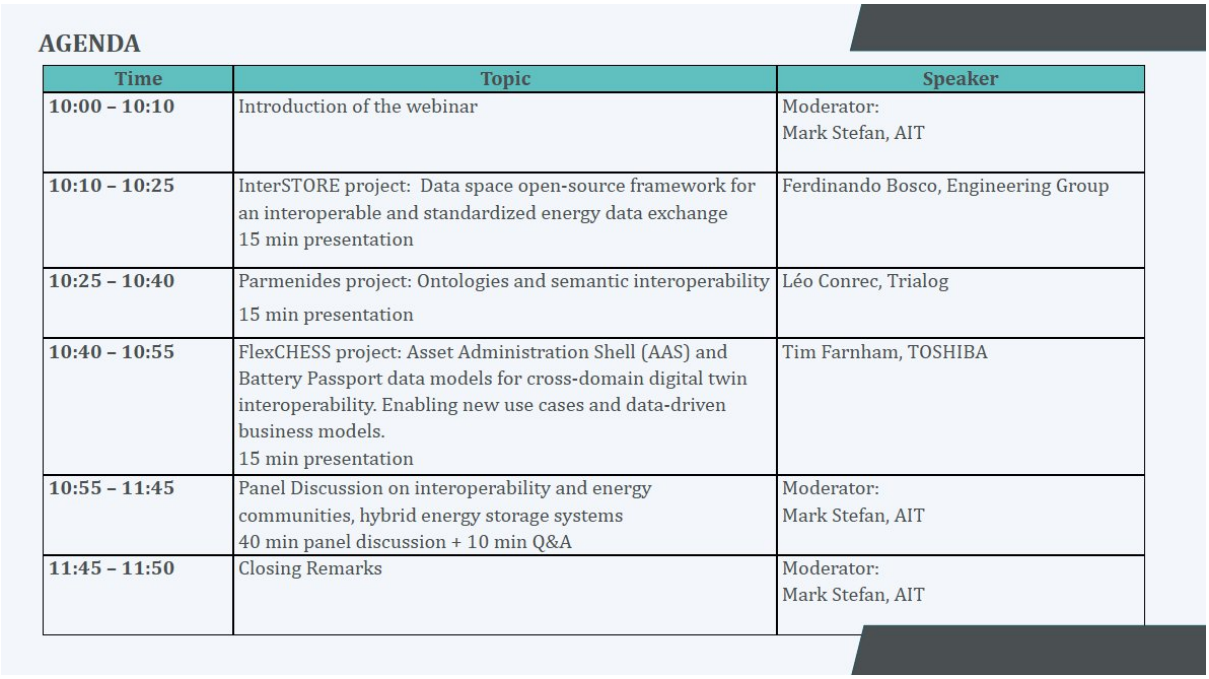


Figure 12.1: FlexCHESS – InterSTORE – PARMENIDES Cluster Webinar No.2 – Joint promotional flyer



AGENDA

Time	Topic	Speaker
10:00 – 10:10	Introduction of the webinar	Moderator: Mark Stefan, AIT
10:10 – 10:25	InterSTORE project: Data space open-source framework for an interoperable and standardized energy data exchange 15 min presentation	Ferdinando Bosco, Engineering Group
10:25 – 10:40	Parmenides project: Ontologies and semantic interoperability 15 min presentation	Léo Conrec, Trialog
10:40 – 10:55	FlexCHESS project: Asset Administration Shell (AAS) and Battery Passport data models for cross-domain digital twin interoperability. Enabling new use cases and data-driven business models. 15 min presentation	Tim Farnham, TOSHIBA
10:55 – 11:45	Panel Discussion on interoperability and energy communities, hybrid energy storage systems 40 min panel discussion + 10 min Q&A	Moderator: Mark Stefan, AIT
11:45 – 11:50	Closing Remarks	Moderator: Mark Stefan, AIT

Figure 12.2: FlexCHESS – InterSTORE – PARMENIDES Cluster Webinar No.2 – Agenda

3.12 Samsø Island Catalysation Workshop

Title: Co-Creation in Action at the Samsø Island Catalysation Workshop

Format: In-person Living Lab / Co-Creation Workshop (Samsø Energy Academy, Samsø, Denmark)

Cluster partners involved: FlexCHESS, VPP4ISLANDS, MASTERPIECE

Date: 26/11/2024

Held at the Samsø Energy Academy in Denmark, the Samsø Island Catalysation Workshop brought together a diverse coalition of actors to co-design impactful strategies for accelerating the island's energy transition. Cluster partners FlexCHESS, VPP4ISLANDS, and MASTERPIECE actively contributed to the event, engaging in benchmarking and ideation sessions alongside key strategic partners including Xynteo, ABB, Samsø Energiakademiet, Island Innovation, the Danish Energy Agency, the Estonian Islands Energy Agency (Saarte Energiaagentuur), the Conference of Peripheral Maritime Regions (CPMR), Pokret Otoka (Island Movement), and Samsø Kommune. The workshop focused on tackling core challenges such as engaging local energy communities to lead the transition, scaling clean energy adoption through practical and tech-enabled models, and identifying replicable strategies to decarbonise island territories across Europe. The collaborative format fostered real-time exchange among public authorities, technology providers, and EU project

representatives. FlexCHESS shared innovative approaches for hybrid storage and energy flexibility, while VPP4ISLANDS introduced its vision for virtual power plants tailored to island ecosystems. MASTERPIECE emphasized citizen-driven governance and digital engagement tools. Together, the participants explored how co-creation can serve as a vehicle for building integrated, sustainable, and community-led energy solutions. The event reinforced the value of clustering as a means of expanding impact, connecting EU-funded initiatives with regional strategies and broader policy movements.

Figure 13.1: FlexCHESS –VPP4ISLANDS – MASTERPIECE Cluster at the Samsø Island Catalysation Workshop – Ideation Session

Figure 13.2: Seifeddine Ben Elghali (AMU) representing FlexCHESS and Habib Nasser (RDIUP) representing the FlexCHESS –VPP4ISLANDS – MASTERPIECE Cluster at the Samsø Island Catalysation Workshop

3.13 Participation in BRIDGE General Assembly 2025

Cluster partners involved: FlexCHESS, InterSTORE, PARMENIDES

Date: 25-26/03/2025

On March 25–26, 2025, cluster partners FlexCHESS, InterSTORE, and PARMENIDES took part in the BRIDGE General Assembly 2025 in Brussels, joining a diverse community of EU-funded projects in the energy domain. The BRIDGE General Assembly serves as a cornerstone for cross-project networking, policy reflection, and strategic alignment across the European research and innovation landscape for smart grids, energy storage, islands, and digitalization.

Representatives from the three cluster projects actively contributed to discussions surrounding interoperability, citizen engagement, and the regulatory enablers of data-driven energy services. Key takeaways included the importance of common data models, scalable governance frameworks for distributed energy systems, and actionable links between Horizon Europe research and European energy policy priorities. The event also offered a unique opportunity to strengthen existing ties between the cluster partners and the wider BRIDGE community. Participation contributed to shaping the next steps in the projects' dissemination and exploitation strategies and reinforced their position as reference cases in the development of interoperable, flexible, and community-driven energy solutions.This clustering initiative was disseminated via the cluster projects social media accounts - InterSTORE ; PARMENIDES; FlexCHESS

Figure 14.1: Representatives from the FlexCHESS – InterSTORE – PARMENIDES cluster at the BRIDGE General Assembly 2025 in Brussels

3.14 InterSTORE, PARMENIDES, INT:NET, CRETE VALLEY Cluster Webinar (No. 3)

Title: Advancing Interoperability and Innovation in Distributed Energy Systems

Format: Online Cluster Webinar

Cluster partners involved: FlexCHESS, InterSTORE, PARMENIDES, INT:NET, CRETE VALLEY

Date: 26/05/2025

As part of the European Commission's Sustainable Energy Days during EUSEW 2025, the third cluster webinar brought together FlexCHESS, InterSTORE, PARMENIDES, INT:NET, and CRETE VALLEY to explore how digital interoperability can accelerate the deployment of distributed energy systems across Europe.

The session opened with a keynote address by Mark Van Stiphout (DG ENER, European Commission), who underscored interoperability as a critical enabler for flexibility, renewable integration, and consumer empowerment. He highlighted the importance of standardisation, open protocols, and cross-sector collaboration, referencing the Data for Energy (D4E) initiative as a step toward developing common EU-wide data exchange frameworks. The webinar featured two interactive panel discussions. The first panel focused on current and emerging use cases for interoperability, such as electric vehicle (EV) charging, hybrid storage, and energy communities. Speakers shared insights on device integration, protocol implementation (e.g., IEEE 2030.5), and data model harmonisation. Notably, Laia Guitart (int:net) discussed EU projects as real-world testbeds for cross-domain solutions; Vieri Emiliani (PARMENIDES) emphasized the need for common rules and semantic clarity; Alexandre Lucas (InterSTORE) highlighted the use of IEEE 2030.5 for many-to-many DER communication; and Habib Nasser (FlexCHESS) elaborated on digital tools enabling communities to act as flexible, aggregated energy actors.

The second panel delved into collaborative strategies for scaling interoperability, including standards, regulation, and artificial intelligence (AI). Discussions centered on the value of shared data platforms, open governance, and how generative AI could facilitate semantic interoperability while ensuring transparency and trust. Elissaios Sarmas (Crete Valley) remarked on the necessity of shared standards and platforms to avoid fragmented efforts. In his closing remarks, Prof. Antonello Monti (InterSTORE) emphasized that achieving interoperability is not merely a technical challenge but a foundational step toward Europe's energy resilience and digital sovereignty. This webinar reinforced the critical role of interoperability in the energy transition, highlighting the need for aligned standards, clear policies, and collective commitment to build a more flexible and sustainable energy future.

- **Number of participants:** 42

Figure 15.1: FlexCHESS – InterSTORE – PARMENIDES – int:net and Crete Valley Cluster webinar No.3 – Joint promotional flyer

Advancing Interoperability and Innovation in Distributed Energy Systems

Time	Topic	Speaker
16:00 -16:05	Welcome and Opening Remarks	Antonello Monti, RWTH
16:05 - 16:15	Keynote speech: "The Role of Interoperability and Standardisation in Advancing Europe's Energy Transition"	Mechthild Woersdoerfer, DG ENER, EC
16:15 – 16:45	Panel Discussion: Current and future Use Cases Questions: • What are the key use cases for interoperability in energy systems where we currently agree? • How can software for energy communities support DERs and energy products? • How do EU-funded projects enable cross-domain interoperability exchange? • What role should DSOs play in standardisation and energy affordability efforts?	Moderator: Antonello Monti, RWTH Alexandre Lucas, INESCTEC, Laia Guitart, E.DSO, Habib Nasser, RDIUP Vieri Emiliani, MAPS Group
16:45 – 17:15	Panel Discussion: Collaborative Problem Solving Standardisation: • What interoperability standards should the EU prioritise? • Who will implement these standards, and how can we ensure widespread adoption? Ontologies and Maintenance: • How can we ensure the longevity and relevance of ontologies in energy domains? • How might the battery passport model contribute to cross-domain standardisation? Energy Affordability: • How can DERs and energy products reduce costs while ensuring equitable access?	Moderator: Alexandre Lucas, INESCTEC Laia Guitart, E.DSO Habib Nasser, RDIUP Vieri Emiliani, MAPS Group Elissaios Sarmas, Create Valley
17:15 – 17:30	Conclusions and Actions	Antonello Monti, RWTH

Figure 15.2: FlexCHESS – InterSTORE – PARMENIDES – int:net – Crete Valley Cluster webinar No.3 - Agenda

Figure 15.3: FlexCHESS – InterSTORE – PARMENIDES – int:net – Crete Valley Cluster webinar No.3 – Panel Discussion

4. Key points from Joint Actions

The joint actions conducted under Task 5.4 between FlexCHESS and Horizon projects have established a robust framework for collaborative knowledge exchange, co-design, and outreach across key thematic areas related to energy storage, digitalisation, and energy communities. Across workshops, webinars, technical meetings, and co-creation events, several common elements have emerged that define the strategic relevance and impact of these joint actions.

First and foremost, interoperability has been a cross-cutting priority. Whether in the context of data governance, hybrid energy storage systems, or virtual power plant integration, all joint activities revealed the pressing need for shared technical standards, semantic alignment, and open-source tool development. This has allowed projects to align their digital infrastructures while avoiding duplication of effort. Another key point is the emphasis on user-centric and participatory approaches. Several joint actions—particularly those with MASTERPIECE, PARMENIDES, and VPP4Islands—demonstrated the importance of involving local communities, municipalities, and energy cooperatives in the design and testing of energy solutions. These actions fostered shared ownership and enhanced the replicability of outcomes across diverse regional contexts.

Technical knowledge exchange also played a significant role. Joint workshops and cluster webinars facilitated valuable cross-pollination between digital twin technologies, middleware layers, flexibility services, and market-ready software platforms. The inclusion of both dissemination and technical partners ensured that all perspectives—strategic, operational, and regulatory—were considered.

Additionally, all joint actions benefited from coordinated dissemination. Through shared newsletters, joint visual identities, cross-platform promotion, and joint publications, the participating projects reached broader and more diverse audiences than they could have individually. This amplified visibility strengthened EU-wide stakeholder engagement and opened new doors for policy dialogue and replication.

Lastly, the process fostered institutional trust and long-term collaboration. The creation of dedicated communication channels, recurring coordination meetings, and common documentation hubs helped formalise partnerships and set the foundation for sustained engagement beyond the lifecycle of individual deliverables.

5. Conclusion and Next Steps

As we reflect on the progress of Task 5.4 to date, it is evident that the clustering and joint actions have substantially advanced the strategic alignment of FlexCHESS with other key Horizon projects. These efforts have deepened inter-project cooperation, unified communication efforts, and opened rich pathways for continued impact in the fields of energy storage, digitalisation, and community-based flexibility models.

Looking forward, joint actions will continue until the end of the project (M36), with several activities already in the planning phase. One of the major upcoming actions is a webinar on tokenization, which will serve as a focal point for discussions on how blockchain and token-based mechanisms can incentivize flexibility, trading, and participation in energy communities. Building on this, we also propose to expand the scope of this webinar to include smart contract-based business models, offering a more comprehensive journey from tokenization concepts to viable, real-world business applications. This topic directly responds to ongoing feedback from stakeholders and addresses key innovation gaps across the FlexCHESS ecosystem.

Another next step involves ongoing discussions with cluster partner InterSTORE for the co-organization of a joint final event. This event would consolidate outcomes from all collaborative activities and highlight the collective impact of clustering efforts under Horizon Europe's green and digital transformation agenda. We aim to include technical showcases, live demos, and policy discussions involving relevant EU bodies and local stakeholders.

In parallel, we will continue:

- Developing common dissemination materials, including a joint flyer and video summarising the achievements of all cluster partners;
- Identifying relevant external events and conferences for co-presentation opportunities, further expanding project visibility (e.g. Enlit Europe 2025);
- Strengthening links with the BRIDGE initiative, especially in areas like data spaces and interoperability governance;
- Publishing co-authored articles and white papers to synthesise lessons learned from clustering actions and propose policy recommendations.

Through these activities, Task 5.4 will maintain its role as a catalyst for cross-project innovation, helping to build a more flexible, interoperable, and citizen-driven energy landscape across Europe.

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