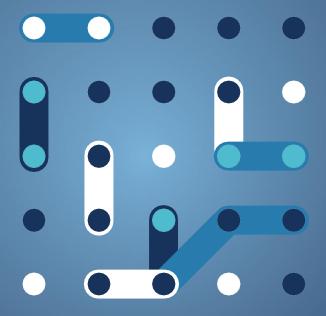


bridge

General Assembly 2025

Conclusions and next steps



BRIDGE General Assembly

Conclusions and next steps

Index

Introduction	4
Context	4
BRIDGE in numbers	4
Main presentations	5
Main conclusions	7
Consumer and Citizen Engagement	10
Background	10
Conclusions	10
Next steps	11
Regulation	12
Background	12
Conclusions	12
Next steps	13
Business Models	13
Background	13
Conclusions	14
Next steps	14
Data Management	15
Background	15
Conclusions	16
Next steps	17
Annov	20

Introduction

Context

BRIDGE is a European Commission and CINEA initiative, established in 2016. It consists of a collaborative community involving projects funded under the Horizon 2020 and Horizon Europe programmes in the areas of Smart Grids, Energy Storage, Islands and Digitalisation.

The aim of the initiative is two-fold: on one side, to foster collaboration across the BRIDGE community by engaging in monthly discussions, workshops and webinars, and the annual General Assemblies to share best practices and collaborate on tailored solutions to common innovation barriers; on the other side, to gather coordinated, balanced and coherent recommendations presented with a single voice to policy makers, in view of successfully supporting research and innovation actions, and exploiting the results achieved by projects.

The BRIDGE initiative is centred around cross-cutting issues, that are categorized into four different working group, namely:

- Consumer and Citizen Engagement Working Group
- Regulation Working Group
- Business Models Working Group
- Data Management Working Group

The four different working groups are key hubs where experts can exchange best practices and engage in collaborative sessions to explore and discuss common innovation challenges. These groups meet regularly through working group meetings, cross-group workshops, and webinars, converging at the General Assembly where they present their annual achievements to both the BRIDGE community and the European Commission representatives. Drawing on feedback and suggestions from the Commission, they brainstorm and discuss how to organise their work for the coming year to better support policy development, and ensure effective cooperation and exchanges among the member projects.

The General Assembly is an annual event designed to facilitate structured dialogue and cooperation among BRIDGE member projects. It provides a dynamic platform for sharing project results, fostering engaging discussions, and exchanging experiences. This event aims to enhance collaboration and establish European best practices and standards through comprehensive interactions and insights from various projects.

The latest General Assembly took place on 25th and 26th of March 2025 in Brussels, bringing together the members of the BRIDGE initiative both on site and online, for a day and a half. The main objectives of the General Assembly are to: i) present and discuss the latest policy developments in smart energy; i) present and discuss key achievements of BRIDGE in the previous year; ii) showcase project results and share lessons learned and experiences; iii) discuss the next year activities through various interactive sessions. This year's **theme** of the General Assembly focused on **bridging the gap from innovation to markets**, liaising also with efforts carried out by the ETIP SNET initiative on identifying the challenges hindering the commercialization of innovative energy solutions in the EU. The Commission services update the BRIDGE community on the latest policy developments that are relevant to the projects' activities, as well as to the BRIDGE joint work.

The purpose of this document is to summarise the key takeaways of the discussions that took place at the General Assembly 2025.

BRIDGE in numbers

BRIDGE is composed of over 202 projects, 123 of which are currently ongoing, and 79 were completed between 2016 and 2025. These projects involve stakeholders from 27+ countries and more than 1,400 different organisations. BRIDGE projects are funded by Horizon 2020 and Horizon Europe, with a total EU contribution of € 1,61 billion provided by the European Commission (EC).

Overall, the 2025 General Assembly was attended by:

- 125 participants in-person;
- 158 participants online (between first and second day);

- Representation of 80 different projects;
- And 118 different organisations.

The event also featured an interactive session with pitching sessions from 11 completed projects, and the participation of 45 projects, focusing on key aspects that must be addressed to initiate meaningful discussions with external stakeholders who can help bridge the gap to the market, namely: governance, intellectual property and investments and industrial collaboration.

Main presentations

The 2025 General Assembly featured a rich agenda, structured in both plenary sessions and breakout sessions, which allowed for member interaction and ensured the gathering of feedback and comments from BRIDGE participants and the representatives of the European Commission. The agenda included various informative sessions, including policy development updates, spotlight sessions on external initiatives and project showcases. The full agenda of the event is presented in the Annex.

Day 1

The first day opened with a welcome and keynote speech from Vincent Berrutto, Head of Unit - Digitalisation, Competitiveness, Research and Innovation, Directorate-General for Energy, European Commission. He recalled the solid evolution of the Bridge initiative, presented the achievements to date of the Action plan on digitalising the energy system, and updated the audience on the latest developments in the EU policies that are relevant to (smart) energy. This was followed by a presentation from Matthias Langemeyer, Head of Department – Green Research and Innovation, Climate, Infrastructure and Environment Executive Agency (CINEA), on the composition, participation, and importance of the BRIDGE initiative. Enrico Gaspari, member of the BRIDGE Secretariat, presented the complete agenda for the whole assembly.

This was followed by a policy update session by DG ENER and by the Joint Research Center (JRC), on three different topics.

- Karsten Krause, Head of Sector, DG ENER, EU Commission, provided the latest policy updates on the Affordable Energy Action Plan, featuring an overview on short and long-term measures to address the issues of high energy prices for citizens and businesses, and of energy poverty. The plan outlines specific actions tailored to lower energy costs, to complete the Energy Union, to attract investments and ensure delivery, and lastly to increase resilience and preparedness of EU for future potential crisis.
- 2. Raoul Dörr, Policy Officer, DG ENER, EU Commission, provided an outline of the **Competitiveness Progress Report on Clear Energy Technologies**, aimed at monitoring the competitiveness of EU's clean energy sector and analyzing the state of play of 15 NetZero technologies. The presentation provided a comparative analysis on Manufacturing, R&I Trends and Venture Capital investment competitiveness, stressing the increasing demand for Grid Technologies.
- 3. Antonio de Paola, Scientific Project Officer, JRC, presented the Clean Energy Technology Observatory (CETO), a comprehensive repository of techno-economic and socio-economic data on key technologies and their integration into the energy system. The CETO analysis, while supporting the Report on the Competitiveness of Clean Energy Technologies, informs on the implementation of the SET Plan and research policy development. His presentation outlined the strong need for investment, stressing areas of action for the decarbonization and digitalization of the grid.

Following the policy update, the 2024 Achievements of the Working Groups were presented. Helena Gerard, Chair of the Regulation WG, provided an overview of their progress, while Andrej Gubina, Task Leader of the Business Model WG, shared their accomplishments. Olivier Genest, Chair of the Data Management WG, presented their advancements and lastly, for the Consumer and Citizen Engagement Working Group, Chair Michael Brenner-Fliesser highlighted their achievements.

Building on the main theme of this year's general assembly, a **World Cafè Exercise** was moderated by Luca Passioni from PwC. The aim of this exercise was to reflect on the **key aspects** that must be addressed to initiate **meaningful discussions** with external stakeholders who can help bridge the **gap from research to the market**. Participants were divided into three thematic tables, each dedicated to a specific area of interest. At the first table, dedicated to Advanced Digital Technologies, projects such as EDDIE, Hedge-IoT, ODEON, and OMEGA-X were presented. The

second table, centred on Demand Response and Local Energy Systems, featured projects like SERENE, PARAMENIDES, SUSTENANCE, and SENDER. Meanwhile, the third table delved into Hybrid Grid Infrastructure, Grid Components, and Predictive Maintenance, showcasing projects such as R2D2, Hyperride, and SIC4GRID.

Following the project presentations, each table engaged in a Q&A session. This was succeeded by an interactive discussion titled "Research to Market: What Challenges Are on the Way." The conversation was structured around three key pillars: **Governance**, which explored the strategies projects employed to build strong partnerships; **Intellectual Property**, focusing on how projects safeguarded their competitive edge; and **Collaboration & Investments**, which examined how projects engage with investors and form effective collaborations considering market demands, partner profiles, and project sustainability.

Before the outcomes of the three tables were presented to the audience, Mark Stefan, Research Engineer & Thematic Coordinator, AIT presented the paper "Bridging the gap from innovation to market". It outlines the strategic approach to address the commercialisation challenges of innovative energy solutions, highlighting the importance of industrial collaboration between researchers, stakeholders and policymakers as a success factor to market Public Funded Research Projects.

Following this, Luca Passoni moderated the panel session "Overcoming Barriers for the Innovation Implementation" presenting the outcomes of the World Cafè exercise. It was emphasised that leveraging existing models and ensuring strong collaboration within the consortium are key success factors. Establishing clear roles and responsibilities, addressing end-user needs, and managing the complexity of large partnerships are essential elements. In particular, effective governance requires setting clear objectives and continuous follow-up. All three tables highlighted the importance of linking intellectual property (IP) with governance. This includes understanding exploitation ambitions, defining the type of IP to be protected, and implementing measures for protection. Joint ventures play a significant role in this process. Lastly, solid and clear governance together with a strong approach to IP were deemed essential to successfully engage with investors and find key partnerships.

The panel session concluded with a success story presentation of RomeFlex by Ercole De Luca, Head of Regulatory and Public Finance at Areti. The RomeFlex project, which builds on the PlatOne initiative, aims to enhance Rome's electricity grid flexibility through smart grid technologies and local flexibility markets. The showcase underscored the criticality of adherence to standards and regulations in order to facilitate seamless market implementation and proactively address potential barriers at an early stage.

The following session was dedicated to **ETIP SNET**, a platform that plays a crucial role in coordinating European efforts towards energy system integration and innovation by fostering collaboration between various stakeholders and by ensuring that research and development align with market needs and policy frameworks. Presented by Chairman Luis Cunha, emphasis was put on how the structure of ETIP SNET aligns closely with that of other European initiatives like BRIDGE, reinforcing the importance of coordination across different platforms. The network is experiencing exponential growth and is expected to expand even further in the future.

The last session of the day focused on key EU funding instruments that support innovation and market integration in the energy sector. Four major funding tools were presented:

- **CEF Energy** Presented by Ona Kostinaite-Grinkeviciene (CINEA), this instrument supports investments in cross-border energy infrastructure projects.
- **Innovation Fund** Introduced by Bernardo Abello Garcia (CINEA), this fund focuses on large-scale demonstration projects for innovative low-carbon technologies.
- **European Innovation Council (EIC)** Paolo Bondavalli (EISMEA) highlighted the role of EIC in funding breakthrough innovations and scaling up startups.
- Horizon Booster & Horizon Results Platform Presented by Angelo Strano and Bilgeyis Najafova, these tools facilitate the exploitation and dissemination of Horizon Europe research results.

Day 2

The second day of the meeting kicked off with a welcome and wrap-up from the previous day by George Paunescu, policy officer in DG ENER.

This was followed by a presentation of the Cluster Data Spaces, which was divided in two parts:

• Stavros Stamatoukos, Policy Officer at DG ENER, provided an overview of the Cluster Data Spaces. Over the past two years, significant progress has been made in the preliminary actions to establish the Common

European Energy Data Space. The European Commission launched an innovation action with 6 Horizon Europe projects part of the Energy Data Spaces Cluster (Int:net, Enershare, Data Cellar, Synergies, Omega-X, EDDIE) to define technical and business requirements for data sharing in key areas like demand-side flexibility, smart EV charging, and building energy efficiency. Important regulations were adopted, such as the Data Act and the Renewable Energy Directive, ensuring consumer control over energy data and enabling bidirectional charging for EVs. In 2024, a Blueprint for the Energy Data Space was delivered, detailing its architecture and roadmap, with the Smart Energy Expert Group working on defining use cases for demand response, EV charging, and building data exchange. A data space implementation action (INSIEME project) will begin in April 2025 across 16 EU Member States. Looking ahead, the Network Code on Demand Response will clarify roles and responsibilities in the flexibility market, while governance remains a key issue. The Commission plans to further develop data governance and AI applications in the energy sector, with input from the research community. The next steps will focus on defining the governance model and ensuring full operationalization of the Energy Data Space.

• Antonello Monti, Professor at RWTH Aachen University and Group Leader at Fraunhofer FIT, presented the Int:net Project and the other projects participating in the Energy Data Spaces Cluster (Enershare, Data Cellar, Synergies, Omega-X, EDDIE). Int:net has played a key role in coordinating data space interoperability, collaborating with the other five innovation projects to define use cases, datasets, interoperability requirements, data platforms, and governance structures for the Common European Energy Data Space. Additionally, it had a liaison role with large projects such as Odeon, TwinEU, and Edge IoT, which deploy data space components for various energy-related applications. A major result of the Energy Data spaces Cluster is the Blueprint of the Common European Energy Data Space, now in its second version, outlining use cases, architecture, and interoperability needs. The blueprint will be reviewed and finalised in the coming months. Also, the Interoperability Framework in Energy Data Spaces, developed with the International Data Space Association, will soon be updated. With an extension granted to its project, Int:net will focus on developing long-term governance for the energy data space, ensuring its sustainability beyond the current funding cycle.

Following the policy session, George Paunescu, policy officer at DG ENER, emphasized several aspects, starting with the importance of staying aligned with upcoming initiatives such as the **Strategic Roadmap for Digitalization and AI in Energy**, the **European grid package**, the **Electrification Action Plan**, and the **Citizens' Energy Package**. He encouraged BRIDGE stakeholders to provide inputs, as their close connection to the topics would be invaluable. He also advised to leave some flexibility in planning by not fully committing all the capacity to scheduled tasks, allowing room for addressing emerging policy issues and responding quickly to initiatives like the "**Have Your Say" platform** for structured feedback. Another critical point was improving cooperation across working groups. Finally, he encouraged working groups to refine their plans and discuss joint efforts to optimise results.

After this presentation, the second day of the General Assembly was dedicated to breakout sessions for each working group dedicated to discussing and agreeing on the main activities to be undertaken by the groups over the next year, until the next General Assembly. This followed by WG presentation of the results of their discussions to a plenary session.

For more information on the topics discussed, please refer to the slide deck (link) presented during the meeting.

Main conclusions

The General Assembly was an opportunity to collect inputs and feedback from the BRIDGE community and the European Commission on the initiative. The participants expressed, like in the previous year, their satisfaction of being members of the Bridge community and outlined some of the main benefits drawn from this membership. The following aspects were raised:

Possible new topics to be integrated in the discussion for the upcoming period:

- Continue the work on tackling the gap from innovation to markets by:
 - Preparing a report by the Secretariat with the help of WGs on findings and recommendations from the projects, building on the results of the world café and the subsequent panel discussion;

- Identifying future actions by the BRIDGE community as a whole, such as building a repository of mature products, solutions, methodologies made available by the projects, and using the BRIDGE communication channels, partnerships and future events to disseminate it.
- Assess future challenges and opportunities in AI adoption in the energy sector through:
 - Understanding how AI impacts methods and approaches when it comes to business model creation
 - Understanding the impact of AI in business models valorisation and monetization;
 - Understanding how AI can foster engagement and the barriers faced by AI in the energy sector (e.g. mistrust, digital literacy);
 - Exploring how advanced AI models can support the overcoming of technical and systemic energy barriers, such as optimizing grid flexibility, forecasting energy production from renewables, and enhancing real-time energy demand management.
- Progress of energy poverty as a side effect of increased digitalization of energy systems, and how this can be counteracted by fostering engagement through education aimed at increasing energy and digital literacy; abatement of language barriers between technical experts and consumers/citizens.
- New planning methods & remuneration schemes to support system operators in view of reaching objectives of 2050.
- Analysis of energy regulatory measures (REDIII, EED, EPBD) and impacts with regards to the buildings sector.
- Cybersecurity, regulatory compliance and ethical use of data in view of increasing digitalization of the energy systems and the increasing use of AI.

Possible areas for improvement from an operational perspective:

- Continue to foster cross-collaboration with external initiatives (e.g. ETIP SNET, ISGAN) and between the
 different WGs, implementing a well-established mechanism of collaboration, also in view of eliminating
 replications and creating synergies;
- Encourage communication to the Secretariat concerning ideas or proposals on how approach AI, or where public policies and actions plans might help;
- Enrich the current onboarding pack with use-cases, methodologies and best practices developed by the WGs. This will help newcomers to understand from the outset the benefits of Bridge and ensure their smooth inclusion in the Working Groups.

Identified best practices to be replicated in the future

- The WGs to keep their annual work plans focused on the main priorities and base their reports on the unique selling point of Bridge (i.e. real-life experience and evidence coming from the running projects, findings from pilots running in different MS that enable customised recommendations based on: (i) deep understanding of the national/MS regulatory frameworks and market circumstances, and (ii) building an EU-wide perspective aggregated at the Bridge WG level, which allow comparisons and conclusions)
- Tailor the annual reports on project needs and include the most impacting projects as key references;
- Knowledge sharing and dissemination of best practices through the establishment of Central Repositories accessible to all the BRIDGE projects and circulation of dedicated survey among all the BRIDGE community (i.e., Data Management WG use case repository, survey on AI use cases in energy);
- Promotion of internal and external communication flows:
 - Cross-WG collaboration;
 - Synergies with external initiatives (i.e., ENTSO-E, CEN-CENELEC-ETSI CG-SG, ETIP SNET, etc.);
- Bottom-up approach to identify topics and research questions to be explored within the WGs
- Leverage on more engaging tools such as the workshops and dedicated collaborative platforms (i.e., slido, mural) to enhance the commitment of the BRIDGE members and fully harness the potential of the projects.

Possible ways to foster BRIDGE support to policy development

- Define and implement structured cross-cooperation among Working Groups (i.e., through recurrent coordination meetings) to provide a more integrated approach to policy issues;
- Adopt a flexible schedule to effectively respond to and address new policy issues as they arise;
- Participate in policy events;
- Provide inputs to key EU initiatives (i.e., Give feedback via the "Have you say" public consultation platform)
- Inform policy development (i.e., contribution to policy related-consultations, feedback on the regulatory barriers faced by projects);

• Strengthen the connection with EC contact points.

Consumer and Citizen Engagement

Background

The Working Group on Consumer and Citizen Engagement was established to develop a structured cross-cutting understanding of engagement practices within European R&I projects. Its aim is to enhance the understanding, activation, and empowerment of consumers and citizens in shaping a just and sustainable energy transition. The group focuses on identifying effective engagement strategies, indicators to measure engagement, and exploring smart tools that support or assess engagement efforts.

Recognizing consumers and citizens as key actors in the energy transition — both in Europe and globally — the Working Group emphasizes their active participation as essential to achieving long-term sustainability goals.

The Consumer and Citizen Engagement Working Group is currently working on 3 overarching themes, which are the core focus of 3 different sub-groups:

- Smart Tools: the main objective of this sub-group is to explore digital tools that enhance engagement through improved accessibility, affordability, and automation, and to assess their integration in energyrelated projects.
- **Indicators of engagement:** the main objective of this sub-group is to create a scientifically sound and practical framework for selecting indicators to better measure, understand and improve citizen engagement.
- Strategies of engagement: the main objective of this sub-group is to explore and analyze engagement strategies applied in European Energy projects, identify best practices, and understand common challenges and lessons learned to support the development of future engagement strategies

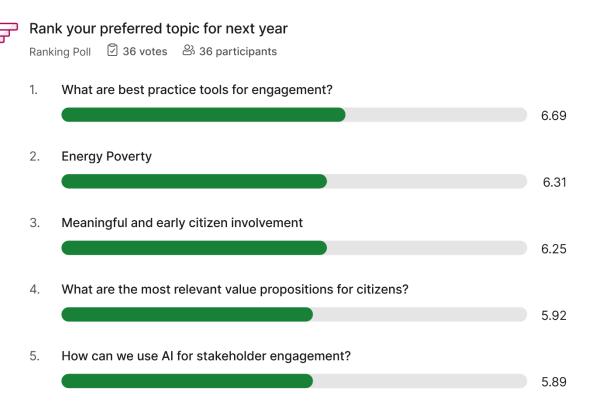
Conclusions

The main key outcomes and conclusions for 2024 were presented for each sub-group:

- Smart Tools: During 2024, the main outcomes of this sub-group concerned the importance of early user engagement in ensuring relevance and acceptance of smart tools, how standardization of data formats and communication protocols simplifies integration and how can trust be built by ensuring transparent AI and data governance. The Smart Tools Knowledge Hub was proposed as a central repository and collaborative platform, intended to serve both the subgroup and the broader WG. Looking ahead, an important issue raised was the governability and usability of the Knowledge Hub, which will need careful consideration in future development stages.
- Indicators of engagement: During 2024, the main outcomes from this sub-group included the identification of relevant theories of engagement to inform the selection of indicators, as well as expansion of the indicators aimed to strengthen its connection to theoretical foundations. Emphasis was placed on the role of models and indicators aimed at predicting preferences and interactions between subjects as well as their behavior, in view their potential application to predict engagement.
- Strategies of engagement: During 2024, the main outcomes focused on the role of AI in enhancing the effectiveness of engagement by promoting a human-AI partnership model, rather than relying solely on AI tools. The ethical use of such tools was also a key consideration. In addition, the sub-group explored strategies to ensure just and equitable participation. These included early and continuous engagement, tailored outreach approaches, a balanced combination of financial and non-financial incentives, trust building measures, and the integration of both digital and in person engagement formats.

The breakout session of the Consumer and Citizen Engagement during the General Assembly was an interactive session conducted both in person and with online participants. Following a presentation of overarching goals (e.g. keep and increase collaboration with other WGs and other associations, increase visibility of achieved results (e.g. easily accessible repository) the session focused on gathering input from the broader audience on potential topics for the next working cycle. Several potentially relevant topics were identified for consideration at the WG level including best practice tools for engagement, energy poverty, and meaningful and early citizen involvement.

Potentially relevant topics were identified also for each of the three subgroups. Through engaging tools such as Slido, participants to the GA expressed their preference for the proposed topics, both at WG level as well as at subgroup level. The five most preferred topics at the WG level are presented below. For a complete overview of the voting session, please consult the Annex section at the end of the document.



Next steps

- 1. The priority of the Working Group following the conclusion of the General Assembly will be the finalization of **the annual activity report** with a draft to be submitted to the EC for validation **by May 2025**.
- 2. Additional workshops will be envisaged, alongside those that are already planned (e.g. V2X).
- 3. Collaboration activities and initiatives with other working groups:
 - Data Management WG on the creation of the Smart Tools Knowledge Hub a platform to facilitate knowledge sharing, support interoperability and standardization, enhance replicability and ensure long-term sustainability.
 - **Regulation WG** continuation of the collaboration on **energy sharing** to better understand regulatory barriers as well as consumer protection issues.
- 4. First action meetings will take place in April to decide on the topics to be addressed in the next year and to determine the working program. Amongst a variety of potentially relevant topics, the following were identified to be further discussed in the action meetings:
 - Explore how to emphasize and integrate the use of **education within user engagement** strategies as a key tool to empower citizens and consumers especially those from vulnerable groups to interact with energy and digital systems with greater confidence, trust and reduced scepticism.
 - Continuation of the work on AI and strategies of inclusion, specifically on how AI can be used to
 improve engagement of the population, and how inclusion strategies widen the share of the
 population that is actively contributing to the development of the energy system.
 - Consider how Energy poverty impacts community engagement, and how this challenge may be further exacerbated by the risk – particularly for vulnerable groups - of being left behind in the digitalisation process.
 - Create a **systemic approach and a common ontology** aimed at understanding how different projects are using indicators to measure the impact of engagement.
 - Explore which Decision making processes might be best suited for choosing design methodologies.

Regulation

Background

The Regulation Working Group (WG) plays a crucial role in addressing regulatory aspects in the energy sector. Its primary focus is on identifying and overcoming **regulatory barriers for energy storage and smart grids**, sharing best practices, and formulating recommendations. Throughout 2024, the WG advanced its objectives through six key actions, presenting their main achievements during the BRIDGE General Assembly.

The five main activities of the WG Regulation in 2024 were:

- **Action 1**: Improve market access for consumers to value their flexibility: identifying regulatory barriers that hinder individual consumers from monetizing their flexibility via implicit and explicit flexibility mechanisms.
- Action 2: Peer-to-peer and energy sharing: Examining the role of peer-to-peer and energy sharing in the overall market design, identifying barriers, and enabling energy communities.
- Action 3: Energy and flexibility market coordination and integration: Addressing 'market design' barriers to achieve coordinated and integrated markets in Europe.
- **Action 4**: Support the potential synergies coming from increased sector coupling/sector integration/system integration: Identifying regulatory barriers that limit the potential of sector coupling and integration.
- **Action 5**: Support the system operators to prepare the grid for 2030: Exploring necessary innovations in network planning and operation.

Conclusions

The main outcomes and conclusions for 2024 across the different actions are as follows:

Action 1: Improve market access for consumers to value their flexibility

The focus on consumer-centricity has intensified, highlighting the intersection of digitalization and market design in improving consumer awareness. A survey, set to launch in Q2 2024, will explore synergies between digitalization and consumer participation in energy and flexibility markets. Collaboration with the WG CCE will be reinforced.

Action 2: Peer-to-peer and energy sharing

The work extended previous research on energy communities and explored peer-to-peer trading as an enabler of collective flexibility. Over twenty regulatory barriers were identified, emphasizing the need for a systemic approach. Recommendations include implementing EU-wide guidelines, simplifying community registration processes, supporting Distribution System Operators (DSOs), and integrating a clear EU-level data governance framework. Future efforts will refine regulatory overviews, identify best practices, and enhance collaboration with the WG on Consumer and Citizen Engagement.

Action 3: Energy and flexibility market coordination and integration

This Action focused on improving coordination between energy and flexibility markets by analyzing key barriers and proposing solutions to enhance market efficiency. Stakeholder engagements, surveys, and in-depth discussions led to the identification of best practices and recommendations.

Key areas of analysis included network tariffs, flexible connection agreements, and local flexibility markets, with a strong emphasis on minimizing regulatory fragmentation. The work also addressed the need for better integration between different market levels—local, national, and cross-border—ensuring that flexibility resources can participate efficiently across the system.

Action 4: Support the potential synergies coming from increased sector coupling/sector integration/system integration

The analysis reinforced the importance of a holistic approach, moving beyond individual energy carriers. A survey identified emerging regulatory gaps, and a workshop with the Business Models (BM) WG explored synergies between regulatory frameworks and innovative business models. In 2025, discussions will focus on specific recommendations and best practices.

Action 5: Support the system operators to prepare the grid for 2030

A new action in 2024, this initiative aligned with the EU's Grid Action Plan. A scoping workshop, in coordination with ISGAN, prioritized innovations needed in network planning and operation. Identified challenges include adapting to increased demand, integrating modern infrastructure, and standardizing local market interactions. Future recommendations emphasize enhanced training, robust articulation agreements, and greater stakeholder collaboration.

A survey among BRIDGE GA participants confirmed the relevance of the ongoing activities within the WG Regulation. In particular, participants highlighted key regulatory areas such as Energy Market Access for Consumers, Flexibility, and Energy Sharing as crucial priorities. Additionally, Sector Coupling and Building Regulations emerged as topics of growing interest, suggesting the need to deepen and expand the regulatory work in these areas during the 2025–2026 period.

For an overview of the voting session's results, please consult the Annex section at the end of the document.

Potential new topics for WG Regulation in 2025 include e-mobility (especially Vehicle-to-X applications), artificial intelligence, and cybersecurity. The GA discussions emphasized the importance of knowledge sharing via webinars, workshops, and in-person meetings to strengthen the EU's collaborative research ecosystem. Suggestions for optimizing WG operations included increasing time between meetings, clustering sessions, issuing a regular operational newsletter, and developing an onboarding process for new projects. Additionally, project representatives emphasized the necessity of linking ongoing regulatory work with policy updates and proactively contributing to policy discussions.

Next steps

- 1. **Further Analysis:** Continue working on the seven key questions, refining responses and insights based on ongoing research and stakeholder input.
- 2. **Strengthening Local Market Structures:** Prioritize the integration of local markets through robust articulation agreements and tools that enhance their functionality and efficiency.
- 3. **Enhanced Collaboration:** Foster discussions and knowledge-sharing activities with stakeholders to align methodologies and best practices across different initiatives.
- 4. **Preparation for Future Discussions:** Identify and propose new topics and events that engage participants, ensuring that emerging issues are addressed effectively.
- 5. **Regulatory and Policy Alignment:** Monitor and adapt to evolving regulatory frameworks to ensure smooth market integration and support innovative energy solutions.
- 6. **Leveraging EU Initiatives:** Strengthen synergies between BRIDGE, ETIP SNET, and ISGAN through dedicated meetings and coordinated work plans.

Through these strategic actions, the WG Regulation aims to strengthen its impact on European regulatory frameworks, ensuring a more integrated, flexible, and consumer-centric energy system.

Business Models

Background

The WG on Business models focuses on various business-related aspects that are relevant for the BRIDGE projects in the smart gird sector, structuring its activities around the business models tools and methods, the identification of best practices and the provision of standardized processes. In 2024, the WG contributed to this overall objective via 3 different tasks of which the main achievements were presented during the BRIDGE General Assembly.

The 3 main tasks of the WG Business models are the following:

- Task 1: The main activities include investigating tools for capturing ideas and building business models. The goal is to standardize the process for tool selection based on their features, by overviewing and mapping the Business Model tools, identifying best practices, their main attributer and gaps and barriers which may affect their usage. To this end three knowledge exchange rounds were held based on the project status, in which projects shared insights form their work on business models, to facilitate sharing and feedback.
- Task 2: The main activities of Task 2 involve the quantification methods for BM benefits of services and solution within the energy domain, especially under various use case scenarios, involving several methodologies, each tailored to the specific aspects of the business model and to the unique challenges of the energy sector. The aim of the task is to establish a standardised methodology for the quantitative analysis of business models by developing a consistent process for using quantification methods alongside existing tools.
- Task 3: Task 3's objectives aim at bridging business model thinking and design with data and with the development of data spaces. It includes the investigation of the types and characters of the data value chain in the Business Models of BRIDGE Projects, by mapping their contribution to Energy Data Spaces (EEDS), Federated Digital Twins (FDT) and Energy Market Places (EMP).

Conclusions

During the session, the working group has drawn and presented the following task specific conclusions for 2024:

- Task 1: During 2024, the main outcomes of the task concerned the use of business modelling tools across projects. It emerged that most of them rely on a common set of tools, such as the Business Model Canvas and the Value Proposition Canvas. While these are broadly adopted, quantifying their elements remains a challenge due to difficulties in retrieving related data. In this regard it was noted the need to cluster use cases into repositories for business models archetypes, to provide a solution to the challenges in quantification. Nonetheless, several innovative approaches and tools for mapping data interdependencies were highlighted as good practices.
- Task 2: During 2024, the main outcomes of the task concerned the establishment of a standardized methodology for the quantitative analysis of business models. In the discussion, the need for harmonization of quantitative methodologies emerged, alongside with the need to develop cross sectoral approaches to energy data monetization.
- Task 3: During 2024, as a result of the scrutiny of the three pillars, EEDS, FDT and EMP, the main outcomes of the task concerned their use as assets for finding and accessing information about energy (energy discoverability), particularly data related to energy research, projects, and resources. As a matter of fact, discoverability of data is confirmed to be central when building a Business Model on their result as well as an exploitation strategy, granting the possibility to have an efficient access to energy data resources and validating the integrity of the data themselves.

The breakout session for Business Models carried out in the General Assembly was an interactive session conducted both in person and with online participants. Throughout the whole session, the **need for a repository** was identified, both in relation to Task 1 as well as to Task 2. By clustering uses cases, it would serve not only as a standard for quantification, but also as a guidance to increase visibility and engagement, by including **qualitative descriptions of successful projects**, explaining how their products have been brought to market (during or shortly after project completion). It was noted that projects require support throughout different stages, standardized approaches for quantifying business plans, and better interaction between the work produced and the current activity explored by multiple stakeholders working on the emergence of Common European Energy Data Spaces.

Next steps

Next steps for each task were discussed, highlighting the broadening of tasks content aiming at analysing the Artificial Intelligence impact on Business Models. Task 1 activities will deepen the focus on AI Impact upon Business Models processes and methodologies while Task 2 activities will focus on AI impact upon Business models valorisation and monetization, activity that in 2024 resulted to be more challenging than thought initially. In relation to Task 3, the working group will increase its efforts towards Data Spaces and the Artificial Intelligence impact on

them. One overreaching objective which will comprehend the activities of the three tasks will be the assessment of future challenges and opportunities in AI adoption, aligning the usage of the latter with European Policy Framework.

As for individual tasks activities, basing on the lessons learned, Task 1 will redefine last year's report by tailoring closely to project needs and by using a modular approach to facilitate assessment and navigation. Moreover, along detailing AI impact, Task 1 will focus and leverage the approach from projects such as OMEGA-X, and the Energy Venturely Platform, providing a more holistic approach to enhance business model development, scalability and replicability. Task 2 enhanced the need to establish a unified definition of business models within BRIDGE, alongside standardization of impact quantification and KPI methodologies. Lastly, Task 3 highlighted the need to include the most impacting projects to the analysis to reinforce the 2024 report and to elaborate a practical guidance for Bridge R&I projects based on lessons learned.

The working group stressed the importance of developing processes for understanding gaps and sharing best practices. Additionally, objectives for 2025 were outlined, emphasizing the importance of maintaining current tasks, engaging projects, standardizing processes, and preparing a simple and practical **unified cookbook**, easily usable by new projects.

Additionally, the importance of creating a repository of business models examples (clustered by use cases) and descriptions of successful projects (with products brought to market) was highlighted and prioritised as an activity to be undertaken this year, so that new projects can benefit from the experience of previous ones.

The priority of the Working Group following the conclusion of the General Assembly will be the finalisation of **the annual activity report** with a draft to be submitted to the EC for validation **by June 2025**.

Data Management

Background

The Working Group on Data Management aims to cover a wide range of aspects ranging from the technical means for exchanging and processing of data between stakeholders to the definition of rules for secure exchange and management of data.

For the 2024-2025 period, the Actions of the Data Management WG have been active on the following areas:

- **Data exchange framework** embracing the technical and non-technical aspects of the architecture needed to exchange data and the related requirements;
- Interoperability promoting the adoption of common standards, protocols and sharing of use cases;
- Innovative technologies that have the potential to impact data exchange and processing, including artificial intelligence.

The areas are actively pursued through the following six Actions:

- Action #1 "Use-Case Repository": Provide an overall view of all the simplified and homogenized projects
 Use cases in a simple format; provide data set with detailed information for cross-project analysis; and
 facilitate the reuse of existing use-cases and solutions from past/on-going projects.
- Action #2 "Data Exchange reference Architecture": Contribute to the discussion and practical steps towards truly interoperable and business process agnostic data exchange arrangements on European scale;
- Action #3 "Reference framework": Develop a methodology and reference framework to enable
 interoperability within flexibility-based use-cases but also beyond (e.g. P2P energy trading, energy
 monitoring, and so on).
- Action #4 "BRIDGE Standards User Group" (BSUG): Gather and diffuse collective knowledge, at system
 level, including outcomes such as a practices related to standards, and feedback from the scale-up and rollout following finished projects;
- Action #5 "Interoperability of Home Appliances": Characterize and compare the solutions used by BRIDGE projects to achieve home appliances interoperability. Investigates the functional commonalities of home appliances among BRIDGE projects identifying takeaways from projects and existing standards;

Action #6 "Artificial Intelligence" (launched in October 2024): Identify the challenges faced in developing
and adopting AI-based solutions by ongoing projects. Collect AI-related use cases and analyse how AI can
enable innovative solutions or improve existing ones.

Conclusions

In 2024-2025, the Data Management WG pursued the six on-going Actions. The following results were achieved:

Action #1 "Use-case Repository": During the 2024-2025 period the Use Case Repository, initially developed under the EIRIE platform, has been migrated to the JRC. The new Repository has a system in place which includes a drafting, reviewing, and publishing mechanisms, with different roles for the users (*Visitor – Author – Evaluator*). The aim is to ensure that content is approved before publication. Guidelines for authors and evaluators have been drafted to standardize contributions. An expression on interest was launched to identify a small team of evaluators, which will review and validate the repository before opening it to broader contributions from the BRIDGE Community Projects. Future improvements, including XML import/export capabilities and compliance with IEC 62559-3, have been identified but require further development from JRC. The next steps involve updating the list of volunteers (a list of actors has been imported from Action #3), finalizing guidelines and updating the FAQ on the website, and verifying repository functionality before full deployment.

Action #2 "Data Exchange reference Architecture" (DERA): In 2024-2025, a key outcome was the development of the DERA3.1 reference data model and ontology, shifting from theory to practical application in projects like the Data Space initiative. Action #2 established a structured GitHub repository to facilitate access to XSD Schemas and CIM models, improving interoperability testing based on the SIEM reference model. The BRIDGE Data Modelling Support Team refined workflows and aligned IEC 62325 and 62746-4 standards to enhance real-time data exchange for flexibility services. The repository is already hosting validated metering data models and will expand with new message exchanges by September, with initial tests planned by year-end. Contributions from TwinEU, Decoded, and Reforming strengthened synergies. Collaboration continues with OneNet and Omega-X to improve message interoperability, while key tools for mapping CEN/CLC/ETSI CG-SG frameworks (IEC CIM, SAREF4Ener) have been identified.

Action #3 "Reference framework": In 2024-2025, Action 3 focused on updating the reference framework through a feedback survey (16 project responses) leading to actionable improvements, including refining settlement processes. A key effort was revising the Generic Actor List, in collaboration with CEN/CLC/ETSI CG-SG and, to support Action #1 on the Use Case Repository, ensuring harmonized use case definitions. Workshops have started, with updates expected in 2025. A survey on standards and protocols (21 project responses) led to an updated list for GBP interfaces. Additionally, a survey on Systemic Guidelines was conducted on October 2024. Next steps include integrating GBP guidance for new BRIDGE projects, ensuring early alignment, and enhancing the Use Case Repository with template use cases for easier adoption.

Action #4 "BRIDGE Standards User Group" (BSUG): In 2024-2025, the Action held plenary meetings every month. Within this timeframe, key outcomes included the creation of a repository of code components and the organization and release of a total of 14 webinars to present relevant standards. The collaborations with the Coordination Group on Smart Grids (CGSG), ENTSO-E, CEN-CENELEC-ETSI CG-SG and other standardisation organisations were strengthened, aiming to align on interoperability and certification processes for better standards implementation. The action will produce a "Standard Starter Kit" for projects to be aware of key standards and tools

Action #5 "Interoperability of home appliances": During the 2024-2025 period, the survey aimed at capturing the status concerning the projects' products supporting interoperability of home appliances, identify standardisation and harmonisation activities received new responses to reach 39 replies in total. The report of the survey will offer further analysis and suggestions for how to support BRIDGE projects in improving interoperability and helped to provide a definition of a common ground for interoperability and proposition of solutions to overcome the barriers. Furthermore, the annual survey can offer a temporal analysis on how interoperability develops overtime. Additionally, the Action is monitoring and actively participating in activities like the JRC code of conduct for energy interoperability of energy smart appliances and the Mercury initiative. The Action is working on the identification of applicable smart appliances to be supported by the EPREL database, with the scope to be defined.

Action #6 "Artificial Intelligence": This Action was launched in October 2024 as part of a previous commitment by the Data Management Working Group to focus on the innovative technologies that have the potential to impact

data exchange and processing, as mentioned above. Since its start, the first major step was launching a survey in February to assess AI use cases, applications, key challenges, and advantages compared to traditional methods. Up to now, more than 40 participants had responded. The Action will analyse and discuss the results, as well as planning its next steps for 2025. The outcomes will be reflected in the annual activity report.

The breakout session of the Data Management Working Group during the General Assembly was an interactive session conducted both in person and with online participants. The main aim was to discuss the progress of the actions and define the workplan for the 2025/2026 cycle by defining the prioritization, organization and scheduling of the current and next activities. Additionally, other potential activities beyond the 6 actions were discussed, leveraging on a broader audience obtain insightful suggestions on potential topics for the work in the next cycle. The enhancing of the cooperation with external activities was emphasized, as well as the cross-cooperation with other BRIDGE Working Groups.

Next steps

The **Data Management Working Group** will focus on finalizing the 2024-2025 reports, selecting a new chair, and ensuring the effective continuation of all six actions. It will also explore whether all actions require annual reports or if some (Action #1 and #4) can be continuously updated through a dedicated webpage. Strengthening dissemination efforts and improving survey coordination both within and across working groups remain a key priority. Moreover, the group aims to enhance collaboration with the Regulation Working Group, particularly by producing joint reports on shared topics.

Additionally, the following lessons learned:

- Facilitate cross-checking reports across working groups and improving access to continuous updates, possibly via a dedicated webpage;
- Optimise the dissemination of surveys (i.e., synchronization between actions + word template)
- Capitalise on external connections to exploit synergies (i.e., JRC CoC, Mercury Initiative, etc.)
- Facilitate the onboarding of new project focusing on highlighting what BRIDGE and specifically how DMWG results can support their work (e.g. BSUG webinars, GBPs, etc.)

For the working year 2025-2026, the Data Management WG will focus on the fulfilment of these action points:

- 1. The priority of the Working Group following the conclusion of the General Assembly will be the finalisation of **the annual activity report** with a draft to be submitted to the EC for validation **by May 2025**.
- 2. Continue with the work of the six on-going Actions;
- 3. Strengthening the WG connection with projects:
 - Enhance the onboarding process;
 - Launch a dedicated landing page;
 - Gather useful documents for new projects and fostering status sharing.
- 4. Finalize the Use-Case Repository:
 - Establish an Evaluators team with 4/5 volunteers among BRIDGE projects;
 - After finalizing it, open the Repository to all the BRIDGE Community to collect Use Cases;
 - o Complete and publish the related guidelines for authors and evaluators.
- 5. Expand the reference model:
 - New message exchanges by September 2025;
 - o Continue the work on data modelling and understand how to progress on the ontology approach;
 - Monitor the evolution of standards and protocols, ensuring updates to GBP interfaces;
 - Enhance and refine the Reference Framework based on the feedback to the survey
- 6. Framework and Standardization Tools Development:
 - Finalize and publish a "Standards Starter Kit" to guide projects on key standards and tools;
 - Expand the repository of code components and explore further webinar topics;
 - Collect and integrate projects feedback: gather insights on standardization activities, challenges, and identified issues to improve support.
- 7. Support the interoperability of home appliances:
 - Continue the investigation of standards and devices through dedicated research and surveys among the BRIDGE network;

- Complete the survey analysis and publish a report outlining key interoperability challenges and solutions;
- 8. Categorization and analysis of AI Use Cases in the energy sector:
 - o Analyse the survey responses to categorize AI use cases, applications, and challenges;
 - o **Identify priority topics for Al-driven solutions** in data exchange and grid management;
- 9. Identify and appoint a New Chair for the Data Management Working Group;
- **10.** Collaboration with other Working Groups:
 - o Continue the cooperation with the **Consumer and Citizen Engagement Working Group** on the creation of the **Smart Tools Knowledge Hub**.
 - Drafting and publication of joint reports on shared topics with the Regulation Working Group, particularly, and also by enhancing the knowledge sharing.

The following workplan has been defined for 2025-2026:

2024-2025 Reports finalisation	
Take into account comments from DMWG participants	May 2025
Action #1 UC repository – 2025-2026	
Finalize validation of the Use-Case Repository (small group of volunteers)	June 2025
Complete and publish the guidelines for authors and evaluators.	May 2025
Open repository to BRIDGE projects and start collecting UC drafts	Starting from June 2025
Rotation of the Validation Team members	December 2025
Action #2 EU data exchange reference architecture (DERA) – 2025-2026	
Expand the reference model with new message exchanges by September 2025	September 2025
Organize training sessions to promote CIM-based data modelling and support smaller project teams	April 2025
Action #3 Reference framework – 2025-2026	
Further improve the Reference Frame and its GBPs	September 2025
Continue refining the Generic Actor List and harmonizing it with use case definitions, and	December 2025
Developing methodologies for standard stacking to improve interoperability	June 2025
Action #4 Bridge Standards User group – 2025-2026	
Host regular BSUG meetings helping to gather standards usage by BRIDGE projects	Every month
Publish webinars about standards for BRIDGE projects	Continuous
Update the repository & process for code components to be reused by projects	Continuous
Reinforce coordination internally and with external initiatives	Continuous
Keep the active liaisons with CEN/CLC CG-SG and ENTSO-E CIM EG	Continuous
Support DERA implementation by providing practical tools	June 2025
Action #5 Interoperability of home appliances – 2025-2026	
Provide results/contribution to JRC and DG ENER	Continuous
Identify "takeaways" from projects and make them available to all	February 2026
Investigate existing standards (features, overlaps,)	February 2026
Complete the survey analysis and publish a report outlining key interoperability challenges and solutions.	June 2025

Define the scope for supporting smart appliances in the EPREL database	June 2025
Action #6 on Artificial Intelligence – 2025-2026	
Analyse the survey responses to categorize AI use cases, applications, and challenges and draft a report	May 2025
Identify new steps and actions	Continuous
DMWG connection to projects	
Prepare materials for projects' on-boarding (link to relevant documents, results, tools,)	October 2025
Enhance cooperation with BRIDGE WG on Regulation	Continuous
Start a cooperation with the ETIP SNET initiative the AI topic	June 2025
Miscellaneous	
Appoint a new Chair	May 2025
Update participants list of each Action	June 2025

Annex

Agenda

Tuesday 25th of March - Day 1

Time	Session
13:00	Introduction and Keynote: Vincent Berrutto, Head of Unit - Digitalisation, Competitiveness, Research and Innovation, DG ENER, EU Commission Matthias Langemeyer, Head of Department C – Green Research and Innovation, CINEA Enrico Gaspari, BRIDGE Secretariat
13:30	 Update on the Policy Context Policy updates by DG ENER Affordable Energy Action Plan by Karsten Krause, Head of Sector, DG ENER, EU Commission Competitiveness Progress Report by Raoul Dörr, Policy Officer, DG ENER, EU Commission Presentation of Clean Energy Technology Observatory by Antonio De Paola, Scientific Project Officer, Joint Research Centre (JRC)
14:00	BRIDGE Working Groups on the Spotlight Presentation of the work and results achieved in 2024 by Andrej Gubina, Helena Gerard, Michael Brenner-Fließer, Olivier Genest
15:00	World Cafè exercise & Networking Cafè
16:00	Presentation of the paper "Bridging the gap from innovation to market" Mark Stefan, Research Engineer & Thematic Coordinator, AIT
16:15	Panel session: Overcoming barriers for innovation implementation Moderated by Luca Passoni, PwC Presentation of results of the World Cafè exercise by selected projects Success story of EU project exploiting its results (Platone and RomeFlex) by Ercole De Luca, Head of Regulatory and Public Finance, Areti
17:00	Presentation and updates of ETIP SNET Luis Cunha, ETIP SNET Chairman
17:15	Unlocking EU funding and supporting tools: Informative session CEF Energy - Ona Kostinaite-Grinkeviciene, CINEA Innovation Fund - Bernardo Abello Garcia, CINEA European Innovation Council - Paolo Bondavalli, EISMEA Horizon Booster & Horizon Results Platform - Angelo Strano Bilgeyis Najafova, DG RTD, EU Commission and Rosellina di Santo, Meta Group
18:15	Conclusions Day 1 and Group photo
18:30	Networking Aperitivo

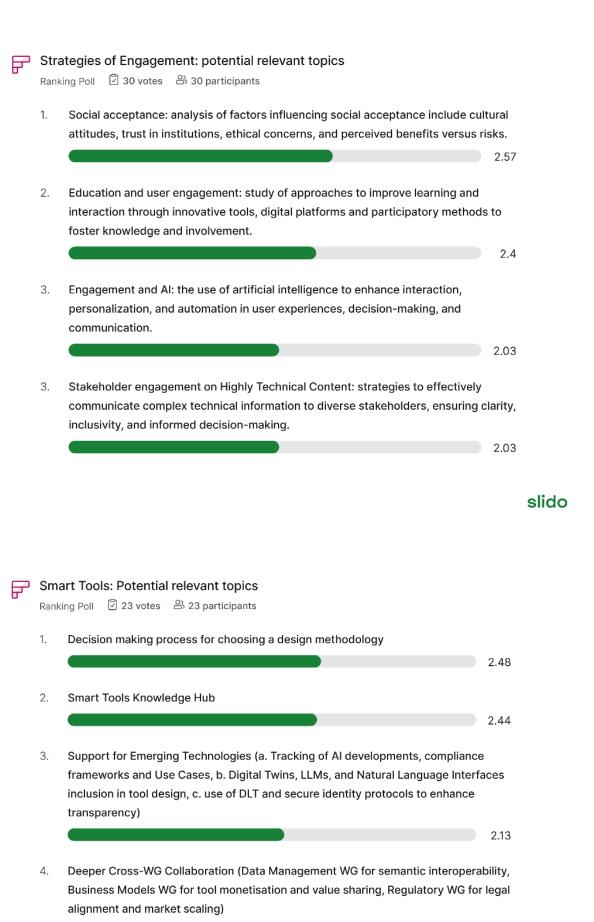
Wednesday 26th of March - Day 2

Time	Session		
9:00	Networking Coffee		
9:30	Welcome and wrap-up from the previous day: George Paunescu, Policy officer, DG ENER, EU Commission Beatrice Profeta, BRIDGE Secretariat		
9:45	Presentation of the Cluster Spaces Overview of the cluster by Stravos Stamatoukos, Policy Officer, DG ENER, EU Commission Overview of the IntNet project and the work on the energy data spaces carried out by a group of five projects by Antonello Monti, Fraunhofer FIT		
10:15	Division into Working Groups with DG ENER setting the scene for future we	ork in 2025 Break-out Rooms	
10:30	Parallel Session 1 CONSUMER & CITIZEN ENGAGEMENT WG	Parallel Session 2 DATA MANAGEMENT WG	
12:30	Lunch		
13:30	Parallel Session 3 REGULATION WG	Parallel Session 4 BUSINESS MODELS WG	
15:30	Networking Coffee & new BRIDGE projects showcasing		
16:00	Plenary: Outcomes of the Discussion of the Breakout Rooms & Q&A (15 minutes per WG) • Presentation of conclusions from the moderators of the breakout rooms by Andrej Gubina, José Pablo Chaves Ávila, Michael Brenner-Fließer, Olivier Genest • DG ENER feedback on the presentations by WGs		
17:00	Concluding remarks and next steps. Elisabeth Schmid, BRIDGE Secretariat Wrap-up by BRIDGE Chairs George Paunescu, Policy Officer, DG ENER, EU Commission		
17:30	End of the Event		

Consumer & Citizens Engagement: Voting session results

	k your preferred topic for next year	
1.	What are best practice tools for engagement?	0.00
2.	Energy Poverty	6.69
3.	Meaningful and early citizen involvement	6.31
4.	What are the most relevant value propositions for citizens?	6.25
5.	How can we use Al for stakeholder engagement?	5.92
6.	Focus on citizens' point of view within flexibility services	5.89
7.	Inclusion of broader sections of the population (e.g. people without property)	5.42
8.	Aligning technical change with social and organisational change	4.72
9.	Understand citizen activities within their ecosystems	4.47
10.	Consumer's right protection in energy sharing organisations	4.36
11.	Gender and Energy	4.28
		2.72

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1.65



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Regulation: Voting session results

Rank your preferred topic for next year

Rank	king Poll ② 23 votes 의 23 participants	
1.	Improve market access for consumers to value their flexibility	
		4.65
2.	Energy sharing and peer-to-peer	
		4.48
3.	Support the potential synergies coming from increased sector coupling	
		4.04
4.	Quantitative Assessment for Energy and flexibility market coordination and integration	
		3.7
5.	Interoperability and regulatory issues in electric mobility (smart charging; V2X)	
		3.44
6.	Support tools & remuneration system operators to prepare the grid for 2030	
		3.35
7.	Data Spaces Regulation?	
		1.96
8.	Cyber security regulatory compliance?	ے نے م
		1.35

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