



Policy Roundtable on Demand Response and its Deployment

Report from 27 May 2025

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This project has received funding from European Union's Horizon Europe Research and Innovation programme under the Grant Agreement No 101103998

Table of contents

Table of contents	2
1. Introduction.....	3
2. Topics.....	4
3. Topic 1: Interoperability issues across national infrastructure systems	5
3.1. Discussion	5
3.2. Survey responses	7
3.3. Summary	7
4. Topic 2: The absence of a clear and consistent regulatory framework.	9
4.1. Discussion	9
4.2. Survey responses	12
4.3. Summary	13
5. Topic 3: Entry barriers imposed by DSOs and TSOs	15
5.1. Discussion	15
5.2. Survey responses	16
5.3. Summary	16
6. Topic 4: The lack of effective incentives to engage key stakeholders in demand response programmes.....	18
6.1. Discussion	18
6.2. Survey responses	19
6.3. Summary	20
7. Topic 5: Complexities in data management and privacy protection ...	22
7.1. Discussion	22
7.2. Summary	23
8. Full biography of the panellists	24



1. Introduction

The policy session on Demand Response deployment was held within the framework of the EU Horizon DEDALUS Project. The roundtable brought together experts from academia, industry, and policymaking to examine barriers to demand response (DR) deployment across Europe and to identify policy measures supporting its large-scale implementation. The discussion addressed five topics: interoperability, regulatory frameworks, entry barriers, incentives, and data governance.

The session was moderated by **Katerina Sianni** (DEDALUS project partner, National Technical University of Athens) and facilitated by **Agnes Mlicka** (DEDALUS project partner, European Green Cities). The panel consisted of policy makers (**Thomas Kawam**), industry experts (**Gusts Kossovics**, **Maria Capogreco**, **Quentin Donnette**, **Athanasios Papakonstantinou**) and academics (**Saska Petrova**, **Panos Skaloumpakas**):

- [Thomas Kawam](#)
Policy Officer - Internal Energy Market at DG ENER, European Commission
- [Maria Capogreco](#)
Chair of HWG, RHC-ETIP
- [Gusts Kossovics](#)
Managing Director EUBAC
- [Quentin Donnette](#)
Senior Market Analyst, smartEn – Smart Energy Europe
- [Saska Petrova](#)
Professor of Human Geography, Departmental Research Director, University of Manchester
- [Panos Skaloumpakas](#)
Pilot site coordinator at the DEDALUS project; National Technical University of Athens
- [Athanasios Papakonstantinou](#)
Innovation Coordinator at the DEDALUS project; R&D Project Manager and Energy Management at HERON

At the end of the document is the full biography of all the panellists.



2. Topics

Topic 1: Interoperability issues across national infrastructure systems

Innovative DR solutions that bring value to the consumers require large volumes of high frequency data both in the design / model training and live deployment / operation phases. However, often such data is not available to some or all stakeholders (technical providers, product developers, customers etc.) despite significant investments at European and national levels.

Question: What measures can be undertaken so that national regulatory authorities and infrastructure (grid) owners and operators are in-line with EU initiatives?

Topic 2: The absence of a clear and consistent regulatory framework

EU Member States adopt varying approaches to energy market regulation, leading to significant disparities in the implementation of DR policies. This lack of uniformity hinders coordination on a common strategy and slows large-scale implementation.

Questions: Given the diversity of regulations among EU Member States, is it realistic to think that the EU could adopt a common strategy for DR? What would be the main political challenges to overcome, and how could they be addressed? And between the different DR markets inside the European Union, which features should be imported to other countries and which ones weren't successful?

Topic 3: Entry barriers imposed by DSOs and TSOs

The framework for enabling prosumers to participate in demand response scenarios are constantly improving, and in general it is possible to participate either directly for some services or via an aggregator for other services. The main challenge is still related to the business case, where a high number of assets are required in order to balance the investment of being flexible compared to the gain.

Question: Are DSO and TSO, as well as EU-regulators and public authorities, ready to substantially lower the entry barriers for DR and/or increase incentives for DR?

Topic 4: The lack of effective incentives to engage key stakeholders in demand response programmes

DR is often seen as a beneficial solution, but it requires significant upfront investment.

Question: How can consumers be incentivised to participate, given that the economic return may not be immediate? Are there plans to establish a unitary compensation mechanism for consumers participating in DR?

Topic 5: Complexities in data management and privacy protection

There are privacy constraints in relation to users' involvement, for example access and use of comfort/consumption data from sensors/sub-meters.

Question: How to tackle privacy limitations in regard to the collection and management of users' data?



3. Topic 1: Interoperability issues across national infrastructure systems

3.1. Discussion

The first topic concerns interoperability issues across national infrastructure systems. As explained by **Katerina Sianni**, the DEDALUS project reveals that innovative DR solutions bring value to consumers, but require large volumes of data, which is often not available. Despite the significant investments at European and national level, interoperability is still a challenge. The question that has been formed as a starting point for the discussion is what measures can be undertaken so that national regulatory authorities and infrastructure owners and operators are in line with EU initiatives.

Athanasios Papakonstantinou argues that Europe faces a significant asymmetry in how grid operators and national regulators implement EU-level decisions, creating challenges for utilities and operators. A key example is the uneven use of EU funding instruments—such as green transition and recovery funds—where some member states access a large share while others make limited use of them. Because major infrastructure upgrades are urgently needed across Europe, he advocates for a more uniform, rational and coordinated use of EU funds. This would help ensure that necessary grid investments are adequately financed and deployed more consistently across all member states.

Panos Skaloumpakas notes that innovative demand-response solutions require high-frequency, near-real-time data, but Europe is uneven in its smart-meter rollout. Some countries, like Denmark, already collect real-time consumption data from most buildings, while others, such as Greece and Romania, lack incentives to deploy smart meters quickly. As a result, technology providers must install their own sub-metering systems to obtain the necessary data, leading to added costs and significant delays.

Furthermore, end-user acceptance is crucial, yet many customers resist installing new devices because they see no clear benefit. This becomes more problematic when different energy suppliers deploy their own proprietary solutions, creating interoperability issues—each solution works only within its own “box,” limiting integration and interaction across the system.

Thomas Kawam shares the perspective from the European Commission regarding EU regulations. He acknowledged the issues raised—slow smart-meter deployment and lack of interoperability—and noted that the Commission shares these concerns. Although the EU electricity directive sets common principles, member states decide the detailed implementation, which leads to different national frameworks and potential barriers for demand response and aggregation. To reduce these barriers, the Commission is preparing two major harmonizing measures: (1) a new Network Code on Demand Response, to be adopted in early 2026, creating directly applicable, unified rules for aggregation and market interactions; and (2) implementing acts on data interoperability to make consumer data exchange more consistent across the EU.

ACER — the EU Agency for the Cooperation of Energy Regulators — has submitted proposals that serve as the starting point for developing new network codes. While these proposals set out common principles, they still allow national authorities to define specific rules, acknowledging that countries begin from



different levels of maturity. For areas like local flexibility markets, full EU harmonization is planned but will occur gradually over the coming years. The ACER's draft proposals are publicly available.

Thomas Kawam acknowledges that uneven smart-meter rollout is a major barrier to demand response. As part of the 2024 electricity market design reform, the Commission proposed allowing dedicated measurement devices, which are less regulated than smart meters, to enable consumers without smart meters to still participate in demand-response services. This aims to bypass delays in smart-meter deployment, though he invites feedback on whether this measure is sufficient or if smart-meter availability remains the primary obstacle.

Building upon the mention of these obstacles, **Katerina Sianni** raises the further questions whether anybody has any thoughts about how the harmonization can be developed in a manner that can help relevant projects, and what the measures are to ensure that we have national regulatory authorities which operate in line with the EU initiatives.

Gusts Kossovics emphasized that buildings—not just the grid—face major inconsistencies in EU policy implementation. Although the Energy Performance of Buildings Directive mandates smart, grid-integrated controls, many countries and building owners are unprepared or unaware, and member states have been slow to meet implementation deadlines. He calls for stronger enforcement and more guidance from the Commission, as well as better sharing of best practices. Kossovics stresses the need for alignment between building regulations and energy market rules, arguing that clearer, more consistent EU-wide frameworks would give building owners and service providers the confidence to invest in flexibility, especially given their cross-border activities.

To the question how such enforcement can be achieved, Gusts Kossovics notes that while the Commission can ultimately use infringement procedures, more proactive engagement with member states would be beneficial. He observes that industry actors often have better insight into how member states interact with building owners and investors than the Commission itself. He encourages more information-sharing, closer dialogue with member states, and stronger encouragement from the Commission to ensure timely implementation of building-related measures.

Thomas Kawam stresses that proper implementation of existing EU rules is crucial. He notes that around 90% of the demand-response framework already exists in the 2019 directive, but many member states are still lagging in transposing and applying it. Beyond enforcement, the Commission's role is to support member states, share best practices, and help them understand how to put the rules into practice. The current focus, he emphasises, is on ensuring implementation—not just creating new regulations.

Quentin Donnette emphasises that member states must fully implement EU law, highlighting ongoing gaps such as delays with smart meters. He welcomes the inclusion of dedicated measurement devices in EU legislation, as they can compensate for the lack of smart meters, work alongside older smart-meter generations, and enable aggregators to connect directly to specific appliances (e.g., heat pumps, EV chargers). He reiterates that implementation is essential and must remain a constant priority.

Maria Capogreco highlights the need to focus on the technologies that enable demand response, particularly energy data acquisition and communication tools. She stresses that interoperability challenges must be addressed and that regulations should create a cohesive, supportive framework for deploying devices like smart meters and home energy management systems. Clear rules governing how energy data is collected and communicated will be essential for the broad adoption of demand-response programs.



Athanasios Papakonstantinou expresses support for the upcoming demand-response network code, noting that clearer technical guidelines will make it easier to develop market-ready flexibility services. He explains that current regulatory complexity creates constant debates between market actors and regulators, making innovative products difficult to scale. Having a harmonized, detailed framework will help companies adapt the solutions developed in projects like DEDALUS and eventually deploy them beyond pilot settings, once the necessary data infrastructure is in place.

Quentin Donnette observes that, unlike five years ago, nearly all EU countries now have clear deadlines for smart-meter rollout. Even countries that were lagging, such as Greece and Germany, have established concrete plans. He stresses that while delayed, this progress is important and worth acknowledging.

3.2. Survey responses

The following answers were submitted in Mentimeter to the question: **What measures can be undertaken so that national regulatory authorities and infrastructure (grid) owners & operators are in-line with EU initiatives?**

- A common EU DR strategy is achievable if it is flexible enough to accommodate national diversity and if it is inclusive in terms of promoting just-gendered energy transitions including EP households.
- Align national rules with EU policies like the EPBD and upcoming DR Network Code, recognize BACS-enabled buildings as flexibility assets, and adopt open standards for grid-building integration.
- Access to funds and grants as incentives for grid updates and smart meter deployment.
- Member States should transpose and implement the provisions of the Electricity Directive. While the EC will develop new rules to address remaining barriers, there is no need to wait for Brussels.
- Under EU and national directives, speed up smart meter rollout with uniform data formats and open APIs in lagging counties.

3.3. Summary

- Innovative demand-response solutions require large volumes of high-quality, real-time data, but such data is often unavailable due to uneven smart-meter deployment and limited interoperability across national systems.
- Significant asymmetries exist in how EU decisions and funding instruments are implemented, leading to uneven progress in grid upgrades and infrastructure investment.
- Uneven smart-meter rollout across Europe forces technology providers to install their own sub-metering, increasing cost and slowing deployment.
- End-user reluctance to adopt new devices and the proliferation of proprietary systems create further interoperability challenges.
- National implementation of EU energy rules varies widely, as EU directives set principles but leave design choices to member states, resulting in fragmented regulatory frameworks.



- EU efforts to improve harmonization include a forthcoming Network Code on Demand Response and new data-interoperability implementing acts, intended to create unified rules applicable across all member states.
- ACER's proposals form the basis for new network codes, defining shared principles while acknowledging different national starting points; full harmonization is expected to evolve gradually.
- Dedicated measurement devices are being introduced in EU legislation to enable demand-response participation even where smart meters are lacking or outdated.
- Buildings represent a second major area of uneven implementation; many member states and building owners have been slow to comply with EU requirements for smart, grid-integrated controls.
- Stronger enforcement, more active engagement with member states, and better information-sharing between the Commission and industry are needed to accelerate implementation.
- The majority of the EU's demand-response framework is already in place, but many member states are slow to transpose and apply existing rules, highlighting the need to focus on implementation rather than new legislation.
- Clear, cohesive regulatory frameworks and guidance are essential to ensure consistent deployment of energy data acquisition and communication technologies.
- Harmonized technical guidelines—such as those in the upcoming Network Code—are expected to help companies scale innovative services beyond pilot projects, once adequate data infrastructure is available.
- While delays persist, most EU countries now have concrete timelines for completing smart-meter rollouts, marking progress compared to previous years.



4. Topic 2: The absence of a clear and consistent regulatory framework

4.1. Discussion

The second topic addresses the lack of uniformity in energy market regulation, which hinders coordination of a common strategy and slows large-scale implementation. As noted by Katerina Sianni, the DEDALUS project has identified major disparities in DR policies and poor regulatory coordination across EU member states, which hinder large-scale deployment. This raises three questions: given the diversity of regulations among EU member states, is it realistic to think that the EU could adopt a common strategy for DR? What would be the main political challenges to overcome and how could they be addressed? And the third question is: between the different DR markets inside the European Union, which features should be imported to other countries and which ones weren't successful? Let's begin with the first one: is it realistic to think about a common strategy for DR?

Panos Skaloumpakas highlights that some countries, such as Greece and Romania, lack a regulatory framework for aggregators—key actors in demand-response implementation. Without a defined role for aggregators, it is unclear whether energy suppliers, large companies, or independent entities are permitted to perform aggregation. He stresses that clear, simple rules are needed to establish aggregators as a distinct market participant and enable their effective operation.

Quentin Donnette argues that all relevant actors—including independent aggregators—must have full access to electricity markets. While some countries legally define independent aggregators, many still lack a functioning framework that governs their interactions with suppliers and grid stakeholders. He notes that good examples already exist in countries with mature demand-response ecosystems, which others could adopt. Quentin also stresses that demand response should not be treated as a separate market; instead, it should be integrated like any other energy resource across all markets—wholesale, balancing, and capacity mechanisms—rather than being limited to specific segments such as balancing services.

Maria Capogreco explains that the regulatory framework for demand response is currently weak both at the EU and national levels. Using Italy as an example, she notes that the regulator ARERA introduced Act 300/2017 to launch regulatory experimentation, defining key actors—such as enabled virtual units and balancing service providers—and initiating pilot projects to test the feasibility of demand-response participation in the dispatching services market. However, there is still no clear, comprehensive legislative framework. She argues that while Italy's experience could be replicated elsewhere, the EU must overcome fragmented regulations and provide clear guidelines to enable consumers and prosumers to participate effectively in demand-response programmes, supported by a coherent legal and policy ecosystem. Overcoming regulatory hurdles is challenging because each EU member state has distinct characteristics and market conditions. These national peculiarities make it difficult to harmonize regulatory approaches. She adds that in some countries—such as Romania, where even the concept of an aggregator is not well established—basic energy market structures may still need to be developed before demand-response programmes can be effectively implemented.



Athanasios Papakonstantinou believes a common EU strategy for demand response (DR) is possible, but developing concrete, actionable plans is more challenging due to significant differences in balancing markets across member states. He contrasts this with the successful EU-wide harmonization of day-ahead markets, which handle 70–80% of electricity trading. He suggests that a common EU DR strategy should focus on the day-ahead (head) market, using DR as a planning tool rather than just real-time balancing, similar to how renewables are integrated. In DEDALUS pilots in Greece and Italy, services provide day-ahead advice to consumers, enabling them to adapt consumption for the next 24 hours. While large-scale deployment could introduce system imbalances, these can be managed with complementary DR services. He emphasizes starting from commonalities across member states before addressing differences, maintaining a constructive, positive approach.

Gusts Kossovics notes that political challenges to harmonizing demand response (DR) are real, as member states seek to protect regulatory autonomy and incumbents may resist potential disruptions. He suggests overcoming these challenges by showcasing successful EU projects and initiatives, such as dynamic pricing or DR programs. He emphasizes the need to align DR with building regulations, particularly the Energy Performance of Buildings Directive, ensuring that automated systems in large buildings can participate in flexibility markets. Tools like the Smart Readiness Indicator, which rates a building's energy "smartness" including DR capability, can incentivize consumers to make buildings more flexible and responsive.

Saska Petrova highlights the social and gender perspective in the discussion. She has observed that bottom-up perspectives from households, tenants, and energy communities reveal important barriers to effective demand response (DR). She notes a frequent mismatch between building owners' goals and the everyday needs of tenants, particularly in multi-occupied buildings. Some DR-enabling technologies can create stress—such as flashing indicators that households may associate with disconnection—especially for people experiencing energy poverty. She also emphasizes gender-related challenges: advice to shift energy use to cheaper hours can conflict with unpaid care work, which is often gendered, potentially increasing inequality. Understanding these social and practical dimensions, she argues, is essential to improve engagement not only from prosumers but from all households. She believes that if we don't consider the social component, the whole strategy won't be very effective. This is about taking care of a *just* energy transition.

Saska shares positive examples from the 'Power Up' project, showing how bottom-up initiatives can successfully engage households—including those experiencing energy poverty—in demand response and energy-sharing schemes. She highlights new Czech regulation that enables collective energy sharing within buildings, helping households share locally produced energy and easing grid management. In Belgium, particularly in Flanders, collaboration with the long-established cooperative Ecopower has demonstrated that households in energy poverty can be engaged constructively by focusing on their consumption patterns and discussing demand-response opportunities. She notes that while regional differences persist, creative regulatory approaches and collective models often make households more willing to participate and share data, especially when these approaches reduce stress and avoid the fear of disconnection associated with more individualistic smart-technology setups.

Gusts Kossovics agrees that occupant comfort and well-being are essential for successful demand-response participation. He notes that modern building automation systems can already deliver DR in ways that are so subtle occupants barely notice—for example, by pre-cooling before peak periods and slightly reducing cooling during peaks while keeping indoor temperatures within comfortable limits. With smart sensors and controls maintaining these boundaries, most users may not even realize DR is occurring unless informed. He concludes that maintaining comfort while clearly communicating the benefits—such as saving energy without compromising well-being—is key to securing user acceptance.



Maria Capogreco highlights the important role that renewable energy communities can play in demand-response programs. She notes that these communities could act as key participants in the dispatching service market, enabling residential consumers and prosumers to take part through virtual units. Currently, most experimental DR programs focus on industrial and commercial users, but she argues that expanding participation to households is crucial—both to broaden engagement and to help address issues such as energy poverty.

Saska Petrova argues that demand-response discussions focus too narrowly on energy savings and should also include social KPIs. She stresses the importance of assessing and communicating the social impacts of DR, since households care most about practical, day-to-day benefits rather than abstract energy-market dynamics. Highlighting how DR can improve daily life and system reliability—such as reducing blackout risks—would help build engagement and ensure that social outcomes are considered alongside technical and economic ones.

Quentin Donnette stresses that better EU-level coordination requires more open, transparent, and inclusive market-design consultations. These processes—whether led by regulators or TSOs—should allow participation from stakeholders in other member states, which is often hindered when consultations are conducted only in a national language. He argues that countries should avoid starting from scratch and instead learn from successful demand-response frameworks already implemented elsewhere, adapting these proven models to their own national contexts.

Katerina Sianni subsequently asks how demand response can be elevated to a higher political priority within government negotiations and collaborative agendas. She notes that while many public bodies focus on networks and infrastructure, DR itself often receives far less attention, and she questions what can be done to bring it more prominently into policymaking discussions.

Quentin Donnette argues that demand response can gain political priority by linking it to issues already high on the political agenda—such as reducing electricity prices, supporting industrial competitiveness, and easing the burden on households. He stresses the need for clear, concrete examples that demonstrate the financial benefits of DR, noting that without proper frameworks, “we are losing money.” As an illustration, he cites residential DR programs for electric heating that have reduced customer bills by around 25%, showing that highlighting such success stories is key to raising DR’s political visibility.

Quentin adds that residential demand response should be seamless and automated so that customers do not notice it. When the benefits are clearly communicated, participation is high and opt-out rates are extremely low once people engage with a DR program or aggregator.

Thomas Kawam emphasizes that, from a system-operator perspective, demand response (DR) must be treated on equal footing with other non-fossil flexibility options, such as storage. He notes that operators often perceive storage as more reliable and easier to manage because it is centralized, whereas DR is more distributed and therefore less familiar. His work focuses on ensuring that market and operational tools do not inadvertently favor storage over DR. He highlights that DR provides not only flexibility for renewable integration but also affordability benefits, since it leverages existing assets and avoids the need for new grid build-outs, additional connections, or costly infrastructure. For these reasons, he argues that DR should be strongly supported and its advantages clearly communicated, especially in contexts where operators underestimate its value.

Panos Skaloumpakas highlights that in many countries dynamic pricing is still absent, creating a fundamental barrier to demonstrating financial benefits for users participating in demand response. He stresses that introducing real-time pricing is essential for showing consumers how DR can reduce their bills.



He also emphasizes that comfort must remain a primary consideration: in pilots such as the Italian co-housing project with elderly residents, participants wanted DR systems that operate unobtrusively in the background while maintaining comfort levels. Finally, he supports regulatory experimentation—such as sandboxes—as a valuable way for countries with less-developed markets to test new market structures and the involvement of actors like aggregators.

Quentin Donnette clarifies that the electricity bill reductions he referenced come specifically from managed electric heating, where controlled adjustments reduce overall consumption while also enabling participation in capacity and balancing markets. He cautions, however, that dynamic tariffs do not benefit all residential customers equally. Their value depends on the flexible assets a household has—such as EV charging. Studies show that EV owners benefit from dynamic pricing, but households without flexible loads, and with consumption concentrated in peak hours, may actually face higher costs. He concludes that tariff offerings must therefore be tailored to individual customer profiles.

4.2. Survey responses

The following answers were submitted in Mentimeter to the question: **Given the diversity of regulations among EU Member States, is it realistic to think that the EU could adopt a common strategy for DR?**

- Implementation of the current framework should be the priority over developing new rules.
- The EU laws already act as a direct enabler for DR. Members States simply need to implement them.
- It is difficult to establish a common EU regulatory framework for implementing DR Programs, as peculiarities of the different EU Member States have to be considered (e.g.: market design).
- It is possible if we focus on the EU market aspects that connect us, such as the day ahead market.

The following answers were submitted in Mentimeter to the question: **What would be the main political challenges to overcome, and how could they be addressed?**

- DR rules and enablers represent a shift in the functioning of the electricity system, needing important change management efforts to onboard all stakeholders.
- National state local policies that could hinder the adoption of green transition in general apply here.

The following answers were submitted in Mentimeter to the question: **Between the different DR markets inside the EU, which features should be imported to other countries and which ones weren't successful?**

- The EC will soon publish a study on best practices for local flexibility markets design.
- Opening consultations in national language and English with actors active in other countries that implemented a successful market design.
- The Italian case study can be considered for transferring it.
- Balancing market agnostic solution should be shared as they do not rely on specific regulations and network codes.



4.3. Summary

Regulatory Fragmentation & Feasibility of a Common EU DR Strategy

- EU member states show major disparities in demand-response (DR) policies, slowing large-scale deployment.
- Many countries (e.g., Greece, Romania) lack a regulatory definition or framework for aggregators, a key barrier to DR deployment.
- A common EU DR strategy is *possible* but difficult due to divergent national market structures, especially in balancing markets.
- Harmonisation may be easier in the day-ahead market, which is already largely aligned across the EU.

Needs for Effective DR Market Functioning

- Clear, simple rules must define aggregators as a distinct, authorised market participant.
- Independent aggregators and all flexibility providers must have full access to wholesale, balancing, and capacity markets—not only selected segments.
- Regulatory frameworks are weak at both EU and national levels; pilot projects (e.g., in Italy) help but are not substitutes for comprehensive legislation.
- Member states' unique conditions and institutional structures make full harmonisation challenging.

Strategies to Overcome Regulatory & Political Barriers

- Early engagement with national regulators is essential; EU projects alone cannot shift regulatory agendas.
- Political resistance exists due to national regulatory autonomy and incumbents fearing disruption.
- One way to raise political priority is to link DR to high-visibility issues: electricity prices, competitiveness, and household savings.
- Transparent, multilingual market-design consultations can accelerate cross-EU learning and reduce duplication of effort.

Technical & Market Design Considerations

- DR should be integrated like any other energy resource—not treated as a stand-alone mechanism.
- Sandboxes and pilot regulatory experiments are critical, especially in countries with immature markets.
- Dynamic pricing is essential for demonstrating DR benefits but is still absent in many countries.
- However, dynamic tariffs do not benefit all customers equally; benefits depend on owning flexible assets (e.g., EVs, electric heating).

Consumer Engagement, Social Dimensions & Comfort



- DR must be automated and seamless for residential users; when implemented this way, participation is high and opt-out rates are very low.
- Comfort must remain a priority—DR must operate unobtrusively and without compromising wellbeing.
- Modern building automation can deliver DR with minimal user awareness (e.g., pre-cooling, small comfort-safe adjustments).
- Social and gender perspectives are essential: DR can increase stress for vulnerable households and may conflict with gendered care work.
- Bottom-up initiatives (e.g., Czech collective energy sharing, Belgian cooperatives) show success in engaging households and reducing fear of disconnection.

Buildings, Communities & Data Sharing

- DR should align with building regulations (EPBD), ensuring automation and smart-readiness support flexibility.
- The Smart Readiness Indicator (SRI) can incentivize building owners to invest in DR-enabling systems.
- Renewable energy communities can play a major role by aggregating residential flexibility into dispatching markets.

Examples of Benefits & Success Stories

- Managed electric heating programs have reduced household bills by ~25% in some cases.
- Clearly communicating such benefits to policymakers and consumers is key to raising DR's political visibility.
- DR supports grid stability and reduces the need for costly grid reinforcements, offering affordability and system-efficiency advantages.

Key Features Worth Replicating Across Countries

- Clear aggregator definitions and rights.
- Market access for all flexibility providers across all market segments.
- Regulatory sandboxes to test new DR designs.
- Automated, comfort-preserving DR solutions.
- Collective energy-sharing models and renewable energy communities.



5. Topic 3: Entry barriers imposed by DSOs and TSOs

5.1. Discussion

The third topic addresses entry barriers imposed by DSOs and TSOs. Katerina Sianni notes that while the regulatory framework has improved—allowing participation either directly or through aggregators—the main difficulty is that many assets are needed for flexibility to be financially worthwhile. She therefore asks whether DSOs, TSOs, EU regulators and public authorities are prepared to significantly reduce these entry barriers or alternatively increase incentives to make demand response more attractive.

Quentin Donnette argues that higher incentives for demand response are not necessary; instead, the key is to remove market-access barriers created by TSOs and DSOs. He highlights several required changes:

- Allow asymmetrical bidding in ancillary services, since mandatory symmetrical products disadvantage demand response assets that can only provide upward or downward flexibility, not both.
- Lower minimum bid sizes from the current 1 MW standard to around 100 kW to enable participation from smaller assets and aggregated residential loads.
- Simplify and shorten pre-qualification procedures, which are often lengthy, repetitive, and not remunerated. Requiring new tests every time a pool changes is especially burdensome and discouraging, particularly for residential DR participants.
- Reduce telemetry and real-time data requirements where possible. High-frequency, large-volume data transmissions can destroy the business case for residential DR. Requirements should match the actual needs of each market product (e.g., not all services require real-time data).
- Establish a more reasonable balance between what system operators request and what is technically necessary, lowering IT and compliance costs and enabling broader DR participation.

Overall, he argues that lowering these technical and procedural barriers—not increasing incentives—is what will make demand response truly scalable.

Thomas Kawam emphasizes that the EU regulatory framework for demand response largely exists at the directive level but needs proper transposition and implementation by member states. To address this gap, two parallel approaches are needed: supportive measures, such as offering guidance, sharing best practices, and helping member states design effective policies; and compliance measures, including enforcement where necessary. He notes that new rules are being developed, but implementation can already begin with the existing framework. Kawam also highlights that transitioning from centralized systems to more decentralized, consumer-driven demand response requires a significant mindset shift among system operators and regulators, who must learn to trust consumers' active participation in system operation.

He further notes that DSOs and TSOs mainly operate as regulated entities, following rules set by regulators. While some incentive-based regulation exists, it is not widespread across the EU. He highlights that it is unclear whether providing additional incentives to system operators would improve



efficiency compared to relying solely on regulatory obligations.

Finally, he emphasizes that it is not merely a political issue – successful implementation of EU rules requires strong willingness from member states, support from regulators, and coordinated action by TSOs and DSOs, as all actors need to move together.

Katerina Sianni wonders how projects like DEDALUS could help advancing change and transition for DSOs, DSOs or other authorities.

Quentin Donnette suggests that regulatory engagement should start early in projects, involving regulators from pilot countries to identify current barriers and share European best practices, as waiting until later may limit the project's influence on TSOs' or regulators' technical or political agendas.

5.2. Survey responses

The following answers were submitted in Mentimeter to the question: **Are DSOs & TSOs, as well as EU-regulators & public authorities, ready to substantially lower the entry barriers for DR and/or increase incentives for DR?**

- Increase bidding minimum requirements, allow smaller users/RECs to join the market
- There is a varying degree of acceptable and support for DR across the continent.
- As mentioned, we are at the stage of regulatory experimentation to re-design the energy market.
- It remains to be seen how national entities adopt EU policies.
- There is significant literature highlighting barriers to DR and how to overcome them.

5.3. Summary

- The regulatory framework now allows participation directly or through aggregators, but many assets are needed for DR to be financially viable, creating major entry barriers.
- Higher incentives are not considered necessary; the priority is removing market-access barriers imposed by DSOs and TSOs.

Key Barriers and Needed Changes

- Allow asymmetrical bidding in ancillary services, since mandatory symmetrical products disadvantage DR assets.
- Reduce minimum bid sizes from 1 MW to about 100 kW to enable smaller and aggregated residential loads.
- Simplify pre-qualification procedures, which are often long, repetitive, and not remunerated; retesting every time a pool changes is especially burdensome.
- Reduce telemetry and real-time data requirements where technically unnecessary; high-volume data needs can destroy the business case for residential DR.
- Ensure a better balance between operator requirements and actual system needs, lowering IT and compliance costs.



Regulatory and Institutional Issues

- The EU has an adequate DR framework at directive level, but many member states have not properly transposed or implemented it.
- Progress requires both:
 - Supportive measures (guidance, best-practice sharing, policy design help), and
 - Compliance measures (enforcement where necessary).
- A shift toward decentralized, consumer-driven flexibility requires a mindset change among system operators and regulators, who must learn to trust consumers' active role.
- DSOs and TSOs mainly act as regulated entities; incentive-based regulation exists only in limited cases, and it is unclear whether more incentives would outperform clear regulatory obligations.
- Effective implementation depends on:
 - Strong political willingness from member states,
 - Active involvement of national regulators,
 - Coordinated movement by DSOs and TSOs.

Role of EU Projects

- Regulatory engagement should start early in pilot projects.
- Early dialogue with national regulators helps identify barriers and share best practices.
- Late engagement reduces the ability of projects to influence regulatory or technical agendas.



6. Topic 4: The lack of effective incentives to engage key stakeholders in demand response programmes

6.1. Discussion

The fourth topic addresses the lack of effective incentives to engage key stakeholders in demand response programs. **Katerina Sianni** notes that DR is often seen as a beneficial solution, but it requires significant upfront investment. The question to discuss here is how consumers can be incentivised to participate, given that the economic return may not be immediate. Are there plans to establish a unitary compensation mechanism for consumers participating in DR?

Saska Petrova emphasizes that data collected through demand-response programs must never be used to profile, stigmatize, or facilitate disconnections, particularly for households experiencing energy poverty. She stresses the importance of working with trusted intermediaries—such as community organizations or associations—to communicate new policies and technologies clearly and accessibly. Communication should use plain language, as vulnerable households may struggle with automated customer-service systems or language barriers. She also notes that energy-poor households often consume very little energy, meaning savings-based incentives may offer limited benefits. Therefore, alternative forms of support or incentives—beyond simple electricity savings—should be considered to make participation meaningful and fair.

Katerina Sianni adds that successful demand-response implementation requires tailoring approaches to the specific needs and barriers of participants. In an Italian pilot involving an elderly home, questionnaires were used to identify technological and lifestyle-related concerns in order to adapt the project accordingly. In a Danish pilot involving immigrants from the Middle East—many of whom did not share a common language or understand local heating practices—intermediaries were essential to facilitate communication and engagement. She highlights that cultural and knowledge barriers, such as unfamiliarity with heating controls, must be addressed sensitively. Overall, she stresses the importance of adapting strategies to users' real-life circumstances and perceived challenges.

Panos Skaloumpakas clarifies that participation barriers are not limited to immigrants; many users face challenges such as limited technical literacy or dyslexia, which can make understanding demand-response solutions difficult. In both the Italian and Danish pilots, trusted intermediaries—such as building owners and, in the elderly housing case, even a psychologist—were essential to explain the benefits clearly. Participants preferred systems that operate automatically in the background without requiring active engagement. In the elderly housing project, financial savings were not a primary motivator since residents did not directly pay the bills; instead, they were more interested in understanding the environmental impact of their participation, such as contributing to sustainability goals.

Saska Petrova argues that households—particularly those with chronic illnesses or disabilities—should always have the option to opt out of demand-response programs under appropriate circumstances. She stresses the importance of understanding who end users are and their specific conditions, as this knowledge is essential to determine why certain interventions may or may not work in practice.



Maria Capogreco emphasizes the need to distinguish between direct and indirect incentives in demand-response policy. Direct incentives involve compensation for consumers, prosumers, or businesses that adjust their energy use in response to grid needs, such as reducing consumption during peak periods. However, she notes that beyond financial compensation or price signals, it is difficult to design new forms of direct incentives. Indirect incentives, by contrast, relate to established energy-efficiency measures across residential, industrial, and transport sectors. These reduce overall energy consumption and indirectly ease pressure on the grid, thereby supporting demand-response objectives. She concludes that while direct incentives are limited in scope, strengthening indirect incentives—especially through energy-efficiency programs—remains a practical and effective strategy.

Gusts Kossovics argues that demand response must offer a clear and compelling value proposition for building owners and households. While many already invest in building automation for energy savings and better control, the additional benefits of participating in demand response are often not sufficiently attractive. Strengthening the business case is therefore essential. This could involve direct financial incentives, such as fixed participation payments or dynamic pricing schemes that reward load shifting, as well as indirect incentives—such as linking demand-response capability to building ratings (e.g., smart-readiness indicators), which could increase property value. He emphasizes that comfort must never be compromised and that smart buildings compliant with EU performance standards can be both efficient and comfortable. Ultimately, making participation simple, financially worthwhile, and user-friendly could unlock significant untapped flexibility in buildings.

Thomas Kawam highlights that aggregators will play a central role in making demand response accessible and simple for consumers, particularly residential users, through automated and user-friendly solutions. Rather than imposing detailed national regulation on how participation should occur, markets should be opened with low entry barriers for aggregators, enabling them to develop effective onboarding models. He notes, however, that current residential demand-response potential is limited in households without flexible assets such as electric vehicles or heat pumps, and the cost of onboarding may outweigh the benefits in some cases. A long-term perspective is therefore necessary, aligned with broader electrification trends. He also points out that recent electricity market reforms allow member states to implement non-fossil flexibility support schemes, which can include demand response—not just storage—offering new opportunities for state aid to support DR programs, platforms, or aggregators.

Quentin Donnette explains that households without flexible assets—such as heat pumps, electric heating, or electric vehicles—have very limited potential to participate effectively in demand-response programs. As an alternative, they could join collective self-consumption schemes or energy communities, which may provide access to cheaper renewable electricity, though this depends on location and availability. Otherwise, public support or state aid may be necessary to help households invest in flexible assets that would enable meaningful participation in demand response.

6.2. Survey responses

The following answers were submitted in Mentimeter to the question: **How can consumers be incentivised to participate, given that the economic return may not be immediate?**

- Proposal: distinguish direct and indirect incentives. Direct: compensation to customers (for example industrial and commercial customers) in exchange for the availability of customers to modulate their own energy consumption on the basis of the power grid's request - for instance reducing energy consumption in peak demand periods.



- Explain why economic rewards are more feasible than issuing non-monetary rewards while providing what will be required from the consumers and other stakeholders so that rewards can become monetary.
- Aggregators should be at the interface of consumers and markets/revenue streams
- Use intermediaries to inform the residents about the benefits of DR.
- Indirect: Incentives for Energy Efficiency measures in the different sectors - Buildings, Industry, Transport - with the aim to reduce energy consumption and, accordingly, the request from the grid.

The following answers were submitted in Mentimeter to the question: **Are there plans to establish a unitary compensation mechanism for consumers participating in DR?**

- This should be one of the options available but not limited to it so that consumers without flexible assets are not excluded.

6.3. Summary

- Demand response (DR) is widely viewed as beneficial but often requires significant upfront investment, while economic returns for consumers may not be immediate. Clear and fair compensation mechanisms are therefore needed to encourage participation.
- Data collected through DR programs must be handled responsibly and never used to profile, stigmatize, or disconnect vulnerable households. Trust-building, transparency, and strong data protection safeguards are essential.
- Communication should rely on trusted intermediaries (e.g., community organizations, building owners, social workers) and use clear, accessible language. Vulnerable groups may face language barriers, limited technical literacy, or difficulties navigating automated systems.
- Incentives based purely on energy savings may not be effective for energy-poor households, who often already consume minimal energy. Alternative forms of support beyond bill reductions should be considered to ensure fairness and meaningful participation.
- Demand-response strategies must be tailored to users' real-life circumstances, cultural contexts, and perceived barriers. Pilot projects show that questionnaires, intermediaries, and even behavioural or psychological support can improve engagement.
- Many participants prefer automated systems that operate in the background without requiring active involvement. Comfort, simplicity, and minimal disruption are critical to acceptance.
- Some users, particularly those with chronic illnesses or disabilities, should have the option to opt out under appropriate conditions. Understanding end-user characteristics is key to designing workable interventions.
- It is important to distinguish between:
 - **Direct incentives:** Financial compensation, fixed payments, or dynamic pricing schemes rewarding load shifting and availability.



- **Indirect incentives:** Energy-efficiency measures in buildings, industry, and transport that reduce overall consumption and ease grid pressure, thereby supporting DR objectives.
- While direct incentives are often limited to compensation and price signals, strengthening energy-efficiency programs remains a practical and effective indirect strategy.
- A stronger business case is needed for building owners. Linking DR participation to building ratings or smart-readiness indicators could enhance property value and provide indirect motivation.
- Participation must never compromise occupant comfort. Smart, performance-compliant buildings can be both efficient and comfortable.
- Aggregators are expected to play a key role in simplifying and automating participation, particularly for residential users. Low market-entry barriers can encourage innovation in onboarding solutions.
- Current residential flexibility potential is limited in homes without flexible assets (e.g., electric vehicles, heat pumps). A long-term perspective aligned with electrification trends is necessary.
- Recent electricity market reforms allow member states to introduce non-fossil flexibility support schemes, including support for demand response programs, platforms, and aggregators.
- Households without flexible assets may alternatively participate through collective self-consumption schemes or energy communities, depending on availability. Public support may be required to help households invest in flexible technologies that enable meaningful participation.



7. Topic 5: Complexities in data management and privacy protection

7.1. Discussion

The fifth topic addresses complexities in data management and privacy protection. There are privacy constraints in relation to users' involvement, for example, access and use of comfort or consumption data from sensors and sub-meters. The question is: how to tackle privacy limitations in regard to the collection management of users' data?

Gusts Kossovics emphasizes that data privacy is central to maintaining consumer trust in demand response programs, especially as modern building automation systems collect detailed data on energy use, occupancy, and comfort patterns. While such data is valuable for optimising efficiency and flexibility, it must be handled responsibly through a “privacy by design” approach, ensuring that only necessary data is shared and that personal information remains protected. He highlights GDPR and emerging EU data frameworks as important safeguards and stresses that consumers are generally willing to share data if they see clear benefits and trust that their privacy is respected.

Maria Capogreco underlines that data management and cybersecurity are critical for implementing demand response, given the large volumes of personal and consumption data involved. As digitalization advances in sectors such as energy and buildings, secure communication protocols and strong cybersecurity measures become essential to protect privacy and ensure safe data exchanges.

Athanasios Papakonstantinou explains that prior experience with EU projects and GDPR compliance helped address data protection challenges, particularly regarding high-frequency consumption data, which is subject to stricter rules. However, he notes that consumer distrust remains a significant issue, especially toward suppliers. He stresses the important role of Distribution System Operators (DSOs) in building public confidence by clearly demonstrating that smart meter data is securely managed and not misused or shared improperly. Establishing trust between DSOs, suppliers, and consumers is essential for wider acceptance.

Panos Skaloumpakas points out that GDPR-compliant solutions have been developed within the project and that aggregators can contribute by relying on aggregated or statistical data rather than individual personal data. By avoiding the use of identifiable consumption data and focusing on aggregated profiles, privacy risks can be reduced while still enabling effective demand response.

Saska Petrova highlights that consumers are particularly concerned about how much data is collected and how long it is stored, stressing the importance of data minimisation and clear storage policies. She also notes that anonymised data, if handled properly, could provide valuable insights—such as understanding gender dynamics in household energy consumption—without raising privacy concerns.

Quentin Donnette emphasizes that consumer protection in residential demand response must also include transparency in aggregator contracts. Clear terms regarding obligations and potential penalties for non-delivery are crucial to building trust. In a developing industry, misconduct by a single actor could damage the credibility of the entire sector, making contractual clarity essential.



Katerina Sianni concludes the discussion by noting that a wide range of issues were addressed, from consumer needs to aggregators, DSOs, and regulatory coordination. She thanks participants for their contributions and highlights the importance of continued dialogue and stakeholder engagement to advance demand response implementation.

7.2. Summary

- Data privacy is critical for maintaining consumer trust in demand response programs, especially as modern building automation systems collect detailed data on energy use, occupancy, and comfort patterns. Only necessary data should be shared, following a “privacy by design” approach, with GDPR and emerging EU frameworks providing safeguards. Consumers are more willing to share data if benefits are clear and privacy is protected.
- Effective data management and cybersecurity are essential due to large volumes of personal and consumption data. As digitalization progresses in energy and building sectors, secure communication protocols and strong cybersecurity measures are needed to ensure safe data exchange.
- High-frequency consumption data requires strict handling under GDPR, and consumer distrust—particularly toward suppliers—remains a challenge. Distribution System Operators (DSOs) play a key role in building trust by demonstrating that smart meter data is securely managed and not misused.
- GDPR-compliant solutions, including aggregated or statistical data instead of personal data, can reduce privacy risks while still enabling effective demand response. Aggregators can leverage these approaches to participate without accessing identifiable individual consumption data.
- Consumers are concerned about how much data is collected and how long it is stored. Data minimization, clear storage policies, and proper anonymization are crucial. Anonymized data can still provide valuable insights, such as understanding gender dynamics in household energy consumption, without raising privacy issues.
- Transparency in aggregator contracts is essential for consumer protection. Contracts should clearly state obligations, potential penalties for non-delivery, and other terms to build trust, as misconduct by a single actor could harm the credibility of the sector.
- Overall, addressing privacy and data management requires coordinated efforts across consumers, aggregators, DSOs, and regulators. Ongoing dialogue, clear protocols, and stakeholder engagement are key to advancing secure and trusted demand response implementation.



8. Full biography of the panellists

Maria Capogreco is a freelance engineer based in Italy with expertise in civil engineering, buildings and construction, energy management, energy efficiency, buildings and industry, renewable energy sources, power plants, mainly solar energy and bioenergy. She worked in both the private sector and within international governmental organisations, for example for the United Nations system, within different UN organisations, UNESCO, UNDRR, UNDSA, UN Environment, on projects of different nature: energy infrastructure, digitalisation, disaster risk reduction. She's currently a member of the European Technology and Innovation Platform on Renewable Heating and Cooling, RHC-ETIP. She is chair of the Horizontal Working Group on Buildings (HWG).

Saska Petrova is Professor in human geography at the University of Manchester. She is a social scientist who has worked for a long time on energy justice and led many projects on energy poverty. Currently, she's the principal investigator of a European Research Council consolidated grant on energy justice and gender, with an interest in the aspects of prosumers and how vulnerable households can be included in demand responses – how can we co-create specific policies in terms of demand response that can be more inclusive with regards to households experiencing energy poverty and especially with regards to gender equality?

Thomas Kawam works at the European Commission in DG Energy, in the unit on the internal energy markets. He has a background in engineering. In the first part of his career, he mostly worked on electricity markets from a consultancy perspective, a regulatory perspective, and now from a policy perspective. More specifically within the unit, he works on flexibility-related files, and especially a new network code on demand response.

Gusts Kossovics is the managing director of EUBAC, the European Building Automation and Controls Association. As buildings account for around 40% of Europe's energy use, EUBAC's view is that putting in place automation systems and involving consumers as active participants in the energy system, the consumption can be adjusted in response to the grid signals while keeping occupants comfortable. This is the role that building automation control systems can play, and this is why EUBAC strongly supports initiatives like the Energy Performance of Buildings Directive from the European Union, which requires now building automation control systems in non-residential buildings, but also certain capabilities in residential buildings that will promote demand response as well. From EUBAC's perspective, demand response is the next frontier.'

Quentin Donnette works at Smart Energy Europe (smartEn) as Senior Market Analyst. SmartEn is the European Business Association of the Flexible Demand Management Industry, with historically members being independent aggregators, but now encompassing suppliers, aggregator linked suppliers, market operators, and company providing services to local energy communities. He works in the Research and Project Department, involved in several European projects and analysing the market access of demand-side flexibility to several type of markets.

Panos Skaloumpakas works on the DEDALUS project as the pilot coordinator. His background is electrical computer engineering, with extensive experience of European projects in the energy sector.

Athanasios Papakonstantinou is managing the Greek Pilot site in the DEDALUS project, and R&D project manager for Heron Energy, one of the big three utilities in Greece, having a clientele of over 250,000 electricity consumers.

