STREAM

STREAMING FLEXIBILITY
TO THE POWER SYSTEM

POLICY RECOMMENDATIONS

July 2026

STREAM

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1 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

As part of the STREAM project, we are conducting a regulatory analysis of Local Flexibility Markets (LFMs) in Slovenia, Finland, Spain, and Italy. The growing integration of renewable energy sources, electric mobility, and distributed energy resources (DERs) is transforming electricity systems across Europe. This evolution demands new regulatory and market frameworks that enable flexibility to be efficiently valued and traded at the local level. LFMs offer a promising mechanism to allow Distribution System Operators (DSOs) to procure flexibility services from market participants, such as aggregators, consumers, and storage operators, to address network constraints, optimize operations, and support the overall decarbonization of the power system.

STREAM aims to identify and compare how regulatory frameworks in the four target countries either enable or hinder the development of LFMs. The analysis explores key dimensions including DSO roles and responsibilities, market access rules, data governance, interoperability, and consumer protection. By examining best practices and existing pilot experiences, STREAM seeks to propose harmonized policy recommendations that balance national specificities with EU-wide objectives under the Clean Energy Package.

The findings presented here contribute to shaping a coherent regulatory pathway for the deployment of LFMs across Europe that enhances system flexibility, encourages innovation, and empowers end users to actively participate in the energy transition.

2 POLICY RECOMMENDATIONS FOR SLOVENIA

The development of **Local Flexibility Markets** is essential for Slovenia's transition toward a modern, decentralized, and resilient electricity system. As renewable generation, electric mobility, and distributed energy resources expand, the existing regulatory and market frameworks must evolve to manage growing network complexity and enable efficient use of flexibility. Properly designed LFMs can help reduce congestion, defer costly grid reinforcements, improve overall system reliability and enable additional grid connections in already congested LV grids.

This chapter outlines policy recommendations to guide Slovenia in creating a supportive environment for LFMs. Building on European best practices and insights from the STREAM project, the recommendations emphasize the need for a clear regulatory mandate for DSOs to act as neutral market facilitators, alongside open participation frameworks for all market actors, including aggregators, consumers, and storage providers.

By integrating flexibility into the national energy policy and market design, Slovenia can foster innovation, improve grid efficiency, decrease energy costs and ensure alignment with EU decarbonization objectives. These actions will position Slovenia as a proactive leader in implementing local flexibility solutions, strengthening both its energy resilience and competitiveness in the clean energy transition.

2.1 RECOMMENDATIONS FOR DSO

To make local flexibility a viable and fully regulated tool for DSOs, the existing energy legislation, grid codes, and tariff methodologies must evolve to reflect the realities of a modern, decentralized power system. At present, DSOs in most European countries operate within regulatory frameworks that were primarily designed for passive network operation and infrastructure expansion. These frameworks do not explicitly allow DSOs to procure flexibility services or to engage in LFMs as part of their operational

toolkit. As a result, flexibility remains an untapped resource, even though it could provide cost-effective, fast, and environmentally sustainable alternatives to traditional grid reinforcement.

The next step in regulatory evolution should be to grant DSOs a clear legal mandate to contract flexibility services for purposes such as congestion management and voltage control. This would transform DSOs from purely asset-based operators into active system managers who can balance technical reliability with market efficiency. The regulatory framework should be in line with Slovenian Energy Agency and should define under what conditions DSOs can use flexibility for example, when it provides a more economical or faster solution than capital-intensive grid upgrades while maintaining their neutrality and non-discriminatory role in the market. These factors can be illustrated using the example of a 10 kW PV installation, which is not feasible under current conditions. Over a 40-year period, the required investment would amount to €50,000, while compensation for lost generation would reach approximately €30,000.

In parallel, amendments to tariff methodologies should ensure that DSOs are not financially penalized for choosing flexibility over investment. Instead, flexibility procurement costs should be recognized as legitimate regulated expenditures, supported by transparent cost recovery mechanisms. This approach would align regulatory incentives with broader EU energy policy objectives promoting digitalization, decarbonization, and consumer participation.

Furthermore, updated grid codes should establish the technical foundations for flexibility use, including clear interoperability standards, data exchange requirements, and coordination procedures between DSOs and the Transmission System Operator (ELES). These rules are essential to prevent overlapping actions between local and national markets and to ensure system-wide efficiency.

Ultimately, empowering DSOs to procure and activate flexibility through a transparent, regulated framework is not only a technical necessity but also a structural reform toward a smarter and more adaptive electricity system. It creates the regulatory certainty needed for DSOs to act as neutral market facilitators, while opening new opportunities for aggregators, prosumers, and storage providers to contribute to network stability and the energy transition.

Key provisions should include:

- **Legal authority to use flexibility:** Amend the *Energy Act* (Zakon o oskrbi z električno energijo (ZOEE)) and/or secondary regulatory acts to explicitly state that DSOs are permitted to **contract flexibility services** (e.g., from distributed generation, demand response, storage, and aggregators) to manage congestion, voltage, and network reliability. At present, this possibility is not defined, leaving DSOs legally constrained from using market-based solutions.
- **Definition of the DSO's role:** Establish in law that DSOs act as **market facilitators and neutral procurers**, not as market participants or asset owners. Their role should focus on identifying local system needs, signaling locational value, organizing procurement, and ensuring fair market access for third-party flexibility providers.
- **Framework for procurement conditions:** Regulation should define **under what conditions DSOs may use flexibility** for example, when grid reinforcement would otherwise be required and are more expensive, when flexibility is technically feasible, or when cost-benefit analyses show economic advantage. This ensures flexibility is treated as an alternative network resource, not an exception.
- **Integration into network planning:** Mandate that DSOs **systematically assess flexibility as an option** during network planning and investment approval. This could include regulatory requirements to perform **non-wires alternatives** analysis, comparing flexibility procurement with traditional reinforcement.

- **Transparency and neutrality safeguards:** Introduce legal safeguards to ensure **non-discriminatory access** to LFM participation, separation of DSO market facilitation from ownership or trading activities, and transparent publication of procurement criteria and outcomes.
- **Interoperability between Local and National Flexibility Markets.** The introduction of LFMs must be carefully coordinated with the existing **national balancing and ancillary service markets**, which in Slovenia are operated by **ELES**, the Transmission System Operator (TSO). Without clear regulatory and technical interoperability rules, there is a high risk of **conflicting activations** between the distribution and transmission levels.

2.2 RECOMMENDATIONS FOR MARKET PARTICIPANTS

The success of LFMs depends not only on regulatory readiness and DSO facilitation but also on the active participation of market actors as producers, aggregators, consumers, energy communities, and storage operators. These participants provide the actual flexibility that enables DSOs and TSOs to manage grid constraints, balance supply and demand, and integrate higher shares of renewable generation. However, in most European countries, including those analyzed within the STREAM project (Slovenia, Finland, Spain, and Italy), market participants still face regulatory, technical, and economic barriers that limit their full engagement.

While European legislation particularly the Electricity Directive (EU) 2019/944 guarantees market access for all eligible flexibility providers and promotes the role of independent aggregators, national implementation remains uneven. Key challenges persist, including complex registration and qualification processes, limited interoperability between platforms, unclear remuneration mechanisms, and the absence of dynamic price signals at the distribution level. Addressing these barriers is essential to unlock flexibility at scale and create a level playing field across technologies and actors.

This chapter outlines policy and regulatory recommendations designed to empower market participants to engage effectively and competitively in LFMs. It focuses on four key areas:

- **Open and non-discriminatory access**: Regulation should establish **transparent and technology-neutral participation criteria** for all eligible flexibility providers, including households, small businesses, and community energy groups. DSOs and TSOs should ensure that connection and operational requirements do not impose unnecessary barriers for smaller actors or specific technologies. Market participation should be open to any entity capable of delivering verifiable flexibility, regardless of their size or energy source.
- **Simplified registration and qualification**: To reduce administrative burden, countries should introduce a **national digital registry of flexibility assets**, where market participants can register, verify, and maintain information about their flexible resources. This registry should link with DSO and TSO systems, enabling streamlined prequalification, metering verification, and settlement. Processes should be digital-by-default, reducing manual intervention and administrative costs.
- **Transparent prequalification and performance requirements**: Participation rules should include **proportionate prequalification criteria** that ensure technical reliability without excluding small or innovative actors. DSOs should publish standardized performance requirements (e.g., minimum bid sizes, response times, verification methods) to help participants understand how to qualify and compete fairly.
- **Equal access for energy communities**: Energy communities and collective self-consumption schemes should be formally recognized as potential flexibility providers. Regulatory

frameworks should specify how such entities can aggregate members' assets, settle payments collectively, and access LFMs under simplified administrative conditions.

- **Define aggregator role and rights** in regards of providing local flexibility, enabling independent aggregators to operate without requiring supplier consent, in line with EU Electricity Directive (EU) 2019/944.

3 POLICY RECOMMENDATIONS FOR FINLAND

The deployment of Local Flexibility Markets (LFMs) in Finland represents a potentially effective response to the increasing complexity of the electricity system, driven by rapid electrification, high shares of variable renewable energy generation, and the growing penetration of distributed energy resources (DERs). Finland benefits from several structural enablers for LFMs, including nationwide smart metering, advanced digital infrastructure, and a high level of consumer trust in market-based solutions. However, despite these favorable conditions, the current regulatory framework does not yet provide sufficiently strong or symmetric incentives for Distribution System Operators (DSOs) to systematically utilize flexibility as an operational alternative to traditional grid reinforcement.

In Finland, the regulatory framework for electricity distribution is primarily defined by the Electricity Market Act (588/2013) and its subsequent amendments, including the 2023 revision (Act 497/2023), which implemented elements of the EU Electricity Directive (EU) 2019/944 into national law and sets out the core obligations of Distribution System Operators (DSOs) regarding network operation, development, and security of supply. While the Act enables DSOs to take measures necessary to ensure reliable network operation, it does not explicitly establish a systematic mandate or incentive structure for the use of market-based flexibility as an alternative to traditional grid reinforcement, as envisaged under Article 32 of Directive (EU) 2019/944.

Under the existing economic regulation framework administered by the Finnish Energy Authority (Energiavirasto) for the regulatory period 2024-2031, DSOs remain primarily incentivized to address network constraints through capital-intensive grid investments, which are fully recognized within the regulated asset base and provide predictable returns. In contrast, flexibility procurement is treated largely as an operational expenditure, associated with higher regulatory scrutiny, delivery risk, and limited long-term recognition. As a result, flexibility is predominantly applied in pilot settings or as a short-term congestion management tool, rather than as an integrated and scalable solution for network planning. This asymmetry constrains the cost-effective management of local congestion and delays the activation of consumer- and aggregator-provided flexibility.

Emerging LFM Initiatives and TSO–DSO Coordination

Notwithstanding these limitations, Finland has taken an important step toward LFM development through a joint pilot involving the national Transmission System Operator (TSO), Fingrid, and the local DSO Helen Sähköverkot, using the Norwegian NODES flexibility marketplace. This initiative represents the first European example of a shared flexibility platform jointly utilized by both a TSO and a DSO, with harmonized market rules and a single bid submission allowing assets to be offered simultaneously to multiple buyers.

In the current pilot phase, the operational needs of both system operators were aligned, with flexibility exclusively procured for upward regulation (i.e., increased supply or reduced consumption). Fingrid's objective has been to alleviate north–south transmission congestion caused by high supply in northern Finland and demand concentration in the southern regions, while Helen Sähköverkot has focused on managing peak demand within the Helsinki distribution network. Under these conditions, conflicts of interest between system operators have not yet materialized.

Looking forward, however, the potential expansion of LFMs to additional DSOs and regions may introduce situations where TSO and DSO flexibility needs diverge (e.g., local down-regulation needs conflicting with system-wide balancing requirements). This highlights the importance of clearly defined coordination mechanisms, priority rules, and market governance arrangements between TSOs and DSOs. Active and continued involvement of Fingrid in the development of LFMs is therefore essential to ensure efficient coordination, avoid conflicting activation signals, and preserve system reliability.

Interaction with Network Tariff Reform

At the same time, Finland is considering reforms to electricity distribution tariff structures. Recent government proposals for amendments to the Electricity Market Act (e.g. Government Proposal HE 197/2024) aim to harmonize distribution tariff structures and increase the role of demand-based or capacity-based tariff components in order to improve cost reflectivity and transparency of network tariffs.

While such tariffs are intended to signal long-term network cost drivers and encourage peak demand reduction, they may unintentionally hinder the development of LFMs if not carefully aligned with flexibility market mechanisms.

Specifically, static or ex ante capacity-based tariffs may discourage consumers and aggregators from increasing demand or providing flexibility during periods of renewable surplus or local system need, thereby reducing the availability of dispatchable flexibility. If flexibility activations requested by DSOs lead to higher tariff exposure for participating consumers, rational actors may withdraw from LFM participation altogether. Without appropriate safeguards, such as tariff neutrality for flexibility activations, exemptions, or coordinated signal design – network tariffs risk undermining the market-based valuation of flexibility at the local level.

Policy Implications

To unlock the full potential of LFMs in Finland, several regulatory adjustments should be considered within the framework of the Electricity Market Act (588/2013) and the economic regulation methodology applied by the Finnish Energy Authority.

First, national legislation could more explicitly implement the principles of Article 32 of Directive (EU) 2019/944, by requiring DSOs to assess market-based flexibility solutions as part of distribution network planning and congestion management processes. This could include mandatory flexibility assessments within network development plans and regulatory recognition of flexibility procurement as a credible alternative to grid reinforcement.

Second, the economic regulation framework governing DSOs could be revised to provide symmetrical incentives for operational flexibility solutions and capital investments, including clearer cost-recovery mechanisms for long-term flexibility procurement and performance-based incentives for investment deferral.

Third, ongoing reforms to distribution tariff structures should be evaluated in parallel with flexibility market development to ensure that tariff signals do not conflict with market-based flexibility procurement. Tariff neutrality mechanisms or exemptions for flexibility activations may be necessary to maintain participation incentives for consumers and aggregators.

By anchoring flexibility market development within existing legislative instruments, such as the Electricity Market Act, its recent amendments, and the evolving tariff regulation framework - Finland can build on its strong digital infrastructure and pilot experiences to scale Local Flexibility Markets in a manner that supports efficient network operation, accelerates renewable integration, and enables active consumer participation in the energy transition.

3.1 RECOMMENDATIONS FOR DSO

To make Local Flexibility Markets (LFMs) a viable and fully regulated tool for Finnish Distribution System Operators, the existing legislative and regulatory framework must evolve to reflect the operational realities of a decentralized and increasingly electrified power system. At present, the framework established under Chapter 6 of the Electricity Market Act (588/2013) primarily defines DSOs as network operators responsible for security of supply, network development, and reliability. However, it does not yet explicitly provide DSOs with a clear legal mandate to systematically procure and facilitate market-based flexibility services as an alternative to traditional grid reinforcement.

The next step in regulatory development should therefore be to establish a clear legal basis within Chapter 6 of the Electricity Market Act (588/2013) that enables DSOs to act as neutral facilitators of Local Flexibility Markets rather than relying on bilateral procurement or ad hoc flexibility arrangements. This would support the transition of DSOs from passive infrastructure operators toward active system managers capable of using flexibility for congestion management, peak demand control, voltage support, and investment deferral.

In parallel, the economic regulation framework and tariff methodologies applied by the Finnish Energy Authority should ensure that DSOs are not financially disadvantaged when choosing flexibility over capital-intensive grid investments. Flexibility procurement costs should be recognized as legitimate regulated expenditures, supported by transparent cost recovery and incentive mechanisms.

Furthermore, technical and market governance rules should establish clear interoperability standards, data exchange requirements, and coordination procedures between DSOs and Fingrid as the national Transmission System Operator, ensuring efficient interaction between local and system-level flexibility markets.

Key provisions should include:

- **Legal authority to use flexibility:**
  Amend **Chapter 6 of the Electricity Market Act (588/2013)** to explicitly state that DSOs are permitted to procure flexibility services from aggregators, consumers, storage operators, and other DER owners for purposes such as congestion management, voltage control, loss reduction, and reliability support.
- **Definition of the DSO's role:**
  Establish in law that DSOs act as **neutral facilitators and procurers**, not as market participants. Their role should focus on identifying local network needs, organizing open procurement, signaling locational value, and ensuring fair and non-discriminatory market access.
- **Framework for procurement conditions:**
  Regulation should define under what conditions DSOs may use flexibility, for example where flexibility provides a faster or more cost-effective solution than conventional grid reinforcement, or where cost-benefit analysis demonstrates economic efficiency.
- **Integration into network planning:**
  Require DSOs to systematically assess flexibility as a non-wires alternative within network development plans and investment approval processes, ensuring that flexibility is treated as a credible planning resource rather than an exceptional measure.
- **Transparency and neutrality safeguards:**
  Introduce legal safeguards ensuring open, transparent, and non-discriminatory procurement procedures accessible on equal terms to aggregators, consumers, storage operators, and other DER owners, while maintaining compliance with EU unbundling principles.

- **TSO–DSO coordination and interoperability:**
  Establish clear coordination mechanisms, data exchange rules, and activation priority procedures between DSOs and Fingrid to prevent conflicting signals between local congestion management and national balancing markets.
- **Tariff neutrality for flexibility activation:**
  Ensure that consumers and aggregators providing flexibility at the request of DSOs are not exposed to unintended increases in capacity-based or peak-based tariffs as a result of participation in LFMs.

3.2 RECOMMENDATIONS FOR MARKET PARTICIPANTS

To ensure the effective development and scaling of Local Flexibility Markets (LFMs) in Finland, market participants - including aggregators, flexibility service providers, consumers, and operators of distributed energy resources (DERs) - must be enabled to participate under clear, predictable, and harmonized regulatory conditions. A functioning flexibility market depends on transparent access rules, legal certainty, and the ability of actors to operate efficiently across multiple local and system-level markets.

The regulatory framework should explicitly recognize aggregators as independent market actors with the right to contract flexibility from end users and offer it to Distribution System Operators without undue administrative, technical, or contractual barriers. This is essential to reduce market fragmentation, lower transaction costs, and support the scalability of business models based on distributed flexibility.

In parallel, market rules should allow participants to combine, or "stack," revenues from multiple flexibility uses, including local congestion management, wholesale market participation, and national reserve or balancing markets, provided that technical feasibility and system security are maintained. Clear rules on activation priority, exclusivity, and conflict resolution are necessary to reduce uncertainty and encourage investment in flexible assets and digital control systems.

Furthermore, tariff and regulatory structures should not undermine the economic incentives for flexibility provision. Participation in LFMs should remain economically rational for consumers and aggregators, supported by tariff neutrality mechanisms, fair compensation, and standardized products that enable small-scale resource participation.

Key provisions should include:

- **Recognition of aggregators as independent market actors:**
  Regulatory frameworks should explicitly recognize aggregators as independent entities with the right to contract flexibility from consumers and DER owners and offer these services to DSOs and other system operators without unnecessary contractual restrictions.
- **Harmonized market access conditions:**
  Market participants should be able to operate across multiple local flexibility markets under standardized and predictable rules, avoiding fragmented or location-specific requirements that increase transaction costs and limit scalability.
- **Revenue stacking and market interoperability:**
  Regulation should permit participants to combine revenues from local congestion management, wholesale market optimization, and reserve markets, with clear rules on priority, exclusivity, and conflict resolution between different market activations.

- **Protection from tariff disincentives:**
  Capacity-based and peak-based network tariffs should not penalize flexibility activations requested by DSOs or market operators. Where flexibility participation creates measurable system benefits, participants should be exempt from adverse tariff impacts or appropriately compensated.
- **Standardized flexibility products:**
  Regulatory frameworks should promote standardized flexibility products with clearly defined activation times, durations, response requirements, and settlement rules to reduce complexity and facilitate aggregation of small-scale resources.
- **Automated verification and settlement:**
  Measurement, verification, and settlement processes should be automated using Finland's advanced smart metering and digital infrastructure to minimize transaction costs and ensure trust in market outcomes.
- **Access to operational data:**
  Participants should have timely and non-discriminatory access to data on local network constraints, anticipated flexibility needs, and historical activation patterns to support forecasting, bidding, and operational decision-making.
- **Data governance and cybersecurity:**
  Clear rules should define data ownership, access rights, interoperability standards, and cybersecurity responsibilities to ensure secure and efficient market participation.
- **Consumer protection and voluntary participation:**
  End users should receive transparent information on remuneration, contractual terms, risks, and opt-out rights. Participation should remain voluntary, with safeguards preventing excessive complexity or financial exposure for households and small businesses.

4 POLICY RECOMMENDATIONS FOR ITALY

Italy is facing increasing operational pressure on distribution networks driven by electrification and decentralization. The growth of electric mobility and new electrified end uses is changing load profiles at MV/LV level, while the continued expansion of distributed generation (especially PV) increases variability and can create local congestion and voltage management needs. In parallel, Italy is reforming market and dispatching arrangements to reflect a system with higher RES penetration, including the introduction of the new Testo Integrato del Dispacciamento Elettrico (TIDE) framework applicable from 1 January 2025.

Against this backdrop, Italy already has a concrete regulatory entry point for Local Flexibility Markets through ARERA's pilot framework for the procurement of local ancillary services by DSOs (Deliberazione 352/2021/R/eel) and the approval of the Local Flexibility Market Regulation (MLF) prepared by GME (approved under Deliberazione 372/2023/R/eel and subsequently amended). The policy priority for Italy is therefore not to "create" LFMs from scratch, but to consolidate and standardize the existing pilot-based approach into a repeatable, interoperable practice that can scale across DSOs while preserving system security.

4.1 RECOMMENDATIONS FOR DSO

The current Italian framework already enables DSOs to propose and run pilot projects for procuring local ancillary services and to rely on a market platform operated by GME under an ARERA-approved

rulebook. This is a strong foundation: roles are defined (DSO identifies needs and technical constraints; GME operates the market), and the pilot framework is explicitly intended to test "the most appropriate regulatory solutions" for procurement and remuneration of local ancillary services.

However, local flexibility in Italy currently remains confined to pilot projects under the framework established by ARERA Deliberazione 352/2021/R/eel and subsequent provisions, and therefore lacks a permanent, nationwide regulatory framework. This creates a risk of fragmentation, with different local practices and requirements emerging across DSOs, and limits the scalability of flexibility solutions. Moreover, moving from pilot-based experimentation to wider adoption requires clearer regulatory treatment of (i) when flexibility should be considered as an alternative to network reinforcement, (ii) how DSOs can recover the costs of procuring flexibility and enabling the necessary monitoring and verification capabilities, and (iii) how local actions interact with dispatching and system-level services under the evolving TIDE framework.

Key provisions should include:

- **Consolidation pathway beyond pilots**:

  Define an incremental regulatory pathway to move from pilot-based procurement (under ARERA 352/2021/R/eel) toward a stable and repeatable framework, building on the MLF rulebook already approved for market operation.
- **Minimum national standardization across DSOs:**

  Introduce minimum national requirements for local flexibility product definitions and for participation and verification rules (e.g., baseline elements, measurement and verification principles, minimum information requirements), to avoid "DSO-by-DSO" fragmentation while preserving local tailoring.
- **Systematic consideration of flexibility in DSO planning:**

  Clarify in regulatory guidance that DSOs should assess flexibility-based solutions for foreseeable local constraints as part of planning and justification processes, so flexibility is treated as a structured option rather than an exceptional pilot measure.
- **Cost recognition and recovery for procurement and enabling capabilities:**

  Provide clearer regulatory treatment for (a) flexibility procurement costs and (b) enabling investments needed to procure and verify flexibility (e.g., monitoring, communication, data integration). In particular, flexibility procurement costs should be explicitly recognized as regulated expenditure, rather than being treated as exceptional or temporary pilot costs, so that DSOs are not disincentivized from using flexibility where it is efficient and secure.
- **Coordination principles with dispatching and system services:**

  Strengthen coordination principles between local flexibility actions and system-level dispatching and balancing arrangements under TIDE, including clear rules on activation priority (e.g., between DSO- and TSO-driven actions), structured information exchange between DSOs and the TSO, and mechanisms to avoid conflicting or overlapping activation signals, so as to ensure operational consistency and system security as participation grows.

4.2 RECOMMENDATIONS FOR MARKET PARTICIPANTS

Italy's MLF rulebook provides a formal market entry point for flexibility providers via GME, within DSO-driven pilot implementation It also clarifies that DSOs participating in the market are those identified in the relevant operational provisions, reflecting a controlled approach consistent with the pilot nature of the instrument. This creates a workable environment for aggregators and other flexibility providers, but early-stage participation can still be hindered by heterogeneous onboarding processes,

inconsistent technical requirements across local contexts, and limited predictability of volumes while the framework remains pilot-based.

To scale participation without weakening distribution-level security, the Italian framework should make participation conditions clearer, more standardized, and more interoperable across DSOs—while keeping the DSO role in defining local needs and validating feasibility.

Key provisions should include:

- **Harmonized minimum onboarding requirements:**

  Define minimum, nationally consistent participation and qualification requirements (documentation, timelines, verification expectations) so aggregators and flexibility providers can operate across multiple DSO areas without re-engineering procedures each time.
- **Clear linkage between MLF participation rules and DSO technical validation:**

  Improve transparency on how DSO technical constraints and eligibility (including local feasibility checks) are applied within MLF participation, so providers can design portfolios and automation around predictable rules.
- **Consistent measurement and verification principles:**

  Promote standardized M&V principles (baseline logic, telemetry expectations where needed, non-performance treatment) to reduce uncertainty and support reliable service delivery across different pilot areas.
- **Proportionate pathways for small and distributed resources via aggregation:**

  Ensure proportionality in technical and administrative requirements so aggregated MV/LV resources (including EV-related flexibility and small storage) can participate without excessive fixed costs, while still meeting robustness and consumer protection needs.
- **Interoperability and data exchange expectations:**

  Encourage interoperable data exchange arrangements (minimum datasets, identifiers, and interfaces) between DSOs, GME, and market participants to reduce integration friction and enable scalable participation.

5 POLICY RECOMMENDATIONS FOR SPAIN

Electrification of demand, the rapid uptake of rooftop PV self-consumption, and the emergence of new flexible loads, most notably electric vehicles and behind-the-meter storage, are progressively shifting operational challenges towards the distribution network. The practical consequence is a growing need to manage local congestion and voltage profiles using market-based solutions, rather than relying exclusively on conventional network reinforcement. This direction is clearly supported by the European framework: Article 32 of Directive (EU) 2019/944 requires that DSOs are able to procure flexibility services through procedures that are transparent, proportionate and non-discriminatory, positioning flexibility as a credible alternative to purely physical grid investments.

In Spain, the policy trajectory is also well defined. Royal Decree-Law 23/2020 introduced the concepts of the aggregator and the active customer into the national framework, while Law 7/2021 (through its Eleventh Additional Provision) calls for regulatory reform to improve the utilisation of networks, enable the use of flexibility for their operation, and foster the development of local energy markets. From an operational design standpoint, the STREAM proposal provides a coherent blueprint: short- and long-term products, the definition of local activation areas, and end-to-end processes for

prequalification, qualification, matching, verification and settlement, so DSOs can issue geographically targeted requests and flexibility service providers (FSPs) can offer capacity with procedural and legal certainty.

The adoption of Royal Decree 88/2026 of 11 February marks the first comprehensive secondary legislation governing the independent aggregator in Spain, closing a long-standing regulatory gap and enabling, for the first time, regulated direct access to electricity markets, including balancing. Beyond creating a workable legal status for aggregation, it updates elements of the retail architecture that were still fragmented and, taken together with the broader framework, strengthens the practical implementation of the EU requirement for active demand participation and the use of flexibility as an alternative to network investment.

Spain's STREAM pilot in Crevillent provides real-world evidence of both the levers and the design requirements for the transition towards local flexibility markets: the availability and usability of low-voltage data, the need for robust measurement and verification (M&V), device and platform interoperability across residential and industrial assets, and the interaction between local activations and balance-responsibility arrangements. Against this backdrop, the recommendations that follow are organised into two complementary sets: first, those addressed to the DSO (mandate, incentives, product design and TSO–DSO coordination); and second, those addressed to market participants (aggregators, energy communities and consumers), covering effective access, data and interoperability, tariff signals and consumer-protection safeguards.

5.1 RECOMMENDATIONS FOR DSO

A necessary starting point is to complete the effective (operational) transposition of Article 32 of Directive (EU) 2019/944 into Spain's Electricity Sector Law, making explicit, beyond general principles, that DSOs are empowered to procure flexibility services through transparent, market-based mechanisms for (i) congestion management at distribution level and (ii) voltage quality/voltage control, where such services are technically feasible and cost-effective. This mandate should be coupled with clear safeguards on DSO conduct, including neutrality, non-discrimination, and technology-agnostic procurement, as well as auditable separation between regulated network planning and competitive procurement decisions.

This legal mandate should be implemented consistently with the new 2026–2031 distribution remuneration framework set by CNMC Circular 8/2025, which explicitly adopts a multiyear TOTEX trajectory (investment + O&M) combined with an incentive scheme and benefit-sharing mechanism, thereby enabling regulatory neutrality between network reinforcement (CAPEX) and operational solutions (OPEX). To make flexibility procurement bankable for DSOs, regulation should explicitly recognise flexibility procurement costs as recoverable regulated expenditure under the TOTEX logic, with ex-ante acceptability (or a pre-approval pathway) to avoid systematic bias against OPEX. Circular 8/2025 already remunerates O&M on the basis of audited incurred costs and includes "other regulated tasks necessary for the exercise of distribution," which provides the natural accounting and regulatory hook to incorporate flexibility procurement as a regulated cost item but subject to standardised eligibility and audit rules.

Finally, Spain should operationalize a performance-based pathway for efficient investment deferral/avoidance grounded in zonal cost–benefit analysis: Circular 8/2025 already requires that

certain investment recognitions be supported by a cost–benefit analysis and technical justification and establishes CNMC supervision tools to assess efficiency and minimum-cost criteria. In parallel, the Circular foresees that the content and format of DSOs' investment plans must allow CNMC to assess the achievement of Directive 2019/944 Article 32 objectives, specifically "regarding the flexibility services incorporated," transparency, scenarios, and coordination with the TSO, meaning flexibility can (and should) be treated as a core planning and regulatory deliverable rather than an ad-hoc pilot.

Building on this framework, the next step is to operationalize flexibility as a regulated alternative to reinforcement, with clear legal authority, predictable cost recovery, and auditable planning evidence. Concretely, this can be implemented through the following measures.

- **Electricity Sector Law: make the DSO flexibility mandate "operational" (not declaratory)**

  Amend the Electricity Sector Law to clearly and enforceable state that DSOs may procure flexibility services (active/reactive power modulation, controlled curtailment, storage/EV managed charging, demand response, etc.) through transparent, market-based procedures for distribution-level congestion management and voltage quality/control, when this is the least-cost compliant alternative to reinforcement. The legal text should also codify neutrality, non-discrimination, and technology-agnostic procurement, plus minimum governance safeguards (audit trail, conflict-of-interest controls, and clear separation between regulated planning and competitive procurement decisions). This makes Spain's transposition of Directive (EU) 2019/944 Article 32 actionable and consistent with the regulatory expectation that distribution planning must be assessable against Article 32 objectives (including the "flexibility services incorporated").
- **Implementing guidance under Circular 8/2025: define a "regulated flexibility procurement" cost category with ex-ante acceptance**

  Issue a regulatory guidance under Circular 8/2025 that explicitly classifies flexibility procurement for network operation (congestion/voltage) as an eligible regulated expense, with a pre-approval / ex-ante acceptability route (e.g., zonal envelopes, service catalogues, standard product definitions, and baseline methodologies). This is legally and technically coherent with Circular 8/2025 because the O&M component is grounded on incurred audited costs for operation and maintenance and "other regulated tasks necessary for the exercise of distribution," which is the natural accounting hook for flexibility procurement.

  As a transitional bridge while the market design matures, the regulatory authority can also allow pilot-procurement programmes to be recognised via the Circular's pilot investment recognition mechanism (with CBA + technical report), where digital enablers are needed (monitoring, flexibility platform integration, control and verification tooling).
- **Distribution investment planning & reporting: standardise "flexibility-as-an-alternative" evidence in DSOs' plans (and make it auditable)**

  Operationalise Circular 8/2025's planning provisions by requiring DSOs to report, per constrained zone, a standardised "wire vs. flex" assessment within investment plans and their follow-up reports. Circular 8/2025 already empowers CNMC to: (i) supervise compliance with investment plans, (ii) evaluate execution, and (iii) define (by Resolution) the content and format of the plans so CNMC can assess Article 32 objectives "regarding the flexibility services incorporated," transparency, scenarios, and coordination with the TSO.

  Practically, that Resolution should require a minimum dataset: constraint definition (thermal/voltage/power quality), hosting-capacity or contingency basis, flexibility need (MW/MVAr, duration, response time), procurement design, measurement & verification, and

a zonal CBA comparing (a) reinforcement and (b) flexibility portfolios, including reliability margins and consumer impact. This turns "investment avoided/deferred" into a verifiable regulatory output, enabling performance incentives without weakening security of supply.

- **TSO-DSO Coordination**

  As DER start to participate simultaneously in local flexibility mechanisms (targeting constraints in distribution networks) and in system balancing services (activated by the TSO), a structural risk of functional overlap emerges. Without a coordination framework, the same asset may be double-committed within the same time window or receive incompatible activation signals, undermining market efficiency and, in the worst case, creating security-of-supply and power-quality risks due to non-delivery or conflicting activations.

  The coexistence of local flexibility markets (DSO-led) with TSO-level balancing and congestion services therefore requires explicit TSO–DSO compatibility and coordination rules to prevent double activations, contradictory economic signals and system-security risks. That said, in early phases these local markets typically mobilise small flexibility units (often aggregated at LV/MV), with limited individual impact on system balance and primarily local relevance (network constraints and voltage quality). This supports a proportionate, threshold-based approach: lighter coordination for small, highly localised activations, and stricter visibility and TSO-coordination requirements when aggregated volumes, simultaneity, or zonal criticality could have a material system-level effect.

  In particular, a "single activation / no double-commitment" framework should be implemented, featuring a single offer register, asset-/location-level traceability, and clear activation priorities (by constraint type and time horizon), so that the DSO can block or cap resource availability where downstream network constraints apply, while preserving system security at all times.

5.2 RECOMMENDATIONS FOR MARKET PARTICIPANTS

Local flexibility markets will only scale if participation becomes low-friction and profitable for aggregators, energy communities, ESCOs and prosumers. Today the main barriers are not purely technical: they are transactional and regulatory. As Spain moves from pilots to deployable local flexibility procurement, the priority is to set the market-enabling conditions for participants: interoperable access, harmonized M&V and settlement, and clear compatibility with TSO-level processes. Defining these rules early is essential to avoid fragmented local implementations that deter investment and reduce competition.

Spain already has the legal foundations to address this. Law 24/2013 embeds non-discrimination and transparency principles that should translate into equal, practical market access for new actors. RDL 23/2020 and Law 7/2021 provide the strategic "system rationale" (modernisation, electrification and decarbonisation) that makes demand-side flexibility and aggregation a policy instrument and not a niche pilot. Against that backdrop, RD 88/2026 is highly relevant because it operationalises independent aggregation (rights/obligations, switching, and information exchange), but it should be treated as an enabling layer within a broader participant-centric market design.

Potential measures to strengthen market participants in local flexibility market:

- **Make participation genuinely "one-stop" for end users (contracting, consent, switching).**

  Standardize the customer journey so consumers can join/leave a flexibility provider quickly, with clear consent management and without hidden frictions. RD 88/2026 provides useful building blocks (including independent aggregator activity, information exchange with DSOs,

and change of aggregator processes), but the key recommendation is to translate those rights into a uniform operational workflow across DSOs and platforms.

- **Interoperability by default: mandated APIs + common data model across DSOs and platforms.**

  Require harmonized technical interfaces (APIs), common identifiers and data schemas for metering capabilities, time-series formats, asset/location attributes (at least to the level needed for network feasibility checks), and programme status. RD 88/2026's provisions on information exchange between independent aggregators and DSOs can be used as the legal anchor, but the policy objective is broader: no bespoke integration per DSO.

- **A national, market-grade M&V rulebook aligned across DSO local flexibility and TSO services.**

  Adopt a single national framework for baselines, event definitions, telemetry classes, data quality, rebound treatment, non-performance and penalties, so participants face one compliance regime rather than different rules per pilot/platform. RD 88/2026 is relevant here insofar as it establishes independent aggregation as a regulated activity and frames operational exchanges, but the recommendation is to go further: codify M&V in a way that is compatible with both distribution-level procurement and system-level balancing needs.

- **Stronger end-user price signals and investable revenue stacking (tariffs + explicit flexibility remuneration).**

  Participation will remain thin if consumers do not perceive value. Spain should accelerate the availability of dynamic/reflective retail offers and ensure local flexibility products provide predictable, transparent remuneration. The recent policy direction to broaden dynamic pricing offers strengthens the business case for aggregation, especially for households and SMEs, by monetizing load shifting beyond "pilot payments".

- **Proportionate compliance for small actors, with aggregation-friendly prudential and performance requirements.**

  Design obligations (telemetry, guarantees, reporting) in tiers so that energy communities and small aggregators can enter without excessive fixed costs, while still meeting reliability and consumer-protection standards. RD 88/2026's definition of rights/obligations for independent aggregators is a good starting point, but the recommendation is to ensure proportionality is explicit in implementing rules and product requirements.