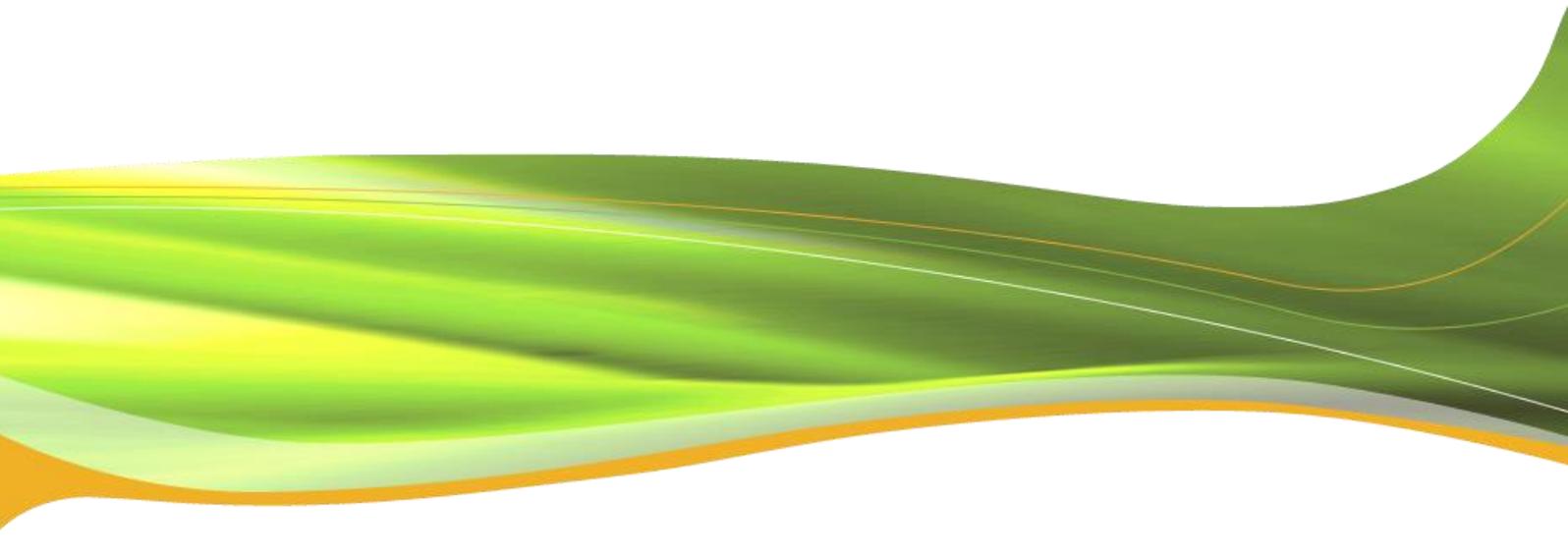


# **European Distribution System Operators for Smart Grids**

Response to the European Commission's public  
consultation on a new energy market design

*October 2015*



## Executive summary

The European Distribution System Operators for Smart Grids (EDSO) welcomes the European Commission's (EC) consultation on a new energy market design, as it is a timely opportunity to present its proposals for revising the European regulatory framework for energy, or the 'Third Energy Package.'

For the last few years, distribution system operators (DSOs) have been contributing to the energy transition by connecting wind turbines and photovoltaic (PV) systems to their networks, deploying smart meters, facilitating retail markets and cooperating with local authorities.

Unfortunately, these first steps have been taken with limited support from national regulatory authorities (NRAs) and public authorities. To make a smoother transition towards a decentralised energy system and reap the benefits of smarter grids and higher flexibility, an overhaul of the Third Package is needed. After years of focus on the wholesale market, the revised regulatory framework should move renewable energy sources (RES), retail markets, distribution networks and flexibility to centre stage.

This primarily should be done through the definitions of high-level principles and guidelines, specific enough to impact the energy system but also by giving Member States sufficient discretion to address national circumstances.

EDSO has formulated six key recommendations which are further elaborated in this document.

### **EDSO recommendations to the European Commission:**

- Amend the relevant EU legislation to include a new article allowing DSOs to procure services on local flexibility markets or to contract in a transparent and non-discriminatory way with grid users for the purpose of optimal network management.
- Amend the relevant EU legislation to include a new article on General Principles of congestion management for distribution grids.
- Entrust DSOs to draft high level guidelines on flexibility through the newly created DSO/TSO platform. Other stakeholders and consumer organisations then should be consulted.
- Involve DSOs if or when revising the minimal functional requirements for smart metering.
- Ensure the timely adoption and implementation of the legislation on network information security and on general data protection. DSOs already operate neutral market facilitators today, and thus there is no need for additional legislation to make smart metering data accessible to third-parties.
- Help NRAs to identify best practices for distribution network tariffs design.

## Specific answers

### **Question 7 - What needs to be done to allow investment in renewables to be increasingly driven by market signals?**

Investments in renewables have been strongly driven by policy support over the last decade. Now that the technology is mature, renewables could be subject to clearer market signals.

In the case of small PV installations, network tariffs must be designed to ensure that consumers generating their own electricity still contribute their fair share of the distribution network costs. Where the make-up of tariff structures is volume-heavy and where net metering is applied (i.e. consumers receiving credits for at least a portion of the electricity they generate), consumers pay a lower bill, including a reduced contribution to network costs. The costs borne by DSOs, however, remain unchanged, as they highly depend on the size of the network and not on the amount of energy consumed.

The net metering and volumetric distribution tariffs should thus be avoided, ensuring that investments in renewables are driven by a clear market signal.

### **Question 10 - Where do you see the main obstacles that should be tackled to kick-start demand-response (e.g. insufficient flexible prices, (regulatory) barriers for aggregators / customers, lack of access to smart home technologies, no obligation to offer the possibility for end customers to participate in the balancing market through a demand response scheme, etc.)?**

Today, DSOs collect, store and manage consumers' data in most Member States and also are expected to pre-qualify generators providing balancing services<sup>1</sup>. They already are neutral market facilitators (e.g. by facilitating the switching process, the connection of users, etc.) and are only a few steps away from becoming demand-response enablers. To reach that aim faster and reap the benefits of a more flexible system, a few obstacles have to be cleared first:

- **Uncertain regulatory framework and lack of market model**

The current national regulatory frameworks do not allow DSOs to procure services from consumers and generators on local flexibility markets or to sign bilateral contracts with market parties. In the absence of aggregators or other alternative providers offering services to alleviate congestion, DSOs have to reinforce their grids or to develop new technical solutions to solve local grid constraints and avoid RES saturation.

Unfortunately, regulation is also slowing down the deployment of innovative technologies in electricity networks. For years, regulation has pushed most DSOs to reduce their costs. This type of regulatory framework is no longer appropriate for Member States where network have to cope with growing RES connections. DSOs need room for maneuver and an increased capacity to invest in research, development and innovation.

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<sup>1</sup> See draft Load Frequency Control and Reserves network code.

Last but not least, active congestion management is a growing issue for DSOs, as recognised by the Directorate-General for Energy's Smart Grid Task Force report on "[Regulatory recommendations for the deployment of flexibility](#)." Existing regulation, however, is preventing it in most Member States: DSOs are not allowed to take any action that could impact market parties.

The absence of a common market model is an obstacle to demand-side response as many questions remain open: Who can procure services? When should network operators be allowed to intervene to protect grid stability? How is flexibility rewarded? DSOs should be involved in the definition of future market design, as their knowledge of distribution grids dynamics is needed to strike the right balance between grid safety, security of supply and market-based activities.

- **Insufficient incentives for consumers**

Consumers need a clear incentive to convince them to change their energy consumption habits. EU research project have shown<sup>2</sup> that consumers can be driven by different motives: willingness to engage in an environmental-friendly behavior; desire to be helpful to the local community; search opportunity for financial gain.

This last motive is difficult to develop today due to inflexible prices and tariffs. Time-of-use prices (energy component) exist today, but time-of-use tariffs (network component) are not common. As the bill of a consumer is roughly composed of the energy paid (one third), network costs (one third) and taxes (one third), if only the price of energy varies, it means that using time-of-use tariffs will result in a savings of only a few percent in the consumer bill.

Offering time-of-use tariffs or giving DSOs the opportunity to make one-off payment to consumers contributing to resolving congestion and to distribution grid stability would make behavioral change more rewarding for consumers.

- **Technological limitation**

To make consumers responsive to external signals and to measure accurately their energy consumption, smart meters and/or smart appliances are necessary. Apart from Italy, Finland and Sweden which have already completed their roll-out of smart meters, 13 other Member States have started it or will soon do. Demand-side response from small consumers will be made easier when a majority of consumers are equipped with such meters. To avoid uncertainty regarding investment in smart meters, the EC should directly involve DSOs if or when revising its recommended minimum functional requirements to be considered for roll-outs.

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<sup>2</sup> See for instance [www.s3c-project.eu](http://www.s3c-project.eu)

**EDSO recommendations:**

- Amend the relevant EU legislation to include a new article allowing DSOs to procure services on local flexibility markets or to contract in a transparent and non-discriminatory way with grid users for the purpose of optimal network management.
- Amend the relevant EU legislation to include a new article on General Principles of congestion management for distribution grids. This article could be inspired from a similar article targeting TSOs, Article 16 in regulation 714/2009 EC (“General principles of congestion management”) and adapted for DSOs. This new article should recognise that several methods exist to prevent local congestion, market-based or non market-based. It should ensure that DSOs gain visibility over aggregation services impacting their network in order to maintain security of supply and quality of service.
- The EC should directly involve DSOs if or when revising the recommended minimal functional requirements for smart metering.

**Question 11 - While electricity markets are coupled within the EU and linked to its neighbors, system operation is still carried out by national Transmission System Operators (TSOs). Regional Security Coordination Initiatives ("RSCIs") such as CORESO or TSC have a purely advisory role today. Should the RSCIs be gradually strengthened also including decision making responsibilities when necessary? Is the current national responsibility for system security an obstacle to cross-border cooperation? Would a regional responsibility for system security be better suited to the realities of the integrated market?**

The existing structure of system responsibility has proven effective during the last 10 years in Europe. Cooperation on a voluntary and economical base (balancing cooperation, TSO security cooperation (TSC)) is successful and under permanent development.

With more interconnections between Member States, with higher variability of generation and demand and with the harmonisation brought by network codes, emergency situations should be solved in coordinated manner between neighboring Member States. This is important to make sure that emergency situations do not spread across borders or that an emergency situation in one Member State is not solved in a discriminatory way, i.e., by relying on load-shedding of non-domestic consumers or by stopping exports.

Tomorrow, each TSO should remain responsible of its own network and control area, while using complementary services from Regional Security Coordination Initiatives to manage cross-border exchanges and emergency situation affecting several Member States.

In this context, the role of DSOs also should be considered important: with a larger share of power plants connected to distribution grids, the operation of the power system requires a direct involvement of DSOs [See EDSO response to EC public consultation on security of supply].

**Question 12 - Fragmented national regulatory oversight seems to be inefficient for harmonized parts of the electricity system (e.g. market coupling). Would you see benefits in strengthening ACER's role?**

ACER is a monitoring and consulting body for the European Institutions and NRAs, and there is today no need to strengthen this role. The clear distinction between NRAs' responsibilities and ACER's responsibilities is adequate and does not require a revision. However, ACER could collect and disseminate regulatory 'best practices' across the EU and propose high-level guidelines to NRAs on topics of general interest for network operators, such as network distribution tariffs and flexibility.

**Question 13 - Would you see benefits in strengthening the role of the ENTSOs? How could this best be achieved? What regulatory oversight is needed?**

The ENTSOs' current responsibilities are many, for example: drafting network codes; writing 10-year network development plans; preparing generation adequacy outlooks; and advising the EC on topics related to electricity and gas policy. This gives a significant power of influence to the ENTSOs.

With regards to the ENTSOs' *operational powers*, such as the operation of the extra-high voltage grid or the use of interconnections, a greater role may be needed to optimise cross-border energy flows, if deemed necessary.

Additional *legislative powers*, however, are not required. The ENTSOs were key players in the drafting of European network codes. RES, however, now represent a significant share of the installed power plant capacity and are mostly connected to distribution grids. The energy system is becoming more decentralized, and congestions also occur on local level.

It means that DSOs must have a leading role in the policy-making process and be placed on an equal footing with TSOs for the drafting of network codes and guidelines (e.g., through the DSO/TSO platform). Regulatory oversight is needed to ensure balanced responsibilities -- in the general interest -- between network operators at transmission and distribution level.

**EDSO recommendation**

- Entrust DSOs to draft high-level guidelines on flexibility through the newly created DSO/TSO platform. Other stakeholders and consumer organisations then should be consulted.

**Question 14 - What should be the future role and governance rules for distribution system operators? How should access to metering data be adapted (data handling and ensuring data privacy etc.) in light of market and technological developments? Are additional provisions on management of and access by the relevant parties (end-customers, distribution system operators, transmission system operators, suppliers, third party service providers and regulators) to the metering data required?**

- **Roles of distribution system operators**

The role of DSOs is changing from network managers following electricity demand (“fit and forget” approach) to active energy flow managers who also react to decentralised generation. At the same time, DSOs have contributed to energy market liberalisation by facilitating supplier switching. DSOs are neutral market facilitators and help consumers, suppliers and other services providers to interact with each other. This includes a number of responsibilities<sup>3</sup>:

- Providing non-discriminatory connection and access to the grid;
- Coordinating network planning and system operation with the TSO, in order to maintain uninterrupted supply;
- Helping to kick-start new technologies, such as electric vehicle (EV) charging, if deemed necessary by the NRA;
- Managing data for active network management, maintaining security of supply and giving access to metering data to all relevant organisations<sup>4</sup>;
- Delivering to the TSO all data required for the settlement process;
- Procuring system flexibility services<sup>5</sup>;
- Dynamically managing distribution grid congestions.

Apart from the two last roles listed above, the others are already carried out by DSOs today. Data management is a prime example: most DSOs manage data from regular meters and are in charge of the supplier switching process. Their role includes the collection, handling and delivery of metering data to all market parties: customers, suppliers and others (like aggregators) acting on behalf of the customers.

As data managers, DSOs safeguard consumer privacy and protect data systems against cyber-attacks. They are also stepping up efforts to reach a high level of cyber security and data privacy by, for instance, using the data protection impact assessment (DPIA) template delivered by the EG2 of the Smart Grid Task Force to assess the security of their smart metering systems. In this way, DSOs contribute to customer empowerment, market growth and market competition.

Metering data is not only used for market processes but also to improve grid management (e.g., forecast of generation and demand, better asset management). Smart metering will be an important technological evolution for DSOs but not a revolution. If DSOs’ control over metering data is restricted, it would be a major obstacle to the development of smart grids and reduce the benefits to be expected

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<sup>3</sup> For a more detailed list of potential roles and responsibilities, see the [EvolvDSO project website](#).

<sup>4</sup> See the EDSO paper “[Data Management: The role of Distribution System Operators in managing data](#),” June 2014

<sup>5</sup> See the EDSO paper “[Flexibility: The role of DSOs in tomorrow’s electricity market](#),” May 2014

from them. As such, EDSO does not believe additional legislation is required to make data accessible to third-parties.

- **Governance**

The current regulatory framework prevent DSOs from taking on some of the roles listed above, such as procurer of system flexibility services. One of the reason for this limitation is the concern of some NRAs that granting more power and responsibilities to DSOs will impede competition. These concerns, though, are no longer relevant. An overwhelming majority of DSOs are functionally and legally unbundled today and comply with the Third Energy Package. Existing unbundling rules are sufficient to ensure a non-discriminatory access to data as long as there is an appropriate regulatory oversight.

**EDSO recommendations**

- The EC should ensure the timely adoption and implementation of the legislation on network information security and on general data protection. DSOs already are neutral market facilitators today, and there is no need for additional legislation to make smart metering data accessible to third-parties.

**Question 15 - Shall there be a European approach to distribution tariffs? If yes, what aspects should be covered; for example tariff structure and/or, tariff components (fixed, capacity vs. energy, timely or locational differentiation) and treatment of self-generation?**

As clearly explained in the staff working document accompanying this public consultation, in most Member States today, the costs incurred by DSOs are generated by the grid they build to be ready for any supply and demand situation and its maintenance, whereas revenues are most commonly based on the energy flowing through the grid and delivered to final consumers. The variability of electricity generation resulting from the larger integration of distributed RES (DRES) and prosumers, together with increasingly variable electricity consumption, are significantly impacting the ability of DSOs to perform their duties in a business as usual scenario. Uncertainty regarding DSO costs and revenues is rising.

Reviewing and updating current distribution network tariffs is needed to the transition towards a more decentralised energy system. Any common approach, though, should not go above setting a common framework for distribution tariffs; it should not uniform the tariffs nor the tariff elements. While some trends may be detected across EU DSOs (i.e., capacity as a more important ingredient of network tariffs), the specifics depend largely on the local situation. The regional differences, consumer demands and the locality of the market must allow for tailor made solutions and not set things in stone. Therefore, it is important that basic principles are aligned on an EU-level, such as the cost causation principle, cost reflectiveness, no cross subsidies and allowances for national/regional differences.

This is why, identifying ‘best practices’ could assist NRAs update distribution tariffs. In its forthcoming position paper on distribution network tariffs<sup>6</sup>, EDSO has formulated a number of high-level principles conducive to better network tariff design.

**Where these options have been proven to contribute to public welfare, grid users should be able to:**

- Self-generate and self-consume energy as long as the costs induced by their use of grid services, including insurance against periods when it is not possible to consume one’s own generated electricity, is reflected in their bill;
- Receive compensation from DSOs when adapting their energy consumption/generation in response to their signals (e.g., at peak times);
- Sign up for “smart contracts” with DSOs, granting them a scaled connection quicker, in exchange for occasional and limited curtailment/grid disconnection/activation of storage at peak times;
- Receive clear and appropriate information before and after new distribution network tariffs are implemented.

**Operators of (non-residential) DRES should:**

- Be offered reduced locational connection charges to incentivise them to connect in areas requiring less grid reinforcement and thus costing less to society.

**NRAs are invited to:**

- Make distribution network tariffs more capacity based and less volumetric based, as capacity is the largest cost driver and its recognition will limit revenue uncertainty for DSOs;
- Set up short price periods, ideally one year. The regulatory period, however, should not be shortened.

**EDSO recommendation**

- The EC should identify ‘best practices’ on distribution network tariffs design, taking into account the above-mentioned recommendations.

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<sup>6</sup> EDSO, “Adapting distribution network tariffs to a decentralised energy future”, October 2015



*EDSO for Smart Grids is a European association gathering leading electricity distribution system operators (DSOs), cooperating to bring smart grids from vision to reality.*

**[www.edsoforsmartgrids.eu](http://www.edsoforsmartgrids.eu)**