



SHAPING SMARTER GRIDS FOR YOUR FUTURE

Key Messages to the new European Parliament

We bring Power to your homes

1



DSOs play a key role in the **energy transition** by facilitating markets and empowering active consumers.

2



Continued dialogue between legislators and the different stakeholders is crucial and DSO-TSO coordination, on an equal footing, is key.

3



Regulation should take into account dynamic developments and incentivise innovation.

4



It is imperative to ensure proper implementation of the Clean Energy for All Europeans Package and create **legal certainty**.

5



The role of new actors in the energy system has to be clarified while appropriate regulatory oversight must be ensured.

6



The value of electricity grids to achieve **environmentally sustainable** objectives should be highlighted.

7



Digitalisation will drive the energy transition and is an inherent part of the modern DSO.

8



Sectoral integration is crucial to meet Europe's decarbonisation targets.

E.DSO

European Distribution System Operators

E.DSO is the key interface between Europe's Distribution System Operators (DSOs) and the European institutions. E.DSO gathers 44 leading electricity DSOs in 25 countries, including 3 national associations, cooperating to ensure the reliability of Europe's electricity supply for consumers and enabling their active participation in our energy system. How? By shaping smarter grids for your future.



44

Distribution System Operators, including 3 associations



>350

million customers



7

million kilometres of distribution lines

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EU citizens have elected a new European Parliament on 26 May 2019. Moreover, a new College of Commissioners will be appointed. As a key actor in the European energy sector, electricity distribution system operators (DSOs) consequently want to explain their industry to the incoming policy makers and also provide some key messages on what is needed in the coming years for the development of the sector and for the achievement of the energy transition.

Representing leading electricity DSOs in Europe, E.DSO is committed to a clean and sustainable future, and to a European energy system that guarantees the highest security and quality of electricity supply at lowest societal cost. Besides being responsible for operating and maintaining the medium- and low-voltage grids, DSOs increasingly take up new functions, as facilitators of emerging markets and services that have citizens at their centre.

A fair deal for consumers includes the possibility for citizens to take an active role in the energy transition. DSOs will play an important part in this development, by enabling new services and by catalysing the markets as neutral facilitators. The distribution grid is the backbone of the future energy system that is characterised by increasing shares of variable renewables, distributed energy resources, and new smart digital technologies, especially smart metering and smart grid projects.

About 90% of renewable electricity production in Europe is connected to the DSO grid.

Since its inception in 2010, E.DSO has been the trusted voice of DSOs in Europe, functioning as a bridge between the industry and the EU institutions. We value a strong relationship with European decision-makers and other societal and industrial stakeholders in Brussels and beyond.

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1

DSOs play a key role in the energy transition by facilitating markets and empowering active consumers.

As a result of the unbundling requirements set out by European legislation, DSOs are neutral market facilitators. Legally separated from energy production, supply and trade activities, DSOs can enable new services and empower established and emerging market parties and consumers to play an active role in the energy system, for example by rolling-out smart meters and by integrating prosumers' electricity into the grid. They make it possible for individual and industrial customers to provide system flexibility – either independently or through aggregators. Electrification is the key to a decarbonised energy system and DSOs ensure the secure and reliable operation of a clean and sustainable electricity grid.

New technologies and services are emerging such as energy storage and electric vehicles. These need to be smartly integrated into the network and can even provide grid services. The development and operation of storage facilities by DSOs, while complying with the Clean Energy for All Europeans Package, is still needed to ensure a secure and reliable operation of the distribution system.

Moreover, DSOs are digital players, handling a variety of meter, grid and market data. They are also providers of open data, which can be used by third parties to develop new and innovative services. Third party access to granular customer data is only granted if the customer has given their explicit consent. Of course, all data-handling is done in accordance with the highest network security and data protection standards – to ensure that customer data is protected under any circumstances.

Consequently, DSOs hold expertise that goes beyond the mere operation of the grid. The increasing importance of DSOs is also recognised in the Clean Energy for All Europeans Package. For instance, the creation of a new EU DSO Entity will allocate more competencies to electricity distributors in the elaboration of European network codes. In the meantime, the European DSOs must be involved in any discussions on new network codes through their respective EU associations.

2

Continued dialogue between legislators and the different stakeholders is crucial and DSO-TSO coordination, on an equal footing, is key.

Any innovative step undertaken by DSOs requires a supportive regulatory framework and the combined effort of stakeholders at all levels of government. Regulatory authorities must identify an appropriate framework for future electricity market design and cooperation between electricity transmission system operators (TSOs) and DSOs. This framework concerns technical requirements and rules for the deployment of distributed resources, ensuring a wide condision of information and facilitating access to electricity and flexibility services.

DSOs are eager to work closely together and provide their expertise to the European legislators. This expertise can be seen today through various European projects and through achievements on the ground. In recent years, European DSOs have spent more than 800 million EUR in smart grid projects. They have advanced their expertise in various fields, e.g. smart meter roll-out, smart grid operation, open data and new services such as flexibility and e-mobility. Moreover, DSOs forge strong cooperation with other stakeholders, for example with the TSOs on network codes and guidelines implementation, data management and active system management. As the tasks of DSOs grow increasingly diverse, it is crucial to ensure the level playing field between DSOs and TSOs.

E.DSO has worked closely – and will continue to do so in the future – with other DSO associations, with the new EU DSO Entity under creation, and with ENTSO-E as well as various stakeholders and industry organisations, NGOs and regulators, fostering a continuous exchange of views. E.DSO has also always put great emphasis on providing expertise to the EU institutions, for example in the European Commission's Smart Grids Task Force. Moreover, we value the input we receive from other stakeholders, for instance in our own Stakeholder and Innovation Council.



3

Regulation should take into account dynamic developments and incentivise innovation.

It is important to acknowledge that innovation in a regulated environment is always different from innovation outside of it. However, rules should be flexible enough to allow and even incentivise regulated entities such as DSOs to be innovative and to use new technologies and models. Sandboxes can be a good tool to test new practices by providing temporal and spatial exceptions for the implementation of novel technologies and ideas – that would not be possible in the normal regulatory context. This allows for new insights and the discovery of best practices that, if proven successful, should consequently come into force as smart regulation.

Regulators can support the increasing need for solutions to guarantee higher degrees of resilience, adaptation and flexibility of power grids, responding to extreme climate conditions, disruptive market dynamics, cybersecurity issues, and large-scale social events. They can do so by adopting innovative schemes, favoring the development of new business models, and new forms of cooperation, while ensuring the institutional support to foster cross-sector partnerships, as well as customer and community engagement.



4

It is imperative to ensure proper implementation of the Clean Energy for All Europeans Package and create legal certainty.

The Clean Energy Package will introduce many changes to Europe's energy system. More specifically, the new Electricity Market Design constitutes the framework within which these changes unfold. While a regulatory overhaul was long overdue, not all developments can be predicted and not everything has and can be addressed by the newly adopted legislation. The implementation phase will therefore be crucial in ensuring a smoothly functioning energy system. The EU institutions, particularly the Member States in the Council, should be transparent and clearly communicate how they intend to implement the Market Design provisions. They should continuously communicate with relevant stakeholders and take their concerns into account when implementing the Package.

This will create legal certainty. Moreover, local and regional differences between Member States need to be considered when implementing the Package.



5

The role of new actors in the energy system has to be clarified while appropriate regulatory oversight must be ensured.

The energy system is witnessing the emergence of new actors, which are also rightfully recognised in the Clean Energy Package. However, it is not always clear what exact rights and obligations these new actors have. At the very least, some legal uncertainties remain which should be clearly addressed when implementing the Package and the new Electricity Market Design. New players must be subject to fair and proportionate rules and must be covered by appropriate regulation where necessary. This includes emerging actors such as aggregators and Citizen Energy Communities. All of this is necessary to create a level playing field for all and to ensure the long-term stability of our energy system.



6

The value of electricity grids to achieve environmentally sustainable objectives should be highlighted.

The energy transition and decarbonisation targets will not be achieved without appropriate investments into electricity networks, particularly at the DSO level. Most renewable generation (+/- 90%) is connected to the distribution grid and capacity is continuously growing as the economy increasingly electrifies. Consequently, network reinforcements are also necessary. Of course, investments should be done in the most cost-efficient way, implying the need for smart technologies. But the use of new technologies and services are not sufficient in every situation, which means that conventional grid extensions are necessary in order to increase the network's hosting capacity. In any case, investments into the grid must be considered a sustainable activity in itself since the connection of renewables and an electrified energy system cannot be achieved without an appropriate grid to back up these developments. Therefore, it is crucial to ensure proper DSOs' financing while keeping their costs at a socially acceptable level.

By integrating and optimising distributed generation from renewable sources, storage, and demand response, smart grids contribute to sustainability, facilitating the complete transformation of the energy system while generating opportunities for new revenue streams, enabling the development of electric vehicle charging infrastructure and broadband connectivity, to name but a few.

7

Digitalisation will drive the energy transition and is an inherent part of the modern DSO.



Digitalisation is a key driver for an efficient and sustainable energy system. It will fundamentally alter the energy landscape, adding an additional layer to the physical grid. Digitalisation is an opportunity and challenge at the same time. For example, it is a necessary tool to reach the objective of a flexible energy system that deals with ever-increasing shares of volatile distributed renewables. At the same time, it makes the grid more susceptible to threats such as cyber-attacks. These risks need to be appropriately mitigated. Digitalisation leads to a smart and efficient operation of the electricity distribution network, for example through the roll-out of smart meters. It will improve grid strength and resilience through a better medium-voltage and low-voltage observability and it will strengthen DSOs' investment planning. This will lead to increased efficiency and reduced costs, but also requires high initial investments both for DSOs and pro/consumers.

In this context, smart grids in general, and smart metering in particular, are the fundamental pillars of energy network digitalisation: they bear significant potential for achieving low-carbon energy security, enhancing energy access and empowering citizens to actively participate in energy markets. They can allow distributors to optimise grid operations, leveraging on digital solutions and managing different needs from all actors involved in the power system (producers, regulators, consumers, prosumers, etc.), while enabling efficient electricity supply and higher service quality, and hedging against high volatility of international energy markets.

As such, digitalisation should not be seen as an end in itself but rather as a means to shape an active energy transition with customers at its heart.

New flexible and dynamic pricing options, granting fair treatment, should be made available to customers. This new design must put simplicity in the foreground. Incentives should help DSOs make use of flexibility services and distributed energy resources while ensuring an overall cost-effective electricity system. Energy poverty and inclusion should be addressed through innovative models, including partnerships with communities, and cost-related measures. DSOs are already tackling the issues in their areas and among their customers.

8

Sectoral integration is crucial to meet Europe's decarbonisation targets.



The electrification of sectors such as transport, industry, heating and cooling will be crucial to achieve the ambitious decarbonisation targets stipulated in the Paris Agreement and the EU's Clean Energy Package.

The sharing economy and social participation is transforming the ownership relation between people and objects, and having a huge impact on society dynamics and industry. In this sense, the way in which DSOs operate must be flexible to play different roles and serve society in different ways. Synergies among energy sectors and industries will reshape competition among energy vectors, requiring sustainable cross-sector regulation and innovative financial mechanisms. DSOs should position themselves to anticipate and actively enable sector coupling.

Data intelligence and digital customer services will exponentially increase, with a predominant role of global IT companies. Consumer data, as collected by the DSOs, have a major technical and commercial value, key to create value added services for society and industry. DSOs can operate a trusted data platform.

DSOs need to digitalise their operation and planning processes to enable a highly dynamic energy system at all layers and timescales. They must be ready to form part of the digital society and to help build smart cities.

We also support an increased RD&I effort in this domain, and cooperation between the different sectors must be encouraged to further explore synergies that benefit European industry, and most importantly European citizens.



DSOs operate the distribution grid that connects industrial and household consumers

In most cases, these are low-voltage (LV) and medium-voltage (MV) **electricity networks**. Additionally, some operate high-voltage (HV) networks. There are also DSOs that are active in other domains, e.g. gas distribution, cables for data transmission, optic fiber, etc.



DSOs come in all shapes and sizes

There are approximately **2,400 in Europe**, many of them very small, but the biggest **~50 DSOs** connect more than **70% of EU citizens**.



DSOs create many jobs, and there is a need for even more talent in the future due to the electrification and digitalisation of Europe's economy

Currently, **DSOs employ 240,000 people** throughout Europe. This number is expected to increase due to more decentralised energy resources, connected to the DSO grid, which require infrastructure investments and a bigger workforce. Moreover, grid digitalisation creates a **need for highly-skilled workers** from the IT domain.



DSOs are neutral market facilitators

Those with more than 100,000 connection points need to be legally and functionally unbundled. This means that they are vertically separated from any other activity in the electricity value chain (generation, transmission, supply), and can therefore act as **neutral market facilitators**.

DSOs are enablers of the energy transition



The electricity system is changing from centralised, unidirectional, passive and hardware-based to **decentralised, multi-directional, customer-based (active) and digital**. DSOs become much more important in this changing system, thereby enabling the transition, maintaining the ultimate goal of guaranteeing network stability and quality of service, and improving reliability and resilience of the entire energy system, benefitting the various stakeholders.

DSOs are innovation pioneers

In recent years, they have spent **more than 800 million Euros on research & innovation projects** in the field of **smart grids**.





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