

The logo for E.D.S.O. features the letters 'E.D.S.O.' in a white, sans-serif font. Above the letters is a network diagram consisting of several white dots connected by thin white lines, forming a web-like structure. The logo is set against a teal rectangular background.

E.D.S.O.

The logo for the Stakeholder Innovation Council features the text 'Stakeholder Innovation Council' in a white, sans-serif font, arranged in three lines. The text is set against a teal rectangular background with a faint, white network diagram pattern of dots and lines.

Stakeholder
Innovation
Council

5TH E.D.S.O

Stakeholder & Innovation Council

December 2022

Introduction



On November 30, the fifth Stakeholder and Innovation Council (hereinafter SIC) – the annual E.DSO land-mark event – took place in hybrid format in the framework of ENLIT in Frankfurt. The overarching theme "Seizing the change, get ready-for-action" addressed the urgent need to accelerate action towards a more sustainable future in the face of a rapidly changing environment. In this vein, the different sessions aimed at depicting the optimal framework for an electricity grid that effectively reduces greenhouse gas emissions, lowers overall cost of power generation, delivers flexibility services and resilience to the European power generation system, and brings social and economic benefits to customers. It was the first time after two years of COVID-19 pandemic, that the SIC was held in person. Speakers and participants welcomed the occasion to meet face-to-face again, cementing the importance of the event as a key industry gathering that provides the right balance of curated content and networking opportunities.

The 2023 SIC edition coincided with a year of converging crises that highlighted the need for balance in the dimensions of energy security, affordability, and sustainability. The global energy landscape, massively altered by Russia's invasion of Ukraine on 24 February 2022, prompted governments, businesses, and other organizations to reduce their reliance on fossil energy from unreliable suppliers, such as Russia. In addition, the energy crisis brought to light shortcomings in the existing electricity market design, ultimately raising the prospect of an overhaul of the wholesale electricity market in the early months of 2023.

The event was opened with a keynote address by Wolfgang Niedziella, President of CENELEC. He emphasized the temporal context in which the event is taking place and the strategic importance of the SIC and E.DSO's work in general. Cooperation at all levels is a central part of achieving the vision of an "All Electric Society" which is based, on carefully assembled standards for a variety of key topics, such as electrical systems and infrastructure.

The pressing atmosphere in the electricity sector urges all stakeholders to accelerate activities to achieve our climate goals in the coming years: A net-zero electricity grid by 2035 and a net-zero economy by 2050. As outlined in the REPowerEU plan, decentralized renewable energy sources (RES) are key, also in terms of unwanted dependencies. However, the critical role of distribution grids in connecting them requires proper preparation, planning, management, and implementation to ensure resilient infrastructure.

With this in mind, the 2022 edition of the SIC took a provocative stance, with a format that brought together different industry stakeholders to complement the views of European distribution system operators. To further promote the progress of the sector, the European Union needs to focus on a comprehensive, multi-sector and multi-level regulatory framework that builds on common principles for action and strongly supports innovation. Only by establishing a solid foundation can a resilient grid based on clean energy sources be secured for the future.

The Council was composed of a wide range of stakeholders from regulatory and manufacturing entities as well as experts in standardization and customer-organizations, including:

- Jorge **Vasconcelos** (NEWES – New Energy Solutions)
- Luca **lo Schiavo** (ARERA)
- Dries **Acke** (Solar Power Europe)
- Maher **Chebbo** (Net Zero Solutions)
- Diederik **Peereboom** (T&D Europe)
- Susanne **Nies** (currENT)
- Olga **Suminska-Ebersoldt** (StoRIES)
- Rita **Tedesco** (ECOS)
- Tom **Berry** (Schneider Electric)
- Paloma **Sevilla** (Aeléc & Datadis)
- Michele **Governatori** (ECCO think tank)
- Jaume **Loffredo** (BEUC)



The essence of this event relies on its future-looking outfit, avoiding to waste time, talking about the present in times where the future is so unsecured: a war on our borders, energy crisis, electricity market under stress.

João Torres



The four sessions listed here below, were moderated by João Torres, SIC Chair, Chairman at AP Energia and Strategic Advisor EDP, as well as Roberto Zangrandi, E.DSO Secretary General:

- **Session 1:** The optimal design for future electrification
- **Session 2:** Nurturing Innovation for a Low Carbon Future – Tighten the cooperation between distributors and equipment manufacturers
- **Session 3:** Standards to optimize the pathway to maximum efficiency
- **Session 4:** Customers at the center of decarbonization efforts

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Key take-aways



Innovation on all levels is essential: technologies, business models, regulation and also the way the industry communicates



Existing clean and smart technologies must be leveraged and scaled up to sizes where the use can really make a change



Standards are a crucial tool, however, often slow and complex process of finding the right consensus



Need to **increase and accelerate energy system integration,** especially on the local level



Unlock the full potential of **flexibility** to guarantee a quick and customer centric transition



Acceleration and agility needed to meet different needs of different customers across Europe



Today's meeting, and more generally the work of E.DSO, are strategic. I say this is based on one strong conviction – one on which I think many of you will agree with me: that energy is at the crossroads of all potential solutions.




Wolfgang Niedziella,



The optimal design for future electrification

First and foremost, it is crucial to admit that there is no such thing as the optimal design for the future electrification model. There are good and bad approaches, as is currently heavily visible when evaluating the existing market model in the face of the ongoing energy crisis. Striving for perfection is a misguided path, instead, the definition of necessary criteria a well-functioning market shall meet is required.

An electricity market reform should build on three fundamental principles:

-  **Subsidiarity**
-  **Energy System Integration**
-  **Correspondence to Societal Roles**

While the principle of subsidiary puts forward the need for a centralised coordination of a physical European electricity infrastructure, the principle of energy system integration refers to the implementation of the European decarbonisation agenda and related measures as well as actions to be taken mainly at the local level. In this context, technological neutrality is of utmost importance to advance electrification of all sectors in a timely manner. . As highlighted by Jorge Vasconcelos, 80% of Europe's total energy demand in the transport and

building sector can be electrified in an effective and cost-efficient way with technologies available today (among others electric vehicles (EVs), heat pumps and smart metering). While the European Commission introduced the doctrine of energy system integration already in summer 2020, the practical exertion, yet shows strong deficiencies. Connected to this, the principle of correspondence to societal roles is re-emphasizing the need to ensure acceptance and respect for the diversity of approaches at the local level. Implementation measures can have a strong political dimension, making decentralised decisions indispensable to adapt to local particularities.

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We need to respect diversity in this democratic vehicle.

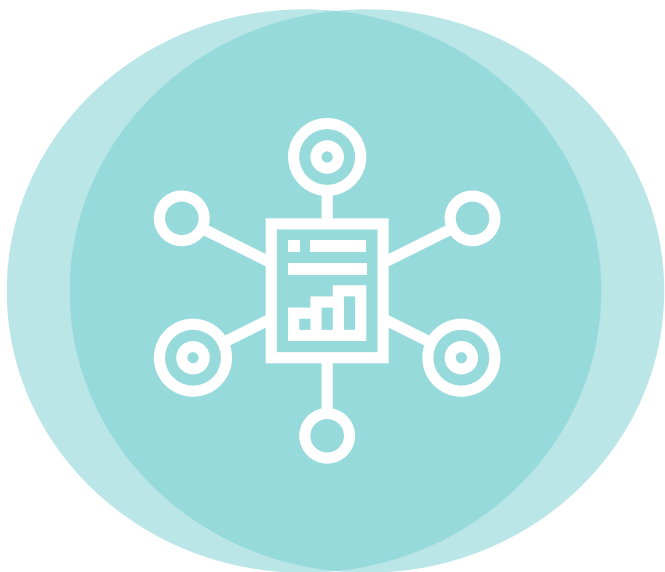
Jorge Vasconcelos

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A 'one-fits-all-approach' is not the most efficient way when it comes to implementation of energy system integration. Instead, it is imperative to put all efforts into identifying ways to facilitate the functionality between centralized and local levels and optimize the communication between them. The successful completion of the energy

transition relies heavily on the cooperation between all stakeholders. European policy makers, national governments, but also national stakeholders, such as the National Regulatory Authorities (NRAs), need to determine common regulatory frameworks.

Only with the right support a smooth implementation of the needed capacity load can be guaranteed to be delivered in time. Innovation as well as experimental proceedings and the courage to think differently can deliver the envisioned, massive expansion of RES in Europe. While 2022 has been a year with record high solar capacity installed all over Europe (40 GW until the end of the year), reflecting the increasing awareness of customers, which has significantly been accelerated through the developments of the past year. Some member states, such as Italy, are already toolboxes for a dynamic regulation[1], however, this remains a rather isolated case which urgently needs to be pushed for on a centralised level.



1] <https://www.ceer.eu/documents/104400/-/-/72eab87d-9220-e227-1d26-557a63409c6b>



In this respect, the indispensability of a customer-centric approach was emphasized. Mechanisms, such as local flexibility markets and digitalization (and in particular AI), needed to make the most of existing networks and crucial to further encourage customers to become active part of the energy transition, are clearly critical parts of our future electrification model. DSOs are therefore at the heart of future design, given their role as facilitators of the implementation of such developments.

Echoing last year's appeal, the design for future electrification is digitalized, decentralized and customer-oriented, as well for DSOs as for the whole industry. Functionality is depending on the collaboration of all stakeholders involved, from governments to manufacturers, including common regulations and common standards that will foster the fast transition.

Nurturing Innovation for a Low Carbon Future

Tighten the cooperation between distributors and equipment manufacturers

Innovation of technology, but also, innovation of cooperation between actors of the value chain will bring the needed change and move the European Union further on their pathway towards a more effective, timely delivering, and cost-efficient energy system. While the vision on how to achieve carbon neutrality in the future is set, its implementation still lacks the right bite.

To get a handle on the situation and take the necessary action, manufacturers pointed to the need to capture and continuously monitor the current state of the existing system at first. This is needed to obtain relevant data on energy consumption levels and provide baselines on how to decarbonize them. Most technologies are already out there, however, the industries are often too isolated and are not nearly close to exploring the full potential of vertical and horizontal integration of all parts of the supply chain. The need to build on existing technology is there, as the need to explore the value of using large scale implementation. Examples from the industry named developments of simple measurement technologies that are currently moving more and more towards real-time measurement through the use of IoT. Above that, international projects such as StoRIES (Storage Research Infrastructure Eco-System) are looking at hybrid energy storage solutions by combining existing storage technologies. This approach exploits synergies and enables higher performance and lower hurdles to be achieved while being much more efficient and cost-effective than existing storage solutions (e.g. reactive metals such as aluminum as energy carrier and storage medium). This could not only serve the goal of integrating renewables faster and balancing their volatility, but also offer an alternative to technologies that are still in their infancy.

Another example from the cable industry brought forward tangible solutions which would turn the physical infrastructure into an active player by, for example, exploiting the potential of bringing data into power cables via fiber, as it is already the case at transmission level. Solutions would, amongst others, allow for monitoring and assessment, IoT activities as well as deliver detailed information about possible grid damages or other risks to the grid. Furthermore, increased granularity in the definition of low and medium voltage grid needs would be needed to promote clarity and ensure predictability for the entire supply chain. In this respect, DSOs should consider replicating at distribution level the investment grid exercise done by TSOs at transition level.

DSOs are in a desirable position, as the spotlight, connected to the increasing demand for

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RES, EVs or storage, is on them. Cooperation and bringing the industry together will enable stakeholders to find the right solutions. The use of these innovations at a large scale will make real change possible. For that, better planning of functionalities and what requirements of the grid including more predictability in short, mid and long-term are crucial.



Standards to optimise the pathway to maximum efficiency

Standards are a crucial tool to bringing forward the energy transition. This is particularly true in a system, where diversification and multiple approaches are needed to speed up the development. Indeed, everything that has been mentioned before about an optimal market design or needed innovation, is essential based on the development of standards in the different areas. In the past years, standards have been developed for many of the existing technology, such as smart charging or smart metering. The objective is to create a flexible and resilient grid that is based on renewable energy. To this end, standards maximize efficiency through clarity, interoperability, and unconventional solutions.

To make an optimal use of Standards, however, the standardization process must adapt to the new realities of today. This is not least related to the time component, as the development of standards has in the past proven to be a tough and rather slow process. National committees that develop standards are composed of experts from different backgrounds. In addition to theorists from universities, there are experts from the manufacturing industry. Consensus building can take years and is not always easy. In a rapidly evolving world, this needs to match the speed of emerging innovations though. Considering the important legislative packages currently

being negotiated and adopted at the EU level, the dilemma becomes clear, as the definition of standards, on the other hand, has not even started.

As among industries, the need for better communication between the various expert committees is an important factor in this context as well. Standardisation needs are touching upon several industries, which overlaps also in terms of needed cooperation required at the standardization level.



The development of standards needs new impetus if it is to keep up with the pace. While the exchange of knowledge might have become easier and faster compared to ten years ago, yet many problems, such as the dominance of some areas by large, influential players in the market, remain the same. In addition, the dilemma of integrating old standards or existing protocols already used at the market, with new standards, gets in the way and hinders the time-developing and essential role of standards as facilitator for an efficient energy transition.

Customers at the centre of decarbonization efforts

The central role of consumers at the heart of the future energy system, has long been acknowledged and included in policy objectives of the European Union and its members states. To make sure that consumers, however, are incentivized and able to engage in flexibility and produce their electricity autonomously, requires more work. DSOs have a major share in building flexibility markets across Europe, as they are closest to the new business models evolving at the market (Charging Point Operators, Demand response, etc.).

Echoing reflections already outlined in the other parts of this paper, the concept of customer empowerment indeed seems to have set roots in the minds of decision makers, regulatory authorities, and other stakeholders in the energy sector in theoretical terms. European policies have established regulatory incentives through the adoption of the Clean Energy Package in 2019, allowing customers to use flexibility and benefit from it. A pioneering initiative has developed in Spain, where a platform gathering electricity consumption data from all consumers in the country, is revolutionizing the way new business can enter the market.[1] Currently, an initiative for a platform for real-time data information is being created.

Despite a few positive examples, the balance of implementation at the national

level to date is unfortunately still poor. Progression is blocked not only by existing regulatory frameworks, but also the engagement of the customers voluntarily participation. In this context, especially clear remuneration schemes for consumer are missing. While the energy crisis has visible accelerated awareness about possibilities to contribute to the energy transition and thus the dependence on fossil energy sources among the “normal people”, more has to be done. Simple ways to engage customers, based on simple communication are the first and indispensable step. Offers must be designed in a way that consumers understand them easily and must not scare them away. This goes hand-in-hand with honest data protection rules, such as the implementation of GDPRs.

[1] DATADIS. La plataforma de datos de consumo eléctrico. (<https://datadis.es>)

Conclusion



The 5th edition of the E.DSO Stakeholder & Innovation Council adopted a new format that allowed a fresh and unconventional perspective on the role of DSOs in speeding up the energy transition. DSOs opened up to a variety of stakeholders from the energy sector, who triggered through new thought-provoking impulses, creativity in the way DSOs consider their role as well as the opportunities this offers in achieving a carbon neutral society.

DSOs are at the core of the developments around the electrification of Europe's energy demand and in an enviable position that, through the use of the right leverage, can bring significant progress in the deployment of renewable energy and other clean energy technologies. In this regard, stakeholders, such as manufacturers, regulatory representatives, but also partners from the generators side, highlighted the imperfections in the existing ecosystem that are hampering efficient functionality of the energy system.

While speakers pointed out the risk of an electro-centrism perpetually striving for perfection, the need for close industry cooperation, both within electricity and across energy sectors, and a continuous exchange of ideas to further progress with the system integration. Linearity creates rigidity and is not suitable to address the complexity of the system in which developments take place in parallel. Innovation on all levels, including the continuous extension of already existing technologies, but also new partnerships along the entire supply chain, will pave the way towards a decarbonised, digital, and decentralised energy system of the future.

The increasing deployment of RES as part of the growing electricity demand has once again prompted experts to stress the indispensability of unlocking the full potential of flexibility. At the same time, attention must be given to the identification of load capacity already available. In this context, further grid investments to accommodate growing levels of solar, wind and other distributed energy sources, as well as the strong role of consumers, requiring a high level of agility to adopt to situations where different needs call for different solutions, consensually supported main factors.

The event concluded with the prospect of a larger meeting next year, which after several years, will finally be held again independently of Enlit in Brussels to guarantee a closer cooperation with the Commission.