

ENTSO-E

Priorities for the New EU Legislative Cycle

2024–2029



Foreword

ENTSO-E, the European Network of Transmission System Operators for Electricity, is the association of the European transmission system operators (TSOs). The 40 member TSOs, representing 36 countries, are responsible for the secure and coordinated operation of Europe's electricity system, the largest interconnected electrical grid in the world.

Before ENTSO-E was established in 2009, there was a long history of cooperation among European transmission operators, dating back to the creation of the electrical synchronous areas and interconnections which were established in the 1950s.

In its present form, ENTSO-E was founded to fulfil the common mission of the European TSO community: to power our society. At its core, European consumers rely upon a secure and efficient electricity system. Our electricity transmission grid, and its secure operation, is the backbone of the power system, thereby supporting the vitality of our society. ENTSO-E was created to ensure the efficiency and security of the pan-European interconnected power system across all time frames within the internal energy market and its extension to the interconnected countries.

ENTSO-E is working to secure a carbon-neutral future.

The transition is a shared political objective through the continent and necessitates a much more electrified economy where sustainable, efficient and secure electricity becomes even more important. **Our Vision: "a power system for a carbon-neutral Europe"**¹ shows that this is within our reach, but additional work is necessary to make it a reality.

With the 2024 Strategic Roadmap, ENTSO-E reorganised its activities around two interlinked pillars, reflecting this dual role:

- › "Prepare for the future" to organise a power system for a carbon-neutral Europe; and
- › "Manage the present" to ensure a secure and efficient power system for Europe.

ENTSO-E is ready to meet the ambitions of Net Zero, the challenges of today and those of the future for the benefit of consumers, by working together with all stakeholders and policymakers.

¹ <https://vision.entsoe.eu/>

Introduction

During the 2019 – 2024 legislation, the European Union has set ambitious targets to reach carbon neutrality by 2050. ENTSO-E is working to secure this carbon-neutral future. The transition necessitates a much more electrified economy where **sustainable, affordable, and secure electricity becomes even more important for a competitive Europe**.

Our Vision: “a power system for a carbon-neutral Europe” shows that this is within our reach, but additional work is necessary to make it a reality.

ENTSO-E adopted a strategic roadmap at the beginning of 2024, supporting the twofold role of TSOs: preparing a **future power system fit for a carbon-neutral Europe**, all the while **managing a secure and efficient power system for the whole of Europe**. As we look at the upcoming 2024 – 2029

legislative cycle, ENTSO-E urges the European Commission and co-legislators to ensure that energy, environmental and industrial legislations consistently and comprehensively consider these two dimensions. Only this way will the transition benefit climate, consumers and European competitiveness.

ENTSO-E calls for a legislative framework which...

... prepares the future and contributes to building a power system fit for a carbon neutral Europe:

- › by securing the **timely development of electricity grids**, including through a scale-up of EU funding for grids and by addressing bottlenecks in supply chains and public acceptance;
- › by **deploying the adequacy and flexibility means** needed to keep the security of supply; and
- › by **continuing the evolution of the market and investments in innovation** to ensure the transition happens at the lowest cost for consumers and industry.

... continues to support a secure, competitive and efficient power system for the whole of Europe:

- › by enabling the efficient **implementation and simplification** of the agreed legislative framework;
- › by **assessing the impact on electricity grid development and system security** of all new energy, industry and environmental legislation; and
- › by ensuring **all actors of the power system contribute to its security and stability** (i. e. all types of power generation, consumers, electrical vehicles, etc.).

During the past mandate, the EU legislative framework underwent a major revision to align with the ambitious EU climate and energy objectives. It had to quickly adapt to address emergency situations (namely the 2021 – 2022 energy price crisis and Russia's invasion of Ukraine) and mitigate the risks posed to EU industry and citizens.

Looking ahead, ENTSO-E urges the next Commission and co-legislators to **focus on the efficient implementation and simplification** of the recently decided measures while rein-

forcing the energy policy with a **supporting industrial policy**, with **EU financial support to the scale of its ambitions**, and with a framework that ensures the **physical and cyber security of the electricity infrastructure**.

In this publication attached, ENTSO-E provides detailed recommendations on how to best implement existing legislation and put forward new legislative proposals to fill the gaps in the current framework.

A legislative framework that prepares the future and contributes to building a power system fit for a carbon neutral Europe

The transition necessitates a much more electrified economy where sustainable, affordable and secure electricity becomes even more important. Direct electrification, a growing share of renewable generation, and energy efficiency of the whole energy system are the primary tools for decarbonising Europe.

“Connecting the means and the needs”

Grids are the backbone of our energy system, and securing the timely development of electricity grids will be essential to enabling this transition. According to ENTSO-E’s Ten Year Network Development Plan 2022, € 6 billion of yearly investments in cross-border electricity transmission capacity alone are needed each year over the coming decade; for consumers, this investment provides a positive societal

return of € 9 billion. Investments in the grid create value for society by enabling a more efficient energy system, lowering total system costs, making best use of available resources, improving the internal market and reducing dependence on fossil fuels. Hence ENTSO-E recommends to **ensure that grid infrastructure investments anticipate the needs of the energy transition, both offshore and onshore.**

“Flexibility and adequacy for security”

A carbon neutral Europe will largely rely on weather-dependent generation. In order to balance the system at all times and to handle its growing complexity, a very significant increase in resources that contribute to adequacy and flexibility will

be needed to prevent short and long duration imbalances. ENTSO-E recommends to **identify adequacy and flexibility needs and take appropriate measures to fill the gaps.**

“A market design for a carbon neutral Europe”

The design of EU electricity markets has significantly evolved over the years, but more still must be done to finalise its evolution, deliver the right signals, and ensure the transition happens at the lowest cost for consumers and industry.

ENTSO-E recommends to **finalise the transformation towards a market design for a carbon neutral Europe.**



A legislative framework which continues to support a secure, competitive and efficient power system for the whole of Europe

While preparing for carbon neutrality, a secure and efficient European power system for the whole of Europe must continue to be a major priority. A secure power system is the condition for a stable and prosperous Europe benefiting its citizens and industry.

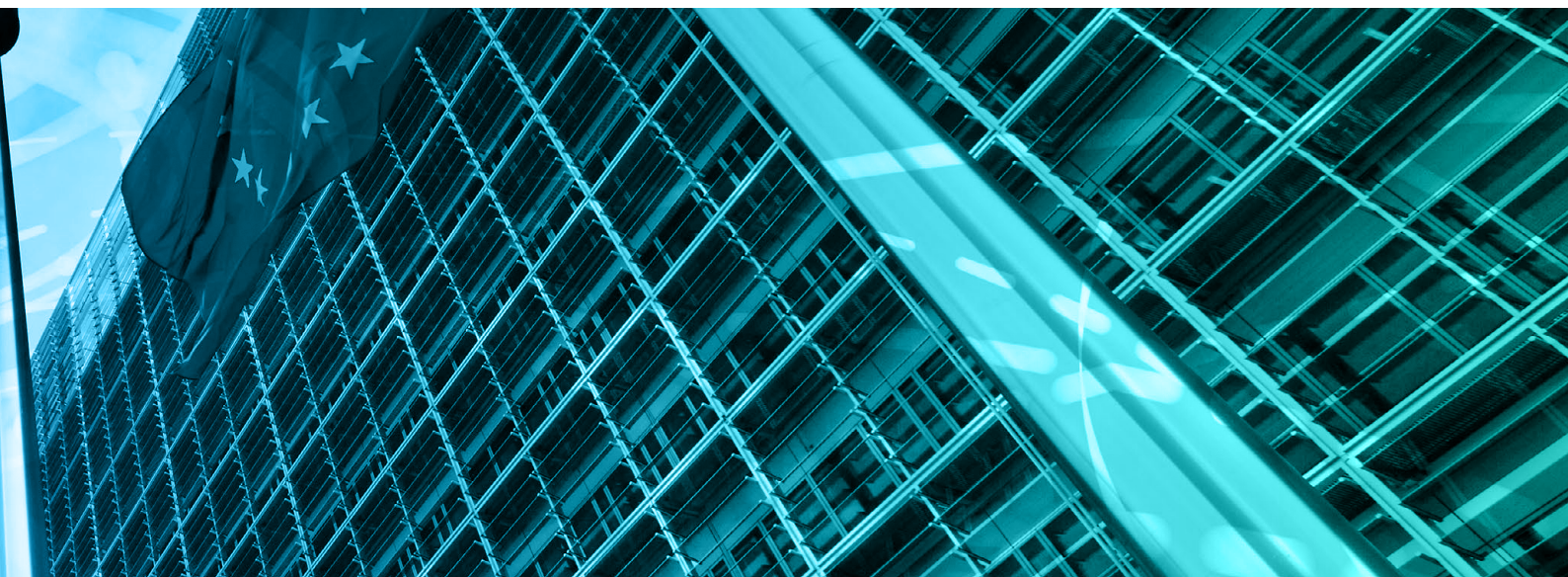
“System security is a common good”

Looking ahead, ENTSO-E urges the next Commission and co-legislators to focus on the implementation and simplification of the recently decided measures, to systematically assess the impact on electricity grid development and system security of all new energy, industry and environmental legislation, and to ensure that all actors of the power system

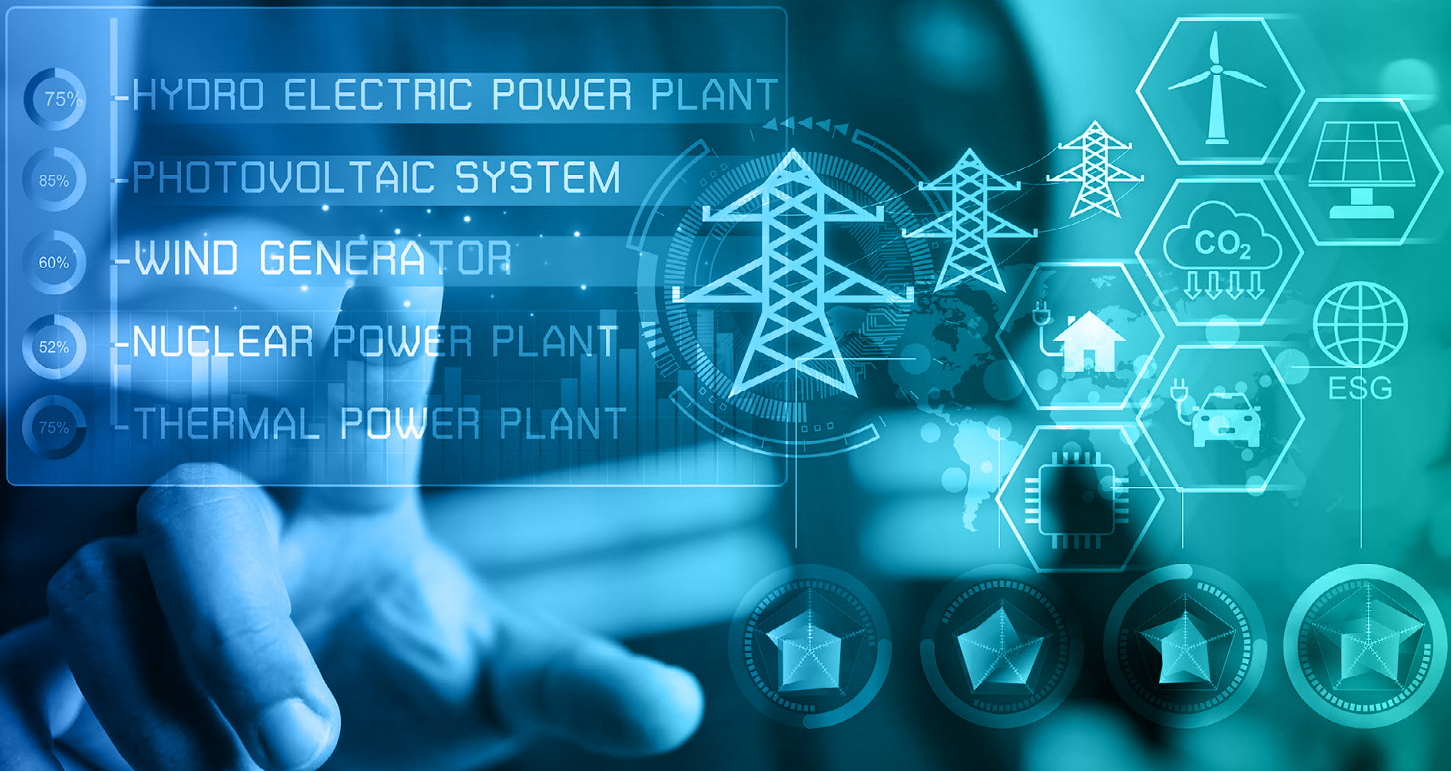
(all types of power generation, consumers, electrical vehicles, etc.) contribute to its security and stability. ENTSO-E therefore recommends to **safeguard a legislative framework that supports a secure and efficient power system for the whole of Europe.**



Figure 1: Two Pillars contributing to the ENTSO-E strategic dual objective.



Smart Grid



Part 1: A legislative framework that prepares the future and contributes to building a power system fit for a carbon neutral Europe

“Connecting the means and the needs”

Ensure that grid infrastructure investments anticipate the needs of the energy transition, both offshore and onshore

The electricity transmission grid is critical to the achievement of EU decarbonisation objectives. It allows to connect increasing renewable generation to the consumption centres. Interconnections help make best use of available resources and reduce adequacy needs, which is central to energy efficiency of the whole energy system and to affordability of power. The Commission estimates that € 584 billion in investments are necessary for the electricity grids this decade¹.

These investments must be realised in a timely manner as delayed investments would put at risk the transition and the security of supply in Europe. Investing in electricity grids should also be seen as part of a broader EU industrial policy aligned with the Green Deal, delivering benefits to industrial and end-consumers. **Securing the timely development of electricity grids, including through a scale-up of EU funding for grids, and by a supporting industrial policy addressing bottlenecks in supply chains must be central priority of the EU.**

¹ European Commission, 2023, [An EU Action Plan for Grids](#)

Action 1: Secure adequate supply chain and skilled workforce

With the massive scale of investments needed to reinforce the grid, there are now real concerns that the supply chain for grid components and the availability of a skilled workforce will become blocking factors. Supply chains will need to be adequately dimensioned to ensure equipment is available in the needed volumes and times, at reasonable prices. In parallel, sufficient workforce with the right skills will need to be available on the labour market. The huge investments needed in the grid should also be an opportunity for European industry to scale up and to create additional quality jobs. On these aspects, ENTSO-E calls for building on and complementing the recent initiatives. EU decision makers should:

- › **Build on the Grids Action Plan and Net Zero Industry Act to ensure adequate and sustainable manufacturing capacity.** Part of the solution is also to further harmonise practices throughout Europe, which includes both long-term solutions such as technical standardisation and network codes, and short-term ones such as common practices and specifications.
- › **Update and simplify public procurement regulations for system operators to make the development of grid infrastructure faster and more affordable.** Action is needed to facilitate long-term agreements with manufacturers. This provides predictability while ensuring competitive processes are in place to protect consumers. A review of public procurement rules is needed, allowing provisions that facilitate investments and drive growth in Europe.
- › **Overcome capacity constraints for power grid technologies through coordinated industry dialogues.** Grid operators are already working to increase the visibility of the pipeline of projects, but further discussion with regulators is needed to increase the firmness of these pipelines and facilitate investments in manufacturing capacity in Europe.
- › **Propose initiatives for developing grids related skills and competences.** There remains a need to address the skills gap in the workforce for grid projects, both for manufacturers and for grid operators.

Action 2: Deliver EU funding and make best use of it

The European Union must provide support to the scale of its ambitions. EU budget should be adequately dimensioned and used where needed. ENTSO-E recommends to:

- › **Scale up EU funding for grid and related digital infrastructure.** A robust EU funding that supports and responds to the increased investments needs in electricity grids is essential so that Europe can live up to its ambitions (CEF and additional mechanisms). This should be a central point in the upcoming Multiannual Financial Framework (MFF) discussions.
- › **Allow dedicated funding to be allocated to relevant internal infrastructure projects** and not limited only to projects of cross-border relevance.
- › **Promote further use of EIB and EU financing to de-risk projects.** For instance, tools allowing TSOs to have part of their debt guaranteed by an EU body can help securing lower-cost debt that will contribute to further grid expansion while limiting costs for society.
- › **Continue funding of research and innovation for the future power system;** additional funding mechanisms should be considered to bridge the funding gap in smart grids deployment.

Action 3: Ensure appropriate regulatory framework for grid investments onshore and offshore

Given the scale of the challenge of grid development, the framework regulating TSOs' investments may need some revision. ENTSO-E invites the European Commission and legislators to:

- › **Facilitate anticipatory investments:** the Commission guidance on anticipatory investments should enable faster and forward-looking deployment of investment in grid and digitalisation, while ensuring appropriate cost recovery.
- › **Consider including the achievement of long-term energy and climate objectives in the mandate of National Regulatory Agency (NRAs) and ACER.** This may facilitate approval of regulated investments aimed at future proofing the power grid.
- › **Assess how efficient and fair cost sharing processes can accelerate deployment of grids onshore and offshore.** It should be recognised that ultimately cost sharing is a political decision that requires large support to be effective and to avoid delays. Alternatives to cost-sharing methodologies should be explored.

Action 4: Keep energy efficiency and electricity at the centre of infrastructure planning

The planning process helps identify the most efficient investments. It must be based on high quality scenarios ensuring robust investment decisions. Coordination between actors and sectors is important where it brings value and can help identify synergies or co-optimisation potential. The new legislative cycle should have as priority to:

- › **Implement the revised energy infrastructure planning framework.** The revision of the Trans-European Networks for Energy (TEN-E) Regulation has brought many improvements to the planning of infrastructures and its implementation is an important step.
- › **Ensure EU objectives and Member States policies are consistent, to reinforce visibility on the energy system pathways.** This will further reinforce TYNDP scenarios consistency and their role as reference pathways for industry and decision makers. The upcoming revision of the Regulation on the Governance of the Energy Union should be used to improve this consistency.
- › **Support ENTSO-E in further reinforcing its approach of a system wide optimisation in network planning.** ENTSO-E, representing the electricity transmission power system, has a central role to play to coordinate cross-sectorial and distribution planning. ENTSO-E indeed has a unique expertise on the onshore and offshore planning.
- › **Ensure close coordination and collaboration in offshore / onshore grid planning, building and operation according to existing roles and expertise.**

“Flexibility and adequacy for security”

Identify adequacy and flexibility needs and take appropriate measures

A carbon neutral Europe will largely rely on weather-dependent generation. In order to balance the system at all times and to handle its growing complexity, a very significant increase in resources that contribute to adequacy and flexibility will be needed to prevent short and long duration imbalances. Identifying and addressing adequacy and flexibility needs is therefore a priority.

Action 5: Reinforce the framework to identify adequacy and flexibility needs, and ensure appropriate measures are taken to fill the gaps

Gaps in availability of generation capacity or in flexibility resources should be thoroughly analysed and identified. Where adequacy and flexibility needs are identified, actions must be taken to ensure the power system remains secure, efficient and fit for a Carbon-Neutral Europe. ENTSO-E insists on the importance to:

- › **Ensure that adequacy issues are identified in time.** The European Commission should provide guidance for the adaptation of the **European Resource Adequacy Assessment (ERAA) methodology**. The methodology needs to acknowledge and reflect various key uncertainties that impact the European power system via multiple fit-for-purpose.
- › **Consider how flexibility needs can progressively be further assessed at national and European level.** Flexibility studies should take stock of the ERAA and TYNDP work to ensure a consistent approach and build on existing expertise, stakeholder engagement and established governance.
- › **Ensure that adequacy and flexibility issues that are identified are recognised and translated into actions.** The Commission and co-legislators should ensure that national and European measures are taken to deal with adequacy or stability issues, when and where identified in flexibility needs assessments and adequacy assessments. Such measures could for example include further review of National Energy and Climate Plans and implementation of capacity mechanisms where needed.



“A market design for a carbon neutral Europe”

Finalise the transformation towards a market design for a carbon neutral Europe

Electricity market integration enables consumers to access the cheapest production available, while ensuring security of supply. The power grid enables these exchanges, which result in major welfare gains for European society: already before the price crisis in 2022, yearly welfare gains delivered by cross-border trade were estimated to € 34 billion². The energy prices crisis – and its exacerbation following the war in Ukraine – led to the adoption in a record time of measures to better protect consumers and further improve the market design to better support investments. The Electricity Market Design Reform is a major achievement of the previous legislative mandate. ENTSO-E recommends finalising the ongoing work on market design and continuing the work on further improvements.

Action 6: Implement the Market Design Reform and finalise the evolution towards a market design fit for a carbon neutral Europe

The European Commission and legislators should:

- › **Prioritise the work announced on simplification and streamlining the introduction process for Capacity Remuneration Mechanisms**, to reflect their structural nature, including through further review of their regulatory framework in Regulation 2019/943.
- › **Thoroughly consider all alternatives and stakeholders views in the revision process of the Guideline on Forward Capacity Allocation**. A good Impact Assessment will be essential for an optimal evolution of the Forward Markets rules. Stepwise solutions that can be implemented and deliver benefits within the next years, should be preferred to drastic changes to forward markets organisation if the benefits of such changes are not proved.
- › **Ensure that the upcoming Capacity Allocation and Congestion Management revision does not put at stake operational security** and builds on existing governance for the day-ahead and intraday markets. The shortening of the gate closure time of the Intraday market, as decided in the latest Electricity Market Design Reform (EMDR), leaves little time to TSOs to deal with market imbalances, making sufficient operational security margins even more important.
- › **Consider how additional market design measures could improve market and system functioning**. ENTSO-E advocates for removing barriers to maximise the participation to the balancing of the system by all means (including RES and demand); and for facilitating the introduction of market mechanisms for provision of system services beyond generation adequacy (e. g., redispatching and non-frequency Ancillary Services).
- › **Regularly review existing mechanisms to make sure they are fit for purpose and do not create unintended distortions or system costs**, including the current congestion management approach as well as future evolution and interactions of the different types of investment signals (Contracts for Differences -CfDs, Capacity Remuneration Mechanisms -CRMs, etc.).
- › **Ensure efficient price signals to incentivise flexibility** (incl. from all end-consumers) at the right time and place. This will also require removing barriers for the use of data from all metering devices and to unlock the flexibility potential of the demand side.
- › **Develop future proof market model for offshore energy**: work on the timely development of a well-designed framework for offshore bidding zones.

2 ACER (2022): Agency for the Cooperation of Energy Regulators' Assessment of the EU Wholesale Electricity Market Design



Part 2: A legislative framework which continues to support a secure, competitive and efficient power system for the whole of Europe

“System security is a common good”

Maintain a legislative framework supporting a secure and efficient power system for the whole of Europe

Action 7: Consider the Grid in all new energy, industry and environment legislation

All new pieces of legislations should recognise the need for grid to enable the energy transition, energy security and the effective use of Europe resources for the benefit of industry and consumers. Concretely, ENTSO-E urges the European Commission and the legislators to:

- › **Always consider the impact of market rules on operation of the power system and on system security margins.** Taking into consideration power system constraints is essential: the grid is operated ever closer to its limits and market rules can impact essential security margins (e. g. by requesting unrealistic allocation of capacities to the short-term markets, or by providing wrong incentives to market actors to balance the system).
- › **Systematically assess the impact of new environmental legislation on grid development,** in particular on availability of grid technologies or on the pace of grid rollout.

Action 8: Enable the implementation of agreed upon measures

In the past years, the energy legislative framework has drastically evolved. A lot of measures remain to be implemented. The new legislative mandate should:

- › **Implement and assess measures before proposing structural changes.** Several major decisions of the Clean Energy Package, TEN-E and EMDR are still being implemented. Further structural changes should be proposed only after assessing their effectiveness and allowing sufficient time to deliver them.
- › **ENTSO-E also recommends building on the existing practices.** Any structural changes in the setting and responsibilities of actors would inevitably lead to difficult transition periods that would delay implementation.
- › **Simplify the framework where possible.** Some mandates or obligations are not fit for purpose or do not deliver. Simplification of the framework will allow to focus scarce resources where they are most needed.
- › **Support national implementation of the Grid Action Plan and of the measures related to the facilitation of permitting;** the Grid action plan presented at the end of 2023 supports the delivery of the Grid investments required. The momentum around this high political initiative should be maintained. The facilitation and acceleration of permitting foreseen in the Renewables Directive should also be implemented swiftly by Member States.

Action 9: Support for the continued resilience and security of the system

A key role of TSOs is to ensure a secure power system for Europe. A stable power system is an essential condition and contribution to Europe stability and prosperity. This relies on shared responsibilities of all actors of the system and a comprehensive and state-of-the-art set of technical rules. ENTSO-E insists on the importance to:

- › **Finalise the review of the connection Network Codes (Requirement for Generators, Demand Connection) and the work on the Network Code on Demand Response:** these pieces of regulations are essential as they detail the rules for the secure functioning of the electricity system and integrated market. In particular, updating the technical requirements of all actors connected to the grid will be key to ensure the stability and resilience of the system.
- › **Consider how the EU can ensure physical and cybersecurity of the electricity infrastructure.** In particular, through effective implementation and simplification of EU legislation addressing security issues both for ensuring the resilience of onshore and offshore infrastructure, including cybersecurity risk, as well as strengthening cooperation at national, regional and EU levels.
- › **Ensure the swift implementation of cybersecurity rules.** The newly adopted Network Code on Cybersecurity and the NIS Directive contain very important rules to ensure the cybersecurity of the whole energy sector and must be implemented swiftly.
- › **Ensure that all resources contribute to system security.** All resources, including demand side flexibility, storage and renewable energy must contribute to the security of the system, including via participation to balancing processes and contribution to the inertia of the system.

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