

ENTSO-E Position Paper

Net-Zero Industry Act

July 2023



ENTSO-E Mission Statement

Who we are

ENTSO-E, the European Network of Transmission System Operators for Electricity, is the **association for the cooperation of the European transmission system operators (TSOs)**. The 39 member TSOs, representing 35 countries, are responsible for the **secure and coordinated operation** of Europe's electricity system, the largest interconnected electrical grid in the world. In addition to its core, historical role in technical cooperation, ENTSO-E is also the common voice of TSOs.

ENTSO-E **brings together the unique expertise of TSOs for the benefit of European citizens** by keeping the lights on, enabling the energy transition, and promoting the completion and optimal functioning of the internal electricity market, including via the fulfilment of the mandates given to ENTSO-E based on EU legislation.

Our mission

ENTSO-E and its members, as the European TSO community, fulfil a common mission: Ensuring the **security of the interconnected power system in all time frames at pan-European level** and the **optimal functioning and development of the European interconnected electricity markets**, while enabling the integration of electricity generated from renewable energy sources and of emerging technologies.

Our vision

ENTSO-E plays a central role in enabling Europe to become the first **climate-neutral continent by 2050** by creating a system that is secure, sustainable and affordable, and that integrates the expected amount of renewable energy, thereby offering an essential contribution to the European Green Deal. This endeavour requires **sector integration** and close cooperation among all actors.

Europe is moving towards a sustainable, digitalised, integrated and electrified energy system with a combination of centralised and distributed resources.

ENTSO-E acts to ensure that this energy system **keeps consumers at its centre** and is operated and developed with **climate objectives** and **social welfare** in mind.

ENTSO-E is committed to using its unique expertise and system-wide view – supported by a responsibility to maintain the system's security – to deliver a comprehensive roadmap of how a climate-neutral Europe looks.

Our values

ENTSO-E acts in **solidarity** as a community of TSOs united by a shared **responsibility**.

As the professional association of independent and neutral regulated entities acting under a clear legal mandate, ENTSO-E serves the interests of society by **optimising social welfare** in its dimensions of safety, economy, environment, and performance.

ENTSO-E is committed to working with the highest technical rigour as well as developing sustainable and **innovative responses to prepare for the future** and overcoming the challenges of keeping the power system secure in a climate-neutral Europe. In all its activities, ENTSO-E acts with **transparency** and in a trustworthy dialogue with legislative and regulatory decision makers and stakeholders.

Our contributions

ENTSO-E supports the cooperation among its members at European and regional levels. Over the past decades, TSOs have undertaken initiatives to increase their cooperation in network planning, operation and market integration, thereby successfully contributing to meeting EU climate and energy targets.

To carry out its **legally mandated tasks**, ENTSO-E's key responsibilities include the following:

- › Development and implementation of standards, network codes, platforms and tools to ensure secure system and market operation as well as integration of renewable energy;
- › Assessment of the adequacy of the system in different timeframes;
- › Coordination of the planning and development of infrastructures at the European level (Ten-Year Network Development Plans, TYNDPs);
- › Coordination of research, development and innovation activities of TSOs;
- › Development of platforms to enable the transparent sharing of data with market participants.

ENTSO-E supports its members in the **implementation and monitoring** of the agreed common rules.

ENTSO-E is the common voice of European TSOs and provides expert contributions and a constructive view to energy debates to support policymakers in making informed decisions.

Executive Summary

The European Network of Transmission System Operators for Electricity (ENTSO-E) welcomes the European Commission's proposals for a [Net-Zero Industry Act \(NZIA\)](#) and [Critical Raw Material Act \(CRMA\)](#) and would like to provide its views, particularly on the NZIA proposal.

Equally, ENTSO-E welcomes the inclusion of grid technologies as part of the Strategic Net-Zero Technologies list. This recognition is key to contributing to answering the manufacturing aspects of grid development needs and, therefore, facilitating the achievements of the Green Deal Industrial Plan, part of the European Green Deal.

ENTSO-E has four main recommendations to ensure the NZIA deploys the right tools to tackle the challenge of European technologies' manufacturing needs for the next decade.

ENTSO-E's recommendations

Ensure that industry stakeholders are properly included in the value chain dialogues:

- › Stakeholders with industrial activities should be properly represented within the 'Net-Zero Europe platform' to ensure up-to-date information on net-zero technology developments; and
- › A structured dialogue should be set up with all relevant stakeholders to enhance Europe's resilience and strategic autonomy on manufacturing capacities for power grid technologies within the EU. It is essential to anticipate manufacturing needs as the timely completion of grid projects and grid connections depends on the availability of materials.

Streamline permitting procedures to ensure the timely emergence of European manufacturing capacities:

- › Ensure consistency within EU law by making explicit reference to the Revised Renewable Directive provisions on grid project permitting, i. e. Articles 15 e and 16 (9) RED; and
- › Consider tackling the issue of potential delays in the event of a legal dispute over a permitting decision as they could jeopardise the efforts to accelerate the projects' implementation.

Clarify public procurement provisions for a consistent purchasing policy compatible with EU climate objectives:

- › Specify further the cumulative criteria in Article 19; and
- › Allocate more weight to circularity criteria as a way to further push sustainable manufacturing.

Provide a clear and coherent regulatory framework to incentivise innovation in grid technologies:

- › ENTSO-E welcomes the inclusion of regulatory sandboxes for innovative net-zero technologies to ensure the further development of important grid technologies. As an illustration, this document provides annex information on the current technology landscape essential for operating and expanding transmission grids.

Introduction

On 16 March 2023, as an operational implementation of the ‘Green Deal Industrial Plan’ and the ‘European Industrial Strategy’, and in response to the US Inflation Reduction Act, the European Commission (EC) published a Net-Zero Industry Act (NZIA) in addition to a Critical Raw Materials Act (CRMA).

The European Electricity Transmission System Operators (TSOs), represented by the European Network of Transmission System Operators for Electricity (ENTSO-E), welcome the EC’s proposals, which aim to

- (i) increase European manufacturing capacity for identified strategic net-zero technologies and
- (ii) implement raw materials recycling and processing capacities in the European Union (EU) to ensure the transformation and recovery of materials to improve the circular economy and secure a sustainable supply.

In the context of increasing international competition, the EC’s proposals are a first step to ensuring that the EU will not suffer from a lack of manufacturing capacities, specialised skills, or critical and strategic raw materials.

Power grids are the backbone of the power system and play a strategic role in the energy sector decarbonisation, as well as in the EU system adequacy and system security. In 2022, the interconnected electricity system demonstrated its resilience during the winter crisis, particularly in the final months of the year. Grids and interconnections are essential for the EU’s secure, reliable and efficient electricity supply towards a clean energy transition.

In the coming years, TSOs’ need for grid technologies will dramatically increase to cope with the scaling up of electricity demand as well as integration and connection to renewable generation, as detailed in ENTSO-E’s Ten-Year Network Development Plan ([TYNDP 2022](#)). TYNDP 2022 includes 141 transmission projects with pan-European relevance in 38 European countries, representing over 43,000 km of cables and lines. In addition, TSOs will also require access to the necessary equipment, technology and volume to extend, repair and upgrade the existing transmission infrastructure and systems. In this sense, the recognition of grid technologies as ‘strategic net-zero technologies’ is key to answering the manufacturing aspects of grid development needs and, therefore, facilitating the achievements of the Green Deal Industrial Plan, part of the European Green Deal.

However, ENTSO-E would like to reiterate that financing aspects should be clarified and further developed to achieve the goal of the NZIA.

Beyond financial aspects, ENTSO-E requests that the EC and the co-legislators consider the following actions.



Ensure that industry stakeholders are properly included in the value chain dialogues

Today, as mentioned, grid technologies' needs are expected to increase and are considered as playing a critical role in upgrading TSOs' grid infrastructure, which must:

- › Safeguard stability and improve the resilience of the system due to the increased integration of intermittent renewable energy sources and electrification in industry and society;
- › Adapt to the growing electrification of the economy;
- › Increase TSOs' asset reliability while enhancing their energy efficiency and reducing their greenhouse gas footprint;
- › Comply with in-force regulation and policy changes; and
- › Increase public acceptance.

ENTSO-E call on the co-legislators to ensure that stakeholders with industrial activities are properly represented within the 'Net-Zero Europe platform' to ensure up-to-date information on net-zero technology developments (for grid technologies, e.g. SF₆-free technologies, HV cables and overhead lines, onshore and offshore substations or power electronics converters); market trends; infrastructure needs; and skills.

A lack of dialogue could lead to essential power grid projects being delayed because of supply chain difficulties or skill shortages.

To that end, **ENTSO-E reiterates its suggestion to set up a dialogue at the European level** to enhance Europe's resilience and strategic autonomy, under the umbrella of the EC, contributing to:

- › Ensuring the clearest view on manufacturing capacities for power grid technologies and components within the EU to achieve the massive integration of renewables;
- › Analysing and addressing strategic dependencies and potential vulnerabilities in the grid technologies value chain;
- › Identifying manufacturing scale-up bottlenecks, the availability of technologies and diversification gaps; and
- › Anticipating the necessary skills, jobs and industrial know-how at all levels in the electricity sector and the support required in research and innovation on grid technologies.

Streamline permitting procedures to ensure the timely emergence of European manufacturing capacities

ENTSO-E welcomes the provisions on the shortening of permitting procedures. This issue is particularly salient as the EU needs to ensure that manufacturing capacities are available in a timely manner to respond to the identified upcoming needs.

ENTSO-E supports the EC's proposal to embed the net-zero technology project grid connection procedure within the overall industrial permitting process. That said, we must address the fact that timelines on grid connection are frequently driven by the availability of related grid infrastructure at the specific location. If there is no room within the underlying grid – which is often the case given the pace and scale of new Renewable Energy Sources (RES) and consumer connections – grid reinforcements projects will have to be initiated with their own lengthy permitting processes incl. with the involvement of several authorities, comprehensive environmental assessments etc.

To further streamline grid connection permitting, ENTSO-E advises the following:

- › Make an explicit reference to the Renewable Energy Directive revision and its Articles 15e and 16 (9) regarding grid projects to ensure consistency in EU law, reiterating the need to accelerate permitting for transmission grid infrastructure necessary for integrating renewable energy generation;
- › Include a specific reference to the need to fast-track permit related grid infrastructure projects; and
- › Finally, the co-legislators should also consider fast track litigation for permitting as legal disputes trigger potential delays, jeopardising the net-zero technology project. Emergency procedures shall be considered when allowed by national laws.

Clarify public procurement provisions for a consistent purchasing policy compatible with EU climate objectives

Chapter IV of the NZIA proposal is dedicated to access to markets, with specific provisions on sustainability and resilience criteria in public procurement procedures. The inclusion of such criteria is a move in the right direction. Nevertheless, several questions remain:

- › **The four cumulative criteria identified in Article 19 are vague and could be more specified.** The link with Ecodesign Sustainable Products Regulation (ESPR) should be explicitly mentioned to achieve homogeneous implementation across Member States, regarding environmental sustainability.
- › The NZIA, along with the CRMA proposals, should **allocate more weight to circularity criteria** as a way to further push for sustainable manufacturing. Given the high decommissioning rates that will follow in the next decade, creating and strengthening recycling and processing specialised industrial bases for grid components/technologies/assets is key for enhancing the sustainable supply of critical and strategic raw materials.
- › European network operators, which are subject to European public procurement law, **should have the same opportunities as other (also international) customers** in the competition for supplies. Current European procurement law is designed for a market in which network operators encounter a large number of technology providers competing for contracts. However, for a number of network technologies, there is competition among network operators to find suppliers who can deliver on time. **Therefore, we recommend simplifying the EU tendering law for such cases.**

For example, the following options could be considered:

- Member States should have the possibility to significantly increase the threshold values for obligatory European-wide public tendering for high-voltage grid equipment;
 - a restricted tendering procedure should allow the contracting authority only to invite a limited number of companies; and
 - the ‘re-ordering’ of standardised products or services should be simplified.
- › To ensure an efficient and uniform implementation of the procurement rules across the EU, the EC should provide **guidance (in an appropriate form) on the implementation of the procurement.** In addition, Member States should set up or appoint a dedicated implementation support facility, with the aim of assisting enterprises covered by the procurement rules, thereby avoiding the risk of lack of clarity of practical implementation slowing down the pace of procurement for the companies covered by these provisions.





Ensure a clear and coherent regulatory framework to incentivise innovation in grid technologies

In its position paper on [Innovation uptake through Regulation](#), ENTSO-E pointed out that achieving the goals of the EU Green Deal relies heavily on the development and integration of innovative solutions by TSOs. A clear and coherent regulatory framework is therefore necessary to incentivise innovation in grid technologies and move away from short-term cost efficiency targets.

In this context, **ENTSO-E welcomes the inclusion of regulatory sandboxes for innovative net-zero technologies.** This will ensure the further development of important grid technologies, which may contribute to the adaption and resilience of power grids concerning mid- to long-term energy transition challenges.

Lastly, we believe it important to **fully inform decision-makers about the technology landscape essential for operating and expanding the transmission grids.**

Therefore, **TSOs assessed the supply situation for grid components technologies and system grid technologies that are state-of-the-art and installed today in networks.** They also evaluated future supply bottlenecks for innovative grid technologies that will only be implemented in the system after further development.

Current supply issues and future bottlenecks are identified in the following group of assets and technologies:

- › HV AC&DC Transmission lines and substations for voltages ≥ 100 kV (e.g. underground and subsea cables, power transformers, etc.);
- › HV AC non-standard components;
- › HV converters for voltages ≥ 320 kV;
- › Control room technologies for active grid management (e.g. forecasting, modelling, real-time automation, etc.);
- › Technologies for asset management (e.g. smart devices, monitoring systems); and
- › Technologies providing system services for TSOs (e.g. systems for grid stabilisation, vRES shortage, balancing, congestion management, stability, voltage control, and reliability).¹

¹ [A Power System for a Carbon Neutral Europe \(entsoe.eu\)](#)

Abbreviations

ACER	The European Union Agency for the Cooperation of Energy Regulators
CRMA	Critical Raw Materials Act
EC	European Commission
ENTSO-E	European Network for Transmission System Operators in Electricity
ESPR	Ecodesign Sustainable Products Regulation
EU	European Union
HV AC	High Voltage Alternating Current
HV DC	High Voltage Direct Current
NZIA	Net-Zero Industry Act
RES	Renewable Energy Sources
TSO	Transmission System Operator
TYNDP	Ten-Year Network Development Plan

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