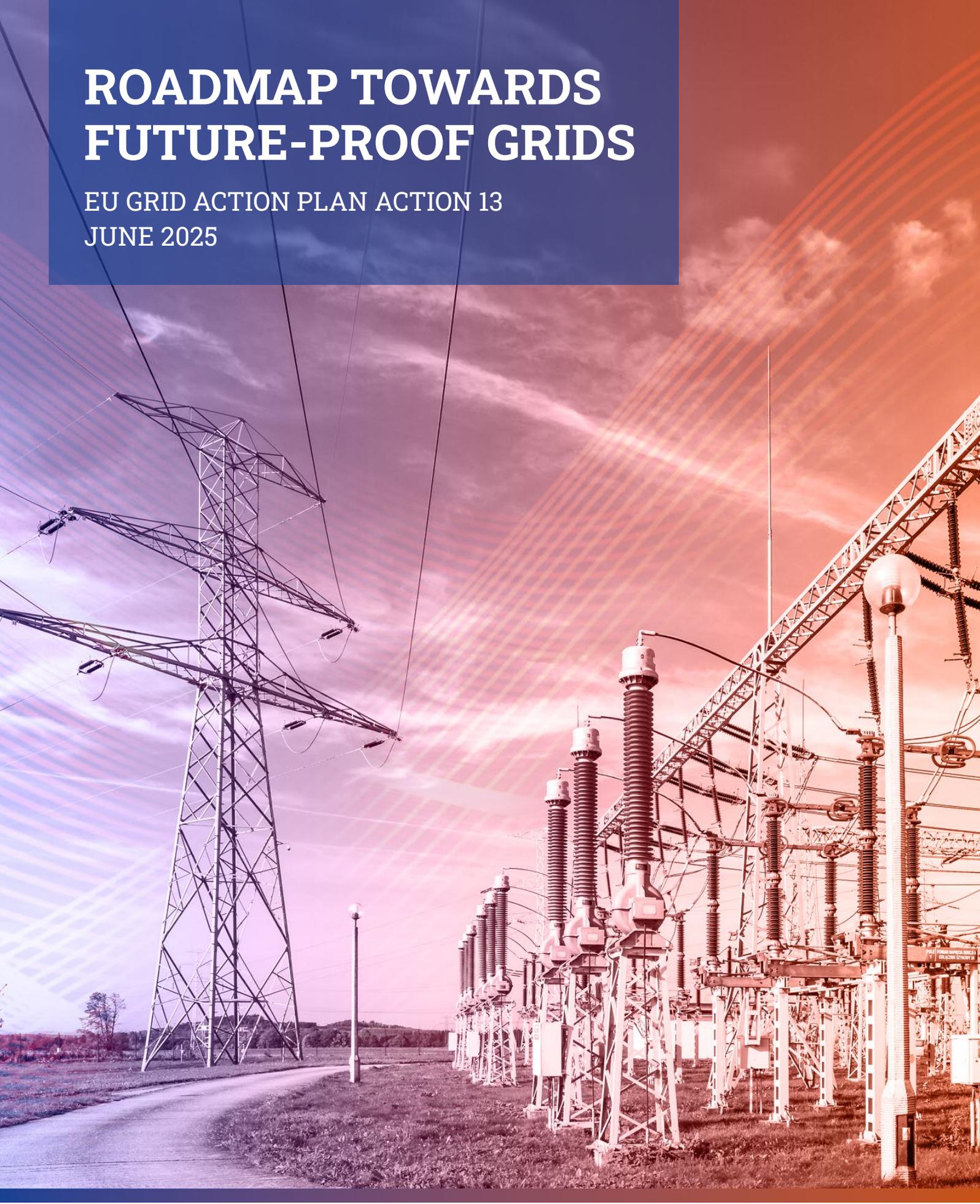


ROADMAP TOWARDS FUTURE-PROOF GRIDS

EU GRID ACTION PLAN ACTION 13
JUNE 2025



1 INTRODUCTION

The European Commission published the Grid Action Plan on 28 November 2023 and asked, under its Action 13, that ENTSO-E and DSO Entity to collaborate with technology providers to develop common technology specifications and improve visibility of grid project pipelines, to facilitate investments in manufacturing capacity and secure supply chain.

With the Grid Action Plan, the Commission sets the frame to coordinate all European forces required for the development and deployment of Europe's power grids as the key enabling infrastructure for the energy transition. The grid technology providers and grid operators are fully committed to seizing

this opportunity, by building on Europe's unique leading technological position in power system technologies.

This roadmap summarises the progress made and presents the next steps.

2 OUR JOINT PROGRESS

The collaboration between four entities towards a more resilient, future-proof European grid has truly been a shared one – marked by deep collaboration, aligned ambition, and tangible milestones.

The Grid Action Plan, published [on 28 November 2023 \(COM\(2023\) 757 final\)](#), triggered immediately a structured dialogue between European grid operators and technology providers. It sets out a clear list of urgent measures to accelerate grid deployment and address supply chain challenges. This built on earlier discussions at the [High-Level Forum on the Future of Grids](#) (September 2023), where we jointly recognised the need for reinforced collaboration between industry and operators to secure manufacturing capacity and enhance supply chain resilience.

Our partnership continued to gain strength with the [ENTSO-E Roundtable held in March 2024](#), where we reviewed early progress and collectively underlined the importance of harmonised practices and long-term visibility to enable industry investment. At the 10th Energy Infrastructure Forum in June 2024, ENTSO-E, Europacable, and T&D Europe issued [a joint statement](#) supporting the implementation of Action 13, calling for streamlined planning, digital solutions, and stronger European manufacturing.

We built further momentum with a joint workshop on 3 September 2024, alongside CEN/CENELEC and the European Commission, tackling standardisation challenges under the Grid Action Plan. This marked a key turning point

in our ability to shape a coherent, coordinated path forward. It fostered meaningful, practical discussions, sparked new ideas, and reaffirmed the commitment of key stakeholders.

Another major milestone came on 24 October 2024, when, for the first time, experts across our organisations convened to align on a unified set of commitments. The efforts were reflected by the signing of [a Joint Commitment for Resilient European Manufacturing in December 2024](#), laying the groundwork for cooperation on common qualifications, testing, procurement, and skilled workforce.

Our collaboration has also contributed to shaping inputs for broader regulatory frameworks, including revisions to public procurement directives. These efforts converged at the Second Joint Experts Meeting on 13 March 2025, where we fine-tuned our priorities and solidified our collective approach.

As we now look ahead, the upcoming roadmap is not merely the next chapter – it is the continuation of our shared commitment. It captures the spirit of partnership that has driven our achievements to date and will guide our next steps toward resilient, scalable, and sustainable supply chains for Europe's energy future.

3 ROADMAP TO DELIVER ON ACTION 13

In the structured dialogue, ENTSO-E, DSO Entity, Europacable and T&D Europe agreed to apply a methodological approach. This involves identifying possible actions, assessing their potential for feasible, tangible impact and agreeing on next steps on those actions that would help deliver.

ACTION 1 Common technology specifications

1.1 Technical requirements harmonisation and standards

Based on the Grid Action Plan Article 13, the Commission requested the European Standardisation Organisations (ESOs) to provide a Workshop Agreement deliverable, involving all relevant stakeholders (ENTSO-E, TSOs and manufacturers) on common product specifications that should be agreed by end-2024. To deliver on this request, ENTSO-E, European Commission, European manufacturer associations, and CEN/CENELEC held a joint meeting in September 2024. During this meeting, it has been agreed that:

- i) European and international standardisation is well established and working as intended.
- ii) CEN/CENELEC leads the work to map and maintain existing and new standards at the European level, via their internal processes rather than as the EU Grid Action Plan suggested through a Workshop Agreement. Its work is supported by the High-Level Forum on European Standardisation's working group on green electricity system.
- iii) CEN/CENELEC will consider undertaking a gap analysis to identify areas where new or updated standards could accelerate the deployment of grid infrastructure or reduce market fragmentation
- iv) ENTSO-E, DSO Entity, T&D Europe and Europacable agreed to explore harmonisation of technical specifications.

Following this, the four organisations have discussed together on technical requirements. The diversity in additional technical requirements requested by network operators adds to the complexity for manufacturers, requiring tailored solutions for specific situations. This underlines the need to identify and consider working on the potential harmonisation of technical requirements, which could reduce complexity. Feedback from manufacturers is essential in identifying elements which hinder the effectiveness of supply chains.

Next Actions

Maintain a regular stakeholder dialogue (ENTSO-E, DSO Entity, T&D Europe, and Europacable) with the support of standardisation bodies to monitor progress, share updates, identify assets of common interest and ensure that grid supply chain is well understood and in line with grid and market developments.

1.2 Harmonisation of templates for specifications

For the transmission system, in line with Action 13, in particular “speeding up deployment” of projects, a collaborative effort to form a harmonised structure for HVDC project high level specifications has been identified. Both TSOs and T&D Europe representatives agreed during the Joint Expert meeting on 13 March 2025 that such an effort would ease conversations regarding HVDC projects and have the potential to realise cost and effort savings.

For distribution systems, based on an internal survey the potential for national alignment on technical specifications can be addressed on MVDC technologies and innovations. A similar approach might be also used for lower voltages to improve interoperability. Here, the experience already gained by the industry with the development and harmonisation processes for HVDC technologies could be replicated at distribution level.

A dedicated working group of ENTSO-E and T&D Europe will work together to develop a harmonised document structure for HVDC project and its high-level specifications. This document will aim to standardise document structure, form a common understanding of content required under each chapter and maintain flexibility for utilities/manufacturers to maintain project specific flexibility. The exercise does not focus on cable systems at this stage. This collaboration could also be expanded to DSO Entity and Europacable.

Next Actions

ENTSO-E and T&D Europe to produce harmonised document structure for HVDC project high level specifications by Q2 2026. This exercise does not focus on cable systems.

1.3 Asset testing and qualification specifications for HVDC and EHVAC cable systems

Diverging from existing testing and qualification requirements for HVDC and EHVAC cable systems as set out by IEC and/or CIGRE might result in higher project complexities and longer project realisation times. TSOs agreed to further assess, with the support of Europacable, the topic with a view to provide tangible solutions to help reduce time for project implementation.

Regarding power transformers, a possible way forward would be to explore the use of common factory/line prequalification criteria, but the focus should be on the actual benefits of such alignment for all stakeholders. This collaboration could be expanded to T&D Europe.

Next Actions

ENTSO-E, with the support of Europacable, will assess how existing IEC/CIGRE test and qualification procedures for HVDC and EHVAC Cable systems could be maintained or optimised. A document summarizing preferred approaches and proposed simplifications is to be submitted Q1 2026.



ACTION 2

Increased visibility on equipment and systems needs on all voltage levels

The Grid Action Plan recommends ENTSO-E and the DSO Entity to provide increased visibility to manufacturers into their upcoming procurement plans for equipment and systems on all voltage levels.

System operators on the one hand have identified mechanisms to increase visibility through Ten Year Network Development Plans (TYNDP) and Distribution Network Development Plans (DNDPs). TYNDP 2024 has included a dedicated section on the supply chain challenge and the intention is to further collaborate with manufacturer associations to increase visibility on equipment needs. DSOs are also working to further compile and improve their (DNDPs), providing greater visibility to manufacturers on the distribution grids.

Europe's grid technology providers have begun scaling up industrial investments, while also calling for clearer policy commitments and supportive measures – such as the proposed grids manufacturing package – to de-risk and sustain this momentum.

According to the Europacable survey, Europe's leading cable manufacturers have started implementing over €4 billion of investment decisions to expand their manufacturing and installation capacity in Europe. These will contribute towards doubling the capacity of high and extra-high voltage cables produced in Europe by 2030.

T&D Europe reported that its 10 corporate members had announced investments of more than €12.3 billion between January 2023 and June 2024. Over the past 12 months, T&D Europe members have publicly committed more than €9 billion to expanding global manufacturing capacity.

Next Actions

ENTSO-E, DSO Entity, T&D Europe and Europacable will continue to work together by setting regular exchanges on increasing visibility on equipment and system needs on all voltage levels.



ACTION 3

Public Procurement

The current procurement framework was designed for a buyer-driven market, but this structure is increasingly misaligned with today's supplier-driven dynamics. This misfit hinders timely deployment of solutions, particularly innovative technologies, by escalating bureaucracy, and limiting access to cutting-edge solutions essential for the green transition. As electricity demand grows and renewable energy integration accelerates, TSOs and DSOs require substantial upgrades to grid infrastructure. Yet, due to procurement constraints, operators and manufacturers face mounting challenges in securing key components, navigating long lead times, and managing fragmented rules, thereby hampering necessary grid upgrades across Europe.

European Commission's forthcoming revision of the EU procurement directives is welcomed. A modernized procurement framework must actively support the Union's climate and industrial objectives by facilitating faster, more agile, and innovation-friendly procurement processes. The new regulatory environment should enhance Europe's strategic autonomy and ensure a resilient, competitive internal market for critical energy infrastructure, including better participation from SMEs and cross-border bidders.

ACTION 4

Skilled workforce

The workforce shortage emerges as a critical and ever-growing issue. TSOs, DSOs and manufacturers are facing stiff competition for engineering, construction, and manufacturing talent – not just within the energy sector, but across industries.

Key skilled workers are in short supply. They are essential to achieving the goals of the energy transition and ensuring the grid remains stable and reliable for years to come.

This challenge – acknowledged by the EU, the IEA, and most stakeholders – has become a real bottleneck in delivering critical energy infrastructure.

The grid today is vastly different from just a few years ago. Renewables, sector coupling, energy storage, IoT, grid-enhancing technologies, and the rising importance of both physical and cyber security have transformed the landscape for grid operators and manufacturers alike.

The four associations recognise the urgent need to align public procurement rules with the EU's ambition to develop strategic manufacturing capacities for grid technologies, in a more flexible and harmonised procurement approach that balances sustainability with cost-efficiency and strengthens long-term supply chain resilience.

Next Actions

The four associations will develop a joint assessment outlining priority areas of a common perspective to reform EU's public procurement directives by Q4 2025.

ENTSO-E and DSO Entity with support of manufacturer associations, will compile and disseminate best practices from across Member States that showcase how flexible and innovation-friendly procurement approaches can accelerate the energy transition.

TSO wide survey recommends partnering with universities and vocational schools, introducing more flexible and regionally aligned qualification standards, and incentivising suppliers to invest in workforce development through contractual mechanisms.

In order to address the challenge, a joint public webinar was held among grid operators, industry experts, and the European Commission. Our [joint press release](#) presents the discussions.

ANNEX – ROADMAP TO DELIVER ACTION 13

	Items	Actions / Deliverables	Timeline
Action 1 1.1	Technical requirements harmonisation	Maintain a regular stakeholder dialogue (ENTSO-E, DSO Entity, T & D Europe, and Europacable) with the support of standardisation bodies to monitor progress, share updates, identify assets of common interest and ensure that grid supply chain is well understood and in line with grid and market developments.	2026 Q2
Action 1 1.2	Harmonisation of templates for specifications	ENTSO-E and T & D Europe to produce harmonised document structure for HVDC project high level specifications by Q2 2026. This exercise does not focus on cable systems.	2026 Q2
Action 1 1.3	Asset testing and qualification specifications for HVDC and EHVAC cable systems	ENTSO-E, with the support of Europacable, will assess how existing IEC/CIGRE test and qualification procedures for HVDC and EHVAC Cable systems could be maintained or optimised. A document summarizing preferred approaches and proposed simplifications is to be submitted Q1 2026.	2026 Q1
Action 2	Increased Visibility on Equipment and System needs on all voltage levels	ENTSO-E, DSO Entity, T & D Europe and Europacable will continue to work together by setting regular exchanges on increasing visibility on equipment and system needs on all voltage levels.	2026 Q2
Action 3	Public Procurement	The four associations will develop a joint assessment outlining priority areas of a common perspective to reform EU's public procurement directives by Q4 2025. ENTSO-E and DSO Entity with support of manufacturer associations, will compile and disseminate best practices from across Member States that showcase how flexible and innovation-friendly procurement approaches can accelerate the energy transition.	2025 Q4
Action 4	Skilled Workforce	Joint Public Webinar (Perspectives from the Industry and Grid Operators on Skilled Workforce as a Supply Chain Bottleneck)	2025 Q2

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