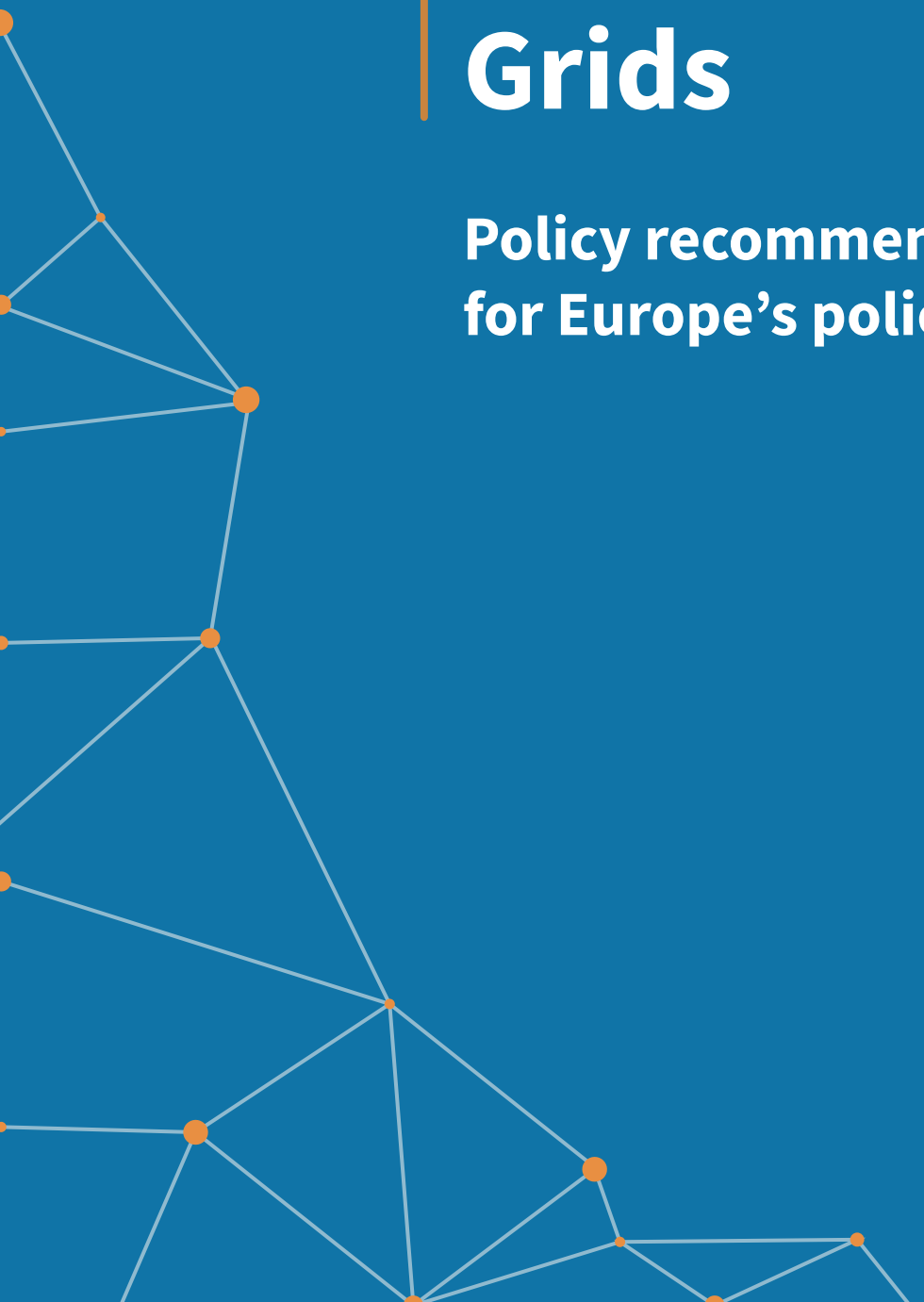
T&D europe

Towards Future-Proof Grids

Policy recommendations for Europe's policymakers



Introduction

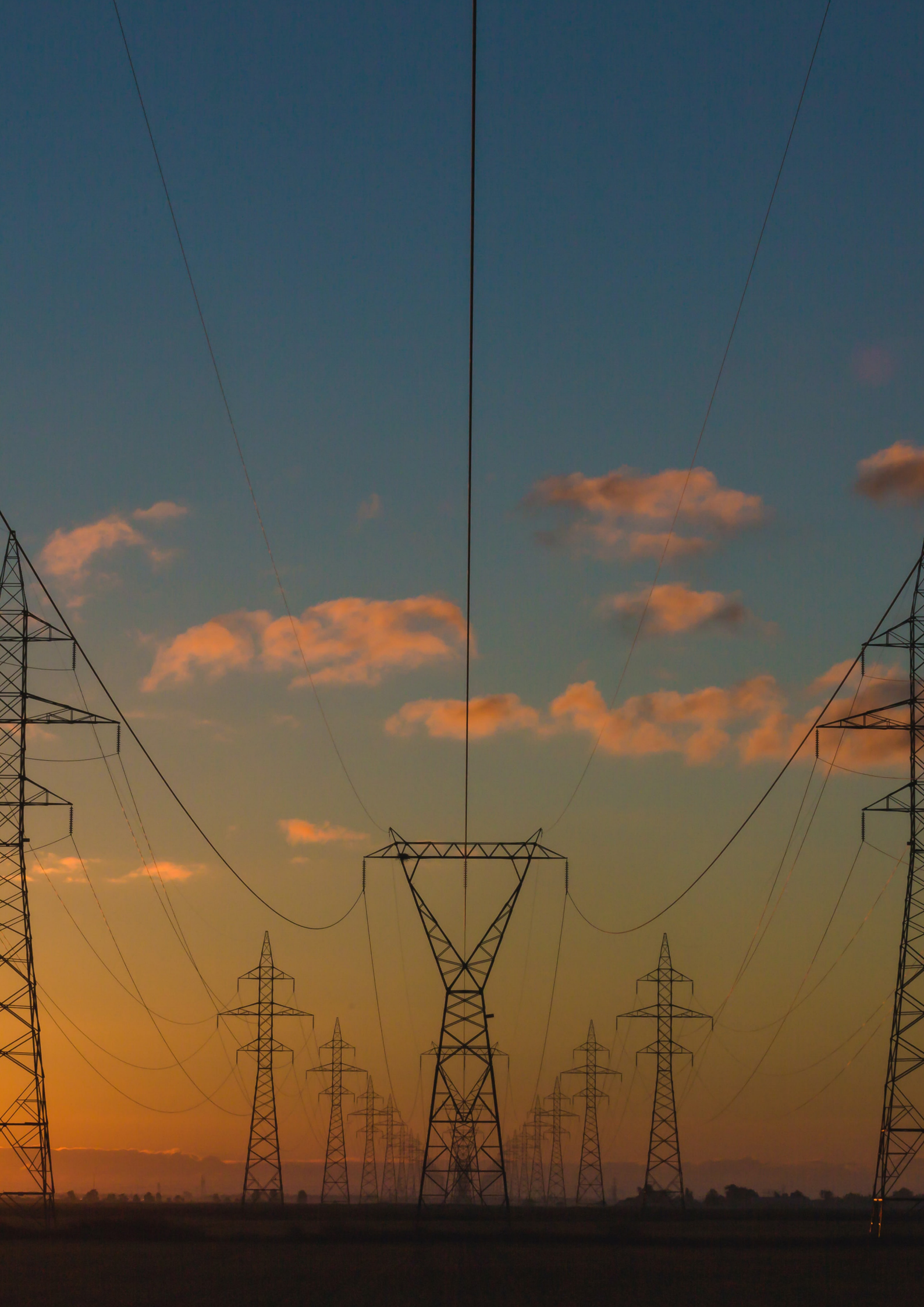
T&D Europe welcomes the release of the communication "Grids, the missing link - An EU Action Plan for Grids", which brings grids front and centre of the EU agenda. The Action Plan is the political recognition of the crucial importance of grids and the different stakeholders supporting it. As technology providers we are committed to supporting grid operators in developing, reinforcing, digitalising, greening and upgrading Europe's electricity networks and making them more flexible and resilient.

Energy policy, geopolitics, and industrial policy

Grids are the crucial enablers of everyday life. Modern, digital, and flexible grids connect electricity producers and consumers and allow prosumers to provide flexibility. The Action Plan comes in the midst of an increasingly severe climate crisis, combined with growing geopolitical tensions. In addition, the EU's grid infrastructure is ageing and requires not only further development, but also reinforcement and modernisation. Europe now must strengthen its resilience against natural disasters and external dependencies. Power grids are a key priority in achieving this, offering resilience, reliability, flexibility, and security of supply.

In parallel, Europe is facing global competition for leadership in many strategic economic sectors. Commission President Von der Leyen emphasised at the World Economic Forum's Annual Meeting in 2024 that the future competitiveness of Europe depends on the success of key net-zero industries, which have a global presence and represent a competitive industrial base in Europe's economy. The Net-Zero Industry Act rightly identifies Europe's grid technology sector as a strategic net-zero industry supporting one of its key critical infrastructures.

The grid technology sector is an essential player in delivering on the European Green Deal. Europe's electricity system is the world's largest interconnected and synchronous grid of its kind, with more than 400 inter-connectors linking nearly 600 million citizens. It is operated, developed, and planned by Europe's transmission and distribution system operators. Europe is also home to a world-leading grid technology sector, providing modern, digital, and innovative solutions for a future energy system based on an electricity backbone. The strength of the sector lies in the combination of multinational corporations and specialised SMEs. Together they form a strong industrial base in Europe, which needs to be preserved and strengthened.



Our commitment

T&D Europe and its members are committed to supporting the implementation of the Action Plan. In particular, we will continue working closely together with the Commission, TSOs and DSOs to promote uptake of smart grid, network efficiency, and innovative technologies and to facilitate investments in≈manufacturing capacity and secure supply chains:

1 **Contribute to TSO and DSO** short-, and medium-, and long-term coordinated power system planning with the aim of accelerating the build-out of critical infrastructure.

2 **Promote and support the commitments underlying** the Offshore Network Development Plans (ONDPs) and of the 2026 update of the Ten-Year Network Development Plan (TYNDP).

3 **Collaborate with other European technology** providers and system operators to explore the streamlining and simplification of tendering processes and identify possible common practices and functional specifications.

4 **Increase manufacturing capacity** in Europe to meet growing demand in alignment with adequate and tangible political, financial, and regulatory support.

5 **Leverage the High-Level** Forum for European Standardisation, through the Clean Electricity System alliance, to deliver with CEN and CENELEC on the action 13 of the Action Plan to ensure consistency across Europe.

6 **Continue to support the implementation** of the EU Network Codes, including through the development of state-of-the-art technology, or through the development of standardised and harmonised cybersecurity procurement specifications for TSOs and DSOs.

7 **Contribute to the update** of the ENTSO-E Technopedia, particularly on the technology readiness levels of grid technologies.

8 **Collaborate** with EU stakeholders in improving skilling curricula at different school levels to increase qualified workforce in grid technologies, as well as in preparing reskilling workforces programs for different industries, namely for those that will be strongly impacted by greener and digital energy transition actions.

9 **Support the creation** of a strategic forum to discuss ways in which the EU and national governments can strengthen the European electricity networks and the industry that supports them. This support could start with the Clean Transition Dialogue on Green Deal Infrastructure.

Our key recommendations

The Action Plan is an important milestone. It can contribute to the necessary development of Europe's electricity grids. However, the Action Plan does not cover all the needs of the grid technology industry. T&D Europe therefore reiterates its previous recommendations and asks policymakers to take on board the following elements:

1. Europe's grid technology sector is a vital European and national interest

We call on the European Parliament, Governments, and the European Commission to qualify support for Europe's grid technology sector as a vital European and national interest. This should notably emerge as a key tangible and practical outcome of the Net-Zero Industry Act. Europe needs to have a strong industrial base that can supply and support the electricity system as a critical infrastructure. It should thus take the right measures to enable the sector to continue to operate, deliver, innovate for a secure, reliable, flexible, and resilient electricity network. This also requires policymakers to ensure that the ambitions and the pace of the transition is in line with Europe's industrial manufacturing and software development capacities to avoid the creation of new, undesirable external dependencies. Europe needs to support Europe-based manufactures and software developers in strengthening the domestic production of strategic grid technologies.

2. Provide a clear long-term commitment

Network development plans should be clearly aligned with the National Energy and Climate Plans for all voltage levels and accompanied by industrial plans, specifying the demand from network operators for grid technology. This would enable the industry to make the business case with a competitive return on equity to add capacity, to organise its supply chain and to recruit and develop the necessary skills.

National Governments and Regulatory Authorities should define and develop ambitious investment plans to tackle the energy transition in a harmonised manner.It is paramount to move Europe's 2050 target from ambition to political and financial commitment. Planning needs to be backed by reliable commitment of governments, regulators (enabling their system operators to act on targets notably through long term framework agreements when relevant) and customers (right framework to make financial commitments). Ambition alone is not enough. As one example, regulatory frameworks enabling and even incentivising anticipatory investments will need to be based on coordinated and holistic, long term network development plans.

3. Transmission and distribution grids are equally important

The implementation of the Grid Action Plan needs to address all voltage levels.

The transmission grid and cross border interconnections will play a crucial role in Europe's energy transition and security of supply in the growing renewable generation reality. The development, reinforcement and modernisation of Europe's transmission grids will be critical to integrating large volumes of variable renewables over the coming years. In parallel, the development of cross border interconnections should remain a priority across Europe enabling the integration of regional energy systems and providing reliability, resilience, flexibility, and security of supply. The achievement of the electricity interconnection target of at least 15% should also remain a priority. With 93 GW of cross-border transmission capacity currently in Europe, the EU Action Plan for Grids targets an additional 23 GW being incorporated by 2025, and a further 64 GW by 2030.

With the consumer and prosumer in the centre of the energy transition, distribution grids have an essential role to play in the future energy system, connecting large amounts of distributed energy resources and new flexible loads. In the foreseeable future, more and more renewable and distributed power will be produced, mainly in rural areas and on all voltage levels. 70% of renewables such as solar and wind, will be connected to the distribution network. In contrast to this, a major part of the new consumers (electric mobility, heat pumps) will push into the grids primarily in urban areas and on the lower voltage levels. With regard to their electrical power output, rural distribution systems will mainly serve as "sources" of electric energy, whereas urban distribution systems will serve as "sinks" that absorb the electricity generated because the density of connections and consumers in urban areas is significantly higher than in rural areas.

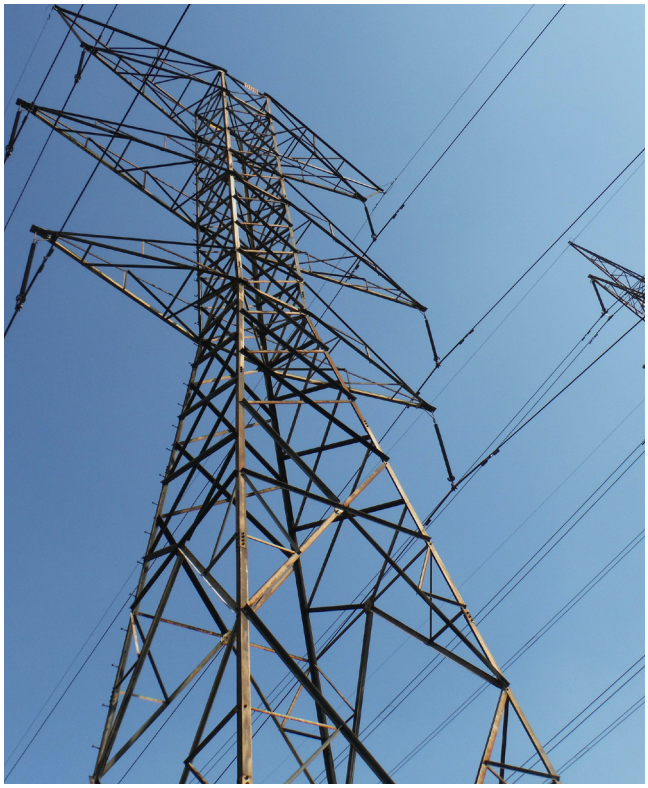
4. Digitalisation and cybersecurity are a must

As already highlighted in the Action Plan to Digitalise the Energy Sector, Europe needs to increase the digitalisation of the entire European electricity system to ensure 1) the acceleration of Europe's energy transition; 2) the optimisation of the operation of our power system and reduce pressure on the supply chain; and 3) the optimisation of human resources in order to alleviate the pressure on skills.

We need the help of digital technologies at various stages within the transition to a clean electricity system: to plan the most efficient power system, to forecast its needs in terms of supply and demand, and to monitor operations in real time so as to best react to unforeseen circumstances. It is vital for system operators to invest in the cutting-edge digital technologies that maximise the efficiency of all available solutions.

Together with the Action Plan for the Digitalisation of the Energy Sector, the Grid Action Plan and the recently revised Electricity Market Design, must coherently promote an increase in investments in digital electricity infrastructure.

In parallel, cybersecurity must remain a transversal top priority. Due to factors such as the convergence of operational technology and information technology, the proliferation of Internet of Things devices and the digitalisation of business models (including the increased use of cloud services), the cyberattack surface for malicious actors to exploit is expanding. And with the increasing interconnectivity, a cyberattack in one country can quickly spread and affect multiple electricity systems. A continued focus on cybersecurity and cyber resilience is essential as it has an immediate impact on the business processes of Europe's network operators.

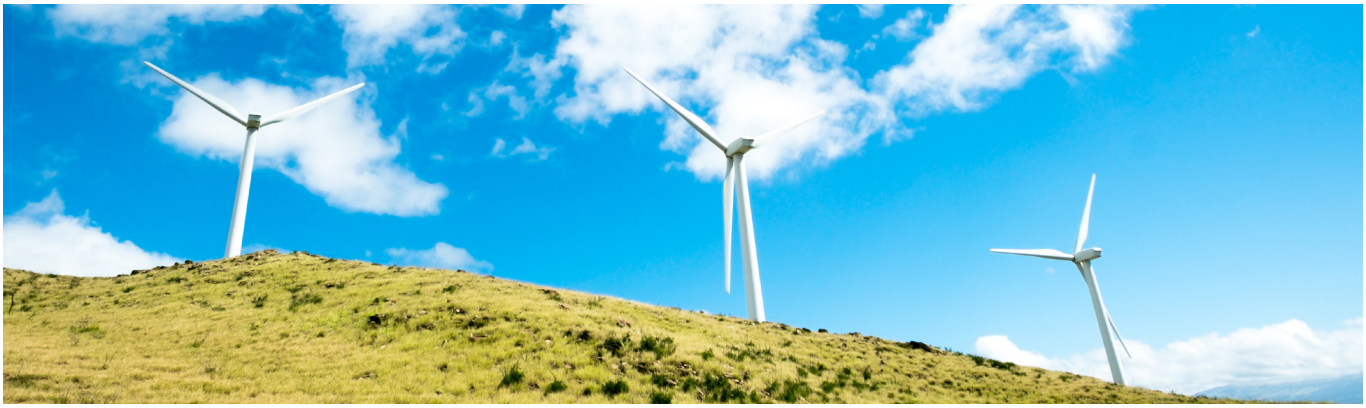


5. Make the most of existing capacities

The Action Plan also needs to open the debate on how Europe can make the most of available industrial capacities. Here, well-planned standardisation is paramount to allow economies of scale and drive competitiveness and innovation in parallel. Manufacturers face almost as many special design requests as there are projects. This strains both component supply chains and engineering capacities, while also increasing project time and adding costs. Especially in the evolving area of HVDC, common technical specifications, standardisation and tenders limited to functional specifications are necessary to achieve economies of scale, and to reduce the squeeze on manufacturers' engineering capacities and reduce project cycle time. A good example are the standardised long term framework agreements applied through the TenneT 2 GW program. At the same time, the Europe-based manufacturers and software developers must be enabled to continue leveraging their own global supply chains and free trade.

6. Recognise sustainability

Europe-based manufacturers are following Europe's leadership in driving sustainability. Europe needs to ensure that sustainability rules do not become an additional burden for industry that undermines its global competitiveness. These sustainability efforts need to be recognised as part of procurement processes. Therefore, regulation should incentivise or even prescribe sustainable asset acquisition and formation where reasonable and not solely favour the most cost-efficient (or rather cheapest) option. Structured life cycle evaluations could be incorporated into procurement processes to ensure that project developers can make data-based decisions when purchasing assets based on their sustainability characteristics.



7. Ensure regulatory coherence

The massive challenge to build and expand Europe's electricity network requires industry to deliver at speed and scale. The swift implementation, application and enforcement of existing EU legislation is crucial. At the same time, for manufacturing it is essential that the requirements and specifications of products and solutions do not change in a way that requires re-design or re-formulation. For example, the revision of the Ecodesign regulation on transformers should maintain the current efficiency requirements and refrain from adding criteria that would reduce Europe's production capacity. Also, the EU should reconsider a blanket restriction of all PFAS in favour of a more differentiated regulation that takes into account the specific risks, availability of substitute materials and benefits of different PFAS substances and uses. Many PFAS substances are essential to guarantee electrical safety and performance of the equipment guaranteeing electricity supply across Europe. Moreover, EU network codes should refer to recognised standards without deviations. Member States should implement the EU network codes without the inclusion of amended or additional requirements.

8. Establish a Commission-led Steering Committee

To ensure that all grid stakeholders deliver on the Action Plan it is important that there is a dedicated organisational framework in the Commission to drive the work over the coming 18 months. As the Action Plan goes well beyond energy policy, we believe the work needs to be overseen by a Steering Committee, involving senior representatives of the relevant Directorate-General(s) responsible for this Plan, including DG ENER, DG GROW, DG CNECT and DG TRADE. The Steering Committee will be able to establish and review with all relevant grid stakeholders a clear workplan with a timetable of the deliverables needed to achieve completion of the main actions from the Grids Action Plan. The established Clean Transition Dialogue on Green Deal Infrastructure could become the strategic forum, in which policymakers and stakeholders discuss grid issues and track progress.

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