A strategic overhaul of Europe's electricity systems

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In its 2024 report, *Strengthening Europe's Energy Infrastructure*,[1] the European Round Table for Industry (ERT) established that safeguarding European competitiveness requires a massive **€2.5 trillion** investment in energy infrastructure by 2050. Crucially, by 2040 alone, an immediate **€730 billion** in investment into electricity distribution grids is required.[2]

Two years following the publication of this study, ERT continues to view Europe's electricity grids as an absolute foundational enabler and backbone of this broader energy transition.

Despite an unprecedented surge in connection requests - spanning renewables, electricity storage systems (especially battery assets), large electrifying industries, electrolytic hydrogen production facilities, electric vehicles, heat pumps, and AI-driven data centres - electricity's share in total EU energy consumption has remained stagnant at roughly **23%** for over a decade.[3] This is far off the EU's target goal of achieving **32%** electrification by 2030, which was cemented in the Clean Industrial Deal.[4] As highlighted by the European Commission,[5] this low electrification rate stems not only from **insufficient grid connection capacity** but also **from permitting delays, financing and remuneration barriers, and the slow rollout of flexibility and electrification-enabling infrastructure**.

The European Commission's upcoming summer electricity initiatives, comprising the **Electrification Action Plan and the companion legislative proposal on Network Charges and Taxation**, offer an immediate opportunity to increase Europe's electrification rate. This window extends beyond the summer package alone: **the ongoing Grids Package negotiations in Parliament and Council** are just as central to unlocking investments in grid modernisation and ensuring our grids can connect to new electrified assets.

Main barriers holding back the broader rollout of Europe's electricity grid infrastructure

Operational and planning bottlenecks

- **Distribution grids are not treated as a strategic priority alongside transmission**. This is especially pertinent as investment needs and system pressures increasingly sit at local level. Distribution grids are central to enabling electrification, integrating new demand and supply as well as managing local congestion. In the EU's decentralised power system, the value created by increasing cross-border interconnection capacity is conditional on having digital, modern and flexible distribution grids (i.e., distribution grids are critical to building a single market for electricity). Current EU frameworks – including the proposed Grids Package – remain too heavily focused on transmission.
- **Relevant permitting procedures remain slow.** Timelines for grids and other assets (e.g. renewables, data centres) still take up to 5 to 15 years. This creates severe uncertainty for project developers and investors and in turn delays the execution of

[1] ERT, *Strengthening Europe's Energy Infrastructure*, 2024 (link)
[2] This was also recognised in the European Commission's 2025 EU Grids Package Communication.
[3] European Commission, Electrification (link).
[4] European Commission, Clean Industrial Deal (link).
[5] European Commission, EU Grids Package Communication, 2025, ibid.

planned investments. As a result, the deployment of clean energy, decarbonisation of industry and transport as well as digital infrastructure is inhibited.

- **Lagging implementation of grid development and optimisation for electrification needs.** Demand for new connections from electrification, renewables, storage and industrial loads is growing rapidly. However, the execution of planned transmission grid reinforcements and optimisation measures continues to face delays, creating localised capacity constraints and connection backlogs, despite unprecedented investment efforts by network operators. In addition, in certain cases, apparently ambitious grid investment plans do not reflect a higher effort for electrification but rather the result of past project delays, i.e., projects included in previous investment plans that were not executed due to, among other factors, permitting bottlenecks. [6]

Financial and capital bottlenecks

- **Lack of clear and stable investment signals for investing in grid extensions, reinforcements and digital upgrades.** This includes the absence of frameworks for anticipatory investments. This exacerbates uncertainty for investors and, ultimately, drives up overall long-term system costs.

ERT's guiding recommendations for fit-for-purpose electricity grid infrastructure development

The European Commission's scheduled publication of the Electrification Action Plan and the legislative proposal on Network Charges and Taxation represent a critical regulatory milestone. However, this is only the beginning of a bigger process. The EU's upcoming implementation and legislative efforts – that also encompass ongoing implementation of electricity market design rules and Grids Package negotiations in Parliament and Council – must be complemented by a set of policy responses that address the underlying issues holding back the deployment of electricity infrastructure.

Responding to operational and planning bottlenecks

- **Generalise objective grid connection principles across Member States.** Connection prioritisation should be based on transparent, objective and non-discriminatory criteria, including project maturity, technological neutrality, technical compatibility, system safety, and location-specific impacts on overall grid operation and physical system costs. These criteria should be established in the relevant regulatory framework, while their technical and operational application should be carried out by TSOs and DSOs according to the physical characteristics of their respective grids.
- **Scale up coordinated TSO-DSO planning, including anticipatory investments, to support timely grid development and optimisation.** Regulatory frameworks must foster deeper, coordinated planning and enable anticipatory investments across transmission and distribution, while respecting the respective roles and responsibilities of TSOs and DSOs to deploy modern, reinforced, and digitalised networks at scale. These coordinated frameworks should focus on:
    - The optimisation of new connections management through the mainstreaming of voluntary, transparent flexible connection agreements, where technically feasible. These agreements should function as a temporary capacity bridge when fully firm physical infrastructure extensions are delayed by multi-year

[6] See the case of the Spanish electricity transmission network in this recent study: PWC, *Study on the Degree of Fulfilment of Electricity Planning*, May 6, 2026 (link).

lead times, without delaying the structural grid reinforcements and modernisation that are ultimately required.
    - The integration of large volumes of flexible demand and supply - including industrial demand response, storage, and distributed flexibility assets - in a manner that respects the technical constraints of industrial consumers, while recognising their growing potential to contribute meaningfully to system balancing and optimising total system costs.
    - The acceleration of distributed generation, including self-supply solutions with a clear decarbonisation pathway, to enable investment certainty for anticipatory industrial and transport investments.
- **Decouple technical workflows from administrative procedures to eliminate bureaucracy.** Ensure public administrative permitting processes are strictly separated from network operators' technical connection approvals. Transitioning to fully digitalised, streamlined procedures with robust environmental assessments will ensure public authorities deliver permitting decisions within clear, enforceable timeframes without creating legal uncertainty.

Responding to financial and capital bottlenecks

- **Modernise utility remuneration and tariff structures to incentivise grid optimisation.** Possible changes to the remuneration framework could include:
    - Measures to ensure that tariff and contract structures evolve from purely volumetric models towards a combination of fixed, predominantly capacity-based, and volumetric components.[7]
    - Genuine neutrality between capital and operational expenditure within national regulatory frameworks, so that network operators can seamlessly blend traditional infrastructure reinforcement with advanced digital and flexibility-based solutions to optimise total system cost. This can be achieved through the TotEx approach or alternative targeted economic incentives.[8]
    - Timely recognition and remuneration of anticipatory grid investments enabling network operators to develop capacity ahead of demand and generation growth.
    - A more active removal of persistent barriers to investment, such as caps on investments, misaligned returns compared with competing investments and financial markets, unfit OPEX efficiency benchmarks or delayed recognition of additional CAPEX and OPEX.

[7] In this context, a strong firm-capacity component, complemented by a static energy-linked time-of-use element, improves cost-reflectiveness and provides more efficient signals to the system characterised by increasingly variable grid use. Fully dynamic grid tariffs are to be rejected as they would be disproportionate and unnecessary. This would enable more efficient use of existing grid infrastructure by system users.
[8] According to the European Commission, only 32% of Member States apply the TotEX approach to tariff design, despite EU rules requiring it. Sources: DSO Observatory 2024; CEER, *Incentives in Regulatory Frameworks with a Focus on OPEX/CAPEX Neutrality*, 2025.