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Delivering Europe's energy transition: Why the Grids Package must enable innovation

CurrENT's Position Paper on the Grids Package

CURRENT
Enabling Network Technology throughout Europe

Recommendation for the TEN-E Revision

1. Improve the definitions of non-wire solutions to include all innovative grid solutions
   - The Grids Package must introduce a clear overarching definition for grid-enhancing technologies that includes both innovative non-wire solutions and innovative wire solutions to be considered before conventional grid expansion. (Recital 54, Recital 60, Article 2).

2. Mandate innovation integration in the TEN-E framework
   - The Grids Package must mandate the fair consideration of grid-enhancing technology solutions into all central scenarios and needs assessments. (Recital 53, Recital 54, Recital 55, Recital 58, Recital 69, Article 12, Article 17, Annex III, Annex VII)

3. Always consider best available technologies in grid development
   - The Grids Package must embody the NOVA principle by prioritizing grid optimization and reinforcement where possible and mandating the consideration of best available technologies in grid expansion. (Recital 10, Recital 56, Recital 60, Article 14, Annex II. Annex VI)

4. Integrate electricity network losses into the TEN-E methodology
   - The Grids Package must mandate the explicit assessment of electricity network losses within all infrastructure needs identifications to ensure a fair comparison between conventional expansion and grid enhancing technology solutions. (Annex IV, Annex V)

5. Accelerate monitoring to keep grid development future-proof
   - The Grids Package must accelerate the monitoring of the uptake of non-wire solutions to 2029, ensuring that barriers to deployment are identified. (Article 24).

Electricity grids are a central component of the EU competitiveness. A rapid and sustained increase in renewable energy capacity is underway across Europe, driven by climate targets, energy security objectives, and electrification of end uses. Ensuring that the electricity grid is ready to support this massive uptake is therefore a strategic priority for the EU. European institutions have repeatedly recognised this challenge, including through initiatives such as the Affordable Energy Action Plan and the European Parliament's own-initiative report on electricity grids[3]. The Grids Package builds on this recognition and represents a key opportunity to ensure that grid planning, development, and operation are aligned with Europe's long-term energy objectives and competitiveness

CurrENT welcomes the overall direction of the Grids Package, in particular its emphasis on optimisation, non-wire solutions, and stronger EU-level planning. To fully deliver a cost-efficient, resilient, and future-proof electricity system, the Package must more consistently consider all grid enhancing technologies across planning, assessment, and implementation.

1. Change the definitions of non-wire solutions to include all innovative grid solutions

A realistic annual deployment of Grid-Enhancing Technologies can deliver €700 billion of savings in conventional expansion costs by 2040, providing additional grid capacity at a much higher pace. This can be done through a combination of innovative wire solutions, and innovative non-wire solutions. To unlock the full potential of deploying innovation, the Grids Package must be amended to include a broad definition of Grid Enhancing Technologies, that also includes the wire-based innovative solutions that are currently missing in the proposal. (Recital 54, Recital 60, Article 2).

2. Mandate innovation integration in the TEN-E framework

The Grids Package strengthens planning and coordination, including through the development of a central scenario aligned with EU energy and climate targets. CurrENT strongly supports this approach, as it improves system-wide coherence and cost efficiency.

In addition, CurrENT calls for systematic integration of grid enhancing technologies to ensure that planning fully accounts for the potential of emerging technologies to increase capacity, optimize assets, and enhance grid resilience at every stage of the TEN-E Framework. The Commission should lead the definition of a single central scenario for network planning, utilizing sensitivity analyses for emerging technologies. Building on this foundation, the infrastructure needs identification reports must be updated to formally account for the capabilities of all available and emerging grid-enhancing technologies. Finally, to move these solutions from planning to reality, the regulatory framework for projects of common interest must provide grid enhancing technology providers with stable, risk-reflective incentives that account for the unique externalities and high Union-wide benefits its solutions deliver beyond traditional tariff recovery.

Furthermore, the current TEN-E framework often unfairly favors conventional technologies by overlooking the risk of rising future costs while failing to account for the rapid cost-reduction potential of innovative solutions. It is fundamental to mandate project re-evaluations when costs deviate from initial estimates to ensure fair comparison and prevent long-term lock-in to overpriced infrastructure. To prevent inefficient lock-in, any material increase in investment costs must trigger a mandatory, updated cost-benefit analysis that forces regulators to re-evaluate the project's cross-border cost allocation and its continued eligibility for PCI or PMI status. (Recital 53, Recital 54, Recital 55, Recital 58, Recital 69, Article 12, Article 17, Annex III, Annex VII.)

3. Best available technologies should always be considered in grid development

CurrENT supports the principle that grid operators should consider best available technologies when upgrading existing infrastructure or building new capacity. This includes the consideration of advanced cables and conductors that can significantly increase the capacity of a line. Deploying these solutions can accelerate grid expansion, reduce environmental and social impacts, and limit the need for new infrastructure and raw materials. In alignment with the 'Energy Efficiency First' principle, the European Grids Package must incorporate the NOVA principle to prioritize optimization as the primary step, followed by reinforcement of existing infrastructure, followed by physical expansion using the most efficient technologies. (Recital 10, Recital 56, Recital 60, Article 14, Annex II. Annex VI)

4. Integrate electricity network losses into the TEN-E methodology

Electricity network losses are a key indicator of system efficiency and have a direct impact on overall system costs and the effective integration of renewable generation. They should therefore be explicitly assessed as part of the infrastructure needs identification process. Ensuring that losses are systematically considered allows decision-makers to compare conventional reinforcement with alternative solutions and to assess whether best available technologies could deliver the required capacity more efficiently. CurrENT therefore calls for the TEN-E Regulation to ensure that electricity losses are considered in needs assessments and cost-benefit analyses, in line with the Energy Efficiency First Principle. (Annex IV, Annex V)

5. Accelerate monitoring to keep grid development future-proof

The Grids Package introduces monitoring elements related to non-wire solutions. CurrENT welcomes this step, but with monitoring scheduled only from 2032, Europe risks waiting too long to identify gaps and delays. CurrENT calls for an earlier and stronger monitoring framework that tracks deployment, highlights barriers, and identifies best practices to ensure timely delivery of the grid capacity Europe requires before 2029.

There should be closer alignment between the monitoring report and National Energy and Climate Plans. By synchronizing these instruments and moving toward an earlier, robust monitoring framework, the EU can ensure that infrastructure planning stays consistent with evolving climate targets while maximizing the performance of the European grid well before 2029. (Article 24).

But without explicit obligations and clear definition, grid planning, expansion and operation are likely to continue prioritizing conventional expansion, favoring business as usual technologies over options that may deliver higher system value. This approach can lead to higher overall system costs, slow the connection of renewable generation, and reinforce Europe's reliance on critical raw materials.