



Elia and 50Hertz publish a joint study on future-proofing the EU energy system towards 2030

From the perspective of two system operators (Elia in Belgium and 50Hertz in Germany), Elia Group wants to raise awareness about the increasing challenges on both the grid infrastructure (hardware) and the market design (software) of the European interconnected electricity system. The joint study *'Future-proofing the EU Energy System towards 2030'* proposes two levers to realise the next phase of the energy transition in a timely and efficient way with maximum welfare for society.

Key messages

- The timely completion of the planned grid infrastructure in the run-up to 2030 is the first and most important lever for realising the energy transition with maximum welfare and benefits for society.
- In our role as market facilitator, we see potential options for an improved market design. The proposed Flex-In-Market design allows the market to have a better control of the flows in line with physical constraints. This enables a more efficient use of the grid.
- Elia Group calls for dialogue and a further elaboration of the proposed market design concepts at a European level.



To deal with the growing complexity of a decarbonised electricity system, timely infrastructure development has to be combined with an improved market design. As such, the market can act as a traffic agent that efficiently directs the electricity flows in the grid and makes optimal use of the available capacity.



Chris Peeters, CEO Elia Group



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On the way to 2030, renewables will further increase, some conventional generation will disappear and there will be more cross-border exchanges as Europe has set ambitious targets regarding the further development of the internal energy market. Just letting things run their course is not an option. That is why Elia Group performed a study on future-proofing the energy system for the next decade.

We observe a discrepancy between the development and construction times of renewable generation compared to the longer lead-times for realising grid infrastructure. This creates congestions on the electricity grid. System operators regularly have to perform redispatch to keep physical electricity flows within operational boundaries. In Germany in particular, getting the large-scale wind energy production efficiently from the north to the consumption centres in the south, is a considerable challenge.

2 levers for a successful energy transition towards 2030

The timely completion of the planned grid infrastructure results in maximum welfare and benefits for society

The first and most important lever is the timely completion of the planned new grid infrastructure. Grid expansion is required to meet the European renewables targets in an efficient way. Our simulations show that not having the German north to south HVDC lines in place entails a yearly welfare loss of around € 1 billion to € 1.5 billion by 2030. In addition, this missing infrastructure also causes higher volumes of RES curtailment. These numbers will further increase beyond 2030, as more renewables will be integrated into the grid on the road to full decarbonisation.

Elia Group is therefore committed to do the utmost to accelerate delivery of planned new infrastructure and to mitigate any risk of delays, in close collaboration with the competent authorities. We are also committed to upgrading and optimising existing assets.

An improved market design enables a more efficient use of the grid

As a second lever, we propose the Flex-In-Market design. This improved market design gives the market access to a toolbox of controllable devices to better manage the flows in line with physical constraints. This enables a more efficient use of the grid and reduces the gap between markets and physics.

Our simulations show welfare gains of € 300 to € 400 million per year in 2030 for the Flex-In-Market design compared to the reference market design and a decrease of curtailed volumes of RES.





We believe that our study – that truly embraces a binational and European approach – provides inspiring insights that might bring currently opposing views on how to improve the market design closer together. This report could serve as a stepping-stone to set up a broad coalition and start discussions with representatives of system operators, market parties, regulators and European authorities.



Stefan Kapferer, CEO 50Hertz

The complete report can be found on <https://www.eliagroup.eu/en/publications>

Figure 1: Effects observed in the horizontal system

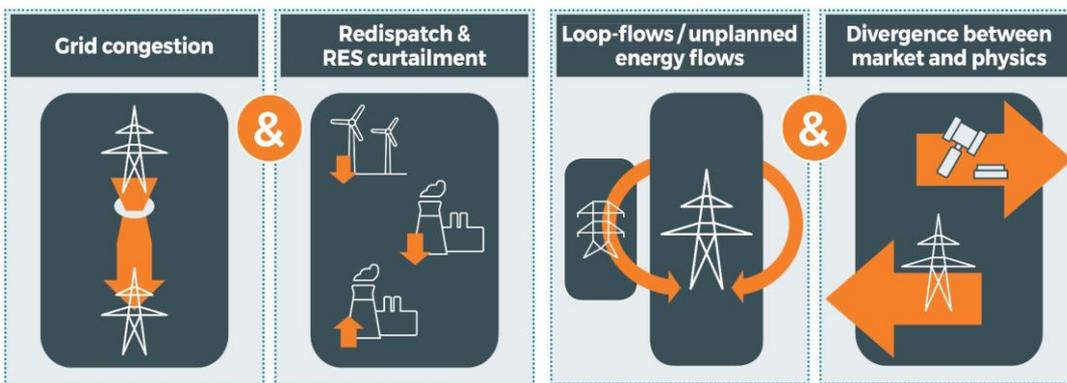


Figure 2: Levers to realise the next phase of the energy transition with maximum welfare for society



About the Elia Group

One of Europe's top five players

Elia Group is active in electricity transmission. We ensure that production and consumption are balanced around the clock, supplying 30 million end users with electricity. With subsidiaries in Belgium (Elia) and north-east Germany (50Hertz), we operate 18,990 km of high-voltage connections. As such, our group is one of Europe's top 5. With a reliability level of 99.999%, we give society a robust power grid, which is important for socio-economic prosperity. We also aspire to be a catalyst for a successful energy transition towards a reliable, sustainable and affordable energy system.

We make the energy transition happen

By expanding international high-voltage connections and integrating ever-increasing amounts of renewable energy production, Elia Group promotes both the integration of the European energy market and the decarbonisation of our society. Elia Group is also innovating its operational systems and developing market products so that new technologies and market parties can access our grid, thus making the energy transition happen.

In the interest of society

As a key player in the energy system, Elia Group is committed to working in the interest of society. We respond to the rapidly changing energy mix, i.e. the increase in renewable energy, and constantly adapt our transmission grid. We also ensure that investments are made on time and within budget, with a maximum focus on safety. When we carry out our projects, we manage stakeholders proactively by establishing two-way communication with all affected parties very early on in the development process. We also offer our expertise to our sector and relevant authorities to build the energy system of the future.

International focus

In addition to its activities as a transmission system operator, Elia Group provides various consulting services to international customers through its subsidiary Elia Grid International (EGI). Elia is also part of the Nemo Link consortium that is building the first subsea electrical interconnector between Belgium and the UK.

The Group operates under the legal entity Elia System Operator, a listed company whose core shareholder is the municipal holding company Publi-T.

More information: eliagroup.eu

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