

currENT statement on the second draft of the 2037/2045 grid development plan

currENT welcomes the fact that the 2037/2045 grid development plan explicitly addresses the role of innovations in the electricity system of the future in Chapter 6 "Innovations". However, the definition of innovation is far too narrow and not technology-neutral. As a result, key technologies which stand to make a critical contribution in the long-term are excluded across the board. Most of the innovations currently listed in the NDP are already available and scalable. It is important that the grid development plan facilitates the testing and demonstration of innovative technologies in controlled environments for a limited amount of time until their manufacturing can be scaled and fully commercialised. This would also be compatible with the European Commission's proposal to establish "Net-zero regulatory sandboxes" to promote innovation in the field of grid technology¹. The NDP should facilitate and encourage system operators to undertake such demonstration projects in a controlled real-world environment and monitored by a competent authority.

As correctly stated in the NDP, large-scale testing and validation of technologies must be guaranteed to develop a secure and resilient power grid for a decarbonised German and European electricity supply based largely on variable renewable energy in the forms of solar and wind. Innovative and potentially disruptive technologies must be given a development perspective on the way to commercial application and demand for these technologies must be triggered on the part of grid operators. The draft NEP does not provide such a perspective.

Due to the time horizon of long-term grid planning up to 2045, the innovation chapter must include and prioritise technologies that are expected to reach market and deployment maturity within this period. To ensure that the innovation chapter can fulfil its intended purpose, we therefore propose the following adjustments.

1) Expansion of the concept of innovation

Chapter 6 of the second draft of the grid development plan correctly recognises that "the use of current solutions and concepts alone is not sufficient to achieve the transformation of the energy system".² At the

¹ COM(2023) 161 final. Proposal for a regulation on establishing a framework of measures for strengthening Europe's net-zero technology products manufacturing ecosystem (Net Zero Industry Act).

² Electricity Network Development Plan 2037/2045 (2023), second draft | Transmission system operator CC-BY-4.0

same time, the grid development plan "only takes into account those innovations whose market availability or readiness for use is already available or foreseeable today".³ This would correspond to a technological readiness level (TRL) of 9.

This narrow interpretation of the concept of innovation means that valuable innovation potential is left untapped. **Newer technologies in particular, which are at earlier stages of the innovation cycle, urgently need investment signals so that they can bridge the so-called "valley of death" and be transferred from the laboratory to a commercial application. Only by signalling a technological development path for innovation can the current chicken-and-egg problem with regard to innovative network technologies be resolved.**

2) Discrepancy between research policy priorities and long-term system planning

One of the aims of the Network Development Plan is to create a reliable planning basis for the German government's climate protection targets. In this context, the NDP considers it fundamental that "the infrastructure [...] must be equipped with innovative technologies and further expanded".⁴ The exclusion of technologies with a lower degree of maturity than TRL 8 mentioned in the previous chapter creates a discrepancy between the political will to innovate and the reality of grid planning.

³ *Ibid.*

⁴ Electricity Network Development Plan 2037/2045 (2023), second draft | Transmission system operator CC-BY-4.0