

NETWORK DEVELOPMENT ENFORCEMENT AND INCENTIVES

Advocacy Paper

BACKGROUND

The European climate and energy policy goals focus on a fully decarbonised and sustainable electricity system, challenging European TSOs to create, develop and timely implement various solutions to adapt and extend the existing system.

The transition process has already begun, as nearly 80 % of all the network projects identified are related to RES integration.¹ However, it is important to note that a significant share of these projects encountered delays during their implementation phase. This led to missing grid capacity for the rapidly increasing RES capacity, which not only severely hinders the further RES integration but also inevitably leads to congestions in the grid, which can be mainly resolved via expensive and CO₂ intensive redispatch measures. Indeed, the cost of no grid could largely exceed the cost of grid reinforcement, which enables more efficient markets, more reliable system operation and lower renewable curtailment rates. The European objective of a well-integrated European energy market could be directly affected, with a tangible impact on Europeans' economy and quality of life.² It is therefore of the utmost importance to underline that the **strengthening of the existing transmission grid, including building new interconnection lines, is a prerequisite for achieving the European climate targets.**

European TSOs consider the ongoing energy transition process to be an ambitious undertaking which will require the strong and consequent coordination of the political, technical and financial efforts of all involved parties for decades to come. Nonetheless, the TSOs are convinced that this very challenge can be successfully mastered. It is, however, necessary to work towards an extended, flexible and incentive-compatible regulatory framework to find new and innovative solutions.

MAIN CHALLENGES & KEY FINDINGS

Pursuing the European climate targets has placed numerous challenges upon the European TSOs, which can be grouped into three main categories: challenges in terms of technology, implementation and financing.

A) Technological challenges

The pan-European transmission system has been continuously responding to the energy transition process and while doing so it has become increasingly complex to operate. The ongoing replacement of the conventional generation technologies by renewable ones, characterised by fluctuating generation, has a serious impact on the system's operational performance, which has to deal with new phenomena such as:

- **steeper evening ramp** caused by a fast decrease in solar energy generation in the evening hours;
- **limited voltage regulation range** caused by significant shares of installed RES capacity;
- **reduced reserve peak margin** due to the decommissioning of thermal power plants;
- rapidly rising **transmission congestions** (and distribution congestions to follow) due to concentrated RES development;
- reduced **system inertia** due to limited RES contribution capability.

All the phenomena listed above affect reliable system operation and hence significantly reduce the mutual assistance capability of the neighbouring countries.

Prompt implementation of the transmission infrastructure projects is a key prerequisite to effectively address these challenges.

¹ TYNDP 2018, ENTSO-E.

² European Power System 2040, completing the map. The Ten-Year Network Development Plan 2018 System Needs Analysis. ENTSO-E.

B. Project implementation

The implementation process of various pan-European transmission system development projects Europe-wide has been facing significant delays. While technology and construction are usually under control, the delays result from incomprehensive permitting procedures and sometimes also fierce public opposition. Most of the case studies performed have confirmed this fact: public acceptance and permitting processes are being considered as the main reason for project implementation delays. Even the latest ACER report³ concludes that more than 40 % of the electricity PCI-projects are failing to meet their initial scheduling because they were rescheduled or delayed due to “external factors”.

Delays in transmission network development can lead to additional costs and hence a loss of social welfare. Due to ongoing work within ENTSO-E⁴, it is, however, possible to quantify the value behind the timely implementation of the transmission projects, which can help foster both permitting and public acceptance challenges. TSOs are aiming for an open debate on this topic, since it would certainly be helpful to transparently present the benefits of the proposed infrastructure projects and additionally gain public acceptance for them.

TSOs would gladly enhance their public engagement activities during the project implementation phase but such a course of action would require certain and prompt adjustments of the national regulatory frameworks to ensure the desired flexibility in project implementation and appropriate compensation measures.

The value of the timely commissioning of a project can reduce the overall bill for the consumer and hence is of additional value for society and supports a positive image of the energy transition. Thus, such a course of action requires a clear and robust national regulatory framework, enabling TSOs to engage with society more intensively and to ensure cost recovery of these enhanced activities and resulting measures through tariffs.

C. Financial challenges

Regulatory frameworks in Europe are still being driven mostly by efficiency incentives (e.g. X-factor/profit-sharing mechanisms) rather than by investment incentives. This current regulatory context, mostly focused on cost reductions and low grid tariffs growth rates, needs to be improved to ensure that TSOs can invest in those projects that result directly from the climate and policy targets of the EU. TSOs are acting and operating within regulatory frameworks set by the National Regulatory Authorities (NRAs), who are empowered to cover certain recognised costs (Opex, Capex depreciations and capital remuneration). Hence,

NRAs could support TSOs' efficient financial sustainability and promote the efficient behaviours of the operators through the introduction of respective incentive measures.

TSOs, NRAs, and national and European policy makers should take the necessary actions to facilitate EU ambitions: the transmission grid is changing and requires adjustments to the national regulatory frameworks regarding the present and future context of RES deployment, market integration and security of supply. One option for more flexibility in the regulation targeting this could be to consider some elements of output-based regulation, even though measurability remains an issue and further analysis of their general properties is warranted.

There is an urgent need to work towards a stable and fit-for-purpose investment environment to finance the required investments at the desired pace and scale.

CONCLUSION

According to the brief analysis presented in this paper, ENTSO-E recommends considering the following key messages:

- No new grid beyond 2020 would directly hit the European objective of a well-integrated European energy market and have a tangible impact on Europeans' economy and quality of life. Since grid expansion enhances cross-border exchanges necessary to share resources across Europe for a reliable, sustainable and economic power supply, the no grid option is likely to be incompatible with the achievements of the European emission targets and therefore not a recommendable solution.
- Public acceptance and permitting seem to be the most critical issues for network development (e.g. leading to delay and higher costs). There should be transparency in the benefits of not delaying project implementation, showing the benefit of increased public acceptance.
- Further improvements in national regulatory frameworks are necessary:
 - Improved regulatory and financial arrangements on MS level are required to cover large investment needs, as well as costs generated by engagement activities with the public to increase their acceptance.
 - Considering elements of output-based regulation might prove beneficial, although measurability remains an issue and further analysis of their general properties is warranted.
- The importance of environmental benefits (e.g. CO₂ reduction), as shown in ENTSO-E's CBA, should be well-communicated, since it is also a driver for (costlier) investments.

³ Consolidated Report on the progress of electricity and gas Projects of Common interest for the year 2017, ACER, 2018.

⁴ Value of timely implementation of “better projects”, ENTSO-E, 2019.

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