

ASSESSMENT AND ROADMAP FOR THE DIGITAL TRANSFORMATION OF THE ENERGY SECTOR TOWARDS AN INNOVATIVE INTERNAL MARKET

December 2021
EDDIE Consortium

In October 2019, the European Commission (EC) published a report on a comprehensive assessment of digital transformation in the energy sector, focusing on an overview of the EC's digitalisation policies. The study aims to first analyse whether digitisation is necessary by examining the extent to which digital solutions impact the energy system, whether it is worth paying for, and who should pay for it. It then develops a roadmap that includes short-term measures to remove barriers along the energy value chain and accelerate the implementation of key provisions of the clean energy package. The relevant EU policies and investment programmes are in line with the bond established by the “European Green Deal” and “Europe fit for the Digital Age”.

As the EU energy system becomes more decentralized and decarbonized, the EC reiterates the relevance of digital technologies, such as the Internet of Things, Artificial Intelligence, Big Data, Cloud, 5G and Blockchain technologies to integrate more renewable energy into grids and use energy more efficiently. To analyse the precise opportunities that digital technologies can create for energy businesses and consumers, ten use cases relevant to the digitalisation of the power sector have been selected, which were then used to derive a Roadmap for policy measures.

The Roadmap starts with the full implementation of the policies that have been adopted no later than 2020, and suggest an initial deadline of 2025 for member states to implement the most urgent policies. For the time horizon 2025-2030, the Roadmap provides measures to address the main issues identified in the use cases more effectively. In particular, the Roadmap makes recommendations on key issues related to the efficient provision of flexibility services at the distribution level. Therefore, it places its focus on nine different aspects.

First, specific regulation on the internal energy market (IEM) should have been fully implemented as soon as possible to promote the cooperation between Transmission System Operators (TSOs) and Distribution System Operators (DSOs). In the long term, various guidelines and regulations should be implemented to achieve greater coordination and support the development of digital platforms. Subsequently, a regulation on IEM and the adoption of further secondary legislation are needed to promote the obligation of TSOs and DSOs to introduce market-based mechanisms for redistribution and product specification of flexibility services. The promotion of incentive-based frameworks for DSOs is important to encourage a smarter and more active role of DSOs. The next step is to introduce a regulation for aggregators to participate in electricity markets to procure flexibility services. The development of specific EU guidelines for smart meter data is considered necessary. This includes requirements on access and exchange of all relevant consumption and production data of customers with third parties, so that privacy protection is ensured. To ensure cybersecurity of ICT products and energy critical infrastructures, the Roadmap also foresees a designation of national competent authorities on network security and the adoption of a cybersecurity network code for critical infrastructures through a new EU Regulation. Finally, the adoption of binding EU requirements for the interoperability of networked devices is necessary to promote active consumer participation in electricity markets.

This regulatory framework aims to meet the EU's 2030 climate and energy targets by setting out rules that need to be extended or newly implemented in specific timeframes to unlock the potential of the digital transformation.