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Electricity storage is critical for the future of European power networks. However, for storage to realize its full potential, a robust regulatory framework is needed. In the European Union (EU), the role energy storage plays in EU power markets will be formally recognized in the Electricity Market Design Directive (recast), which is expected to be adopted in Q1/Q2 2019. Change at the EU level is also being championed by a number of EU Member States. In this briefing, we consider developments in the EU and the markets for energy storage in Germany, France, Greece and the Netherlands.

Storage capacity in the German energy market is still mainly provided through large pumped hydro storage facilities. These facilities are able to provide both baseload power and balancing services, supporting grid stability. However, due to complex planning procedures and increasing public resistance, there are few new facilities under development.

The key driver for the development of energy storage in Germany is the Energy Transition (Energiewende) and the ambitious national targets to increase the share of renewable energy sources in the generation market to 60 per cent of final consumption by 2030. As grid expansion is behind schedule, the current shift from centralized to decentralized energy generation requires measures to ensure greater grid stability and flexibility.

Following the political decision to decarbonize the transport sector by using electric vehicles (EVs), e-mobility and charging infrastructure are also increasingly driving progress in energy storage solutions. The growing EV charging network comprises both residential and commercial charging stations, and requires greater grid capacities, as well as flexible solutions for electricity demand and supply.

However, energy storage projects in Germany face several legal and commercial challenges. For example, storage facilities are treated as consumers when drawing electricity and as generators when providing electricity. Since the consumption of electricity is subject to several taxes, levies and charges, which also have to be paid by the end consumer, electricity from storage facilities face a double charge. While storage projects benefit from some exceptions and reliefs, the regulatory framework is still highly complex and requires case-by case consideration, especially when a device is supposed to be operated in multi-use scenarios.

A key challenge with regard to large-scale battery storage facilities is the uncertainty regarding price forecasts on the Central European balancing market. On the one hand, the increasing installation of variable renewable

generation is a factor supporting future demand for balancing services. On the other hand, enhanced interconnection, grid expansion and the growing number of balancing service providers are factors influencing future price expectations. Further, the German TSOs and the Federal Grid Agency are currently discussing battery specific prequalification criteria for future balancing services auctions and changes to tendered products (time segments and tender periods) have also been announced for mid-2019.

In relation to the implementation of the new Electricity Market Design Directive, it remains to be seen in the national implementation process to what extent the TSOs and DSOs will be entitled to own and operate storage facilities themselves in Germany.

The Energy Transition Law1 (ETL), sets ambitious 2030 targets for renewable energy in France: 32 per cent of final energy consumption and 40 per cent of energy production (compared with the current figure of 18.4 per cent). The ETL refers to energy storage as a necessary means to achieve environmental policy objectives.

Storage facilities are defined in the Ministerial Order of 7 July 2016 as “a set of stationary electricity storage equipment allowing the storage of electric power in one form and its reconversion, while being connected to the public power grids. The technologies of these equipment are [pumped storage], hydrogen, electro-chemical batteries […]. The facility is connected to the public power grid directly or indirectly, through facilities belonging to a user of the grid”. In 2015, France had 5.82 GW of operational storage capacity, of which pumped storage comprised 5.81 GW. However electro-chemical storage is growing rapidly, in particular with lithium-ion batteries, with batteries accounting for nearly 52 per cent of the remaining storage capacity.