

ICT architectures for TSO-DSO coordination and data exchange: a European perspective

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Abstract-

The coordination between system operators is a key element for the decarbonization of the power system. Over the past few years, many EU-funded research projects have addressed the challenges of Transmission System Operators (TSO) and Distribution System Operators (DSO) coordination by implementing different data exchange architectures. This paper presents a review of the ICT architectures implemented for the main coordination schemes demonstrated in such projects. The main used technologies are analyzed, considering the type of data exchanged and the communication link. Finally, the paper presents the different gaps and challenges on TSO-DSO coordination related to ICT architectures that must still be faced, paying especial attention to the expected contribution of the EU-funded OneNet project on this topic.

Index Terms- TSO-DSO coordination, ICT architecture, IEC protocols, transmission system operator, distribution system operator, data exchange.

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