

Security of the European Electricity Systems: Conceptualizing the Assessment Criteria and Core Indicators

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Abstract : The electricity systems have a central role to play in the transition towards a low carbon economy and integration of renewable energy sources in the European Union. However, the European electricity networks face a diverse set of existing and new risks that can hamper the energy security of member countries. This paper aims to qualitatively and quantitatively assess these risks given the changing operating framework of the industry characterised by market liberalization and network interconnectedness among the EU members. Within this context, we primarily focus on the risks from exceptional events and threats to the European electricity systems. An ex-ante risk assessment matrix is proposed to gauge the network risks and take prevention measures against them. Such assessment can be a useful approach for policymakers and practitioners amidst the existing ex-post quality of supply performance standards and indicators. Our analysis suggests that economic risks pose the most serious and challenging risks to the evolving European electricity system.

Keywords Networks, risks, energy security, regulation

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