

Fault ride through capability of round rotor synchronous generators: review, analysis and discussion of European grid code requirements

L. Díez Maroto; L. Rouco Rodríguez; F. Fernández Bernal

Abstract-

A fault ride through (FRT) capability of synchronous generators is currently required by most grid codes, beyond what is required by International Electrotechnical Commission (IEC) and Institute of Electrical and Electronics Engineering (IEEE) standards for round rotor generators. This article reviews and compares FRT as required by European grid codes, and the European Network of Transmission System Operators for Electricity (ENTSO-E) grid code proposal. It investigates whether a typical round rotor turbogenerator fulfils the FRT requirements. The response of power plant auxiliaries is also analyzed. Recommendations to improve the formulation of FRT requirements are made based on thorough sensitivity studies of the response of such turbogenerators with respect to a number of variables and parameters.

Index Terms- Grid codes; Synchronous generators; Fault ride through capability; Transient stability; Reactive power capability; Auxiliaries

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Citation:

Díez Maroto, L.; Rouco, L.; Fernández-Bernal, F. "Fault ride through capability of round rotor synchronous generators: review, analysis and discussion of European grid code requirements", Fault ride through capability of round rotor synchronous generators: review, analysis and discussion of European grid code requirements, vol.140, pp.27-36, November, 2016.