

Wide area controllers for excitation boosters for transient stability improvement

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Abstract-

Excitation boosters (EBs) are one of the most cost-effective solutions to improve Fault Ride Through (FRT) capability of synchronous generators. However, they may lead to undesired behavior in multi-machine systems when governed by controllers that use local measurements. EB controllers based on a Wide Area Control System (WACS) have proved to be an effective solution to improve the overall transient stability of a multi-machine system. This paper compares two WACS-based EBs; one proposed in a previous work and a variant controller proposed here. In the comparison of WACS-based EBs, performance, design, implementation aspects and impact of communication latency are analyzed and discussed in detail.

Index Terms- Excitation booster; Bus fed static excitation system; Fault ride through capability; Grid codes Transient stability; WAMS; WACS

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