

Frequency participation factors

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Abstract-

This paper discusses two quantitative and complementary approaches to evaluate the participation of synchronous generators and interconnection buses on local bus frequency variations during electromechanical transients. Both approaches are based on the concept of frequency divider formula recently proposed by the authors on these transactions. A thorough comparison of the two approaches is provided considering several scenarios and three networks, namely the New England 39-bus test system, the all-island 1479-bus Irish transmission system, and the ENTSO-E 21 177-bus transmission system.

Index Terms- Frequency estimation, frequency measurement, participation factors, synchronous machines, transient stability analysis.

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