

## The Effect of Microgrid on Power System Oscillatory Stability

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**Abstract :** This publication shows the effects of Microgrid (MG) integration on the power systems oscillating stability. Generated MG model power systems were applied to the IEEE 14 bus test system which is widely used in stability studies. Stability studies were carried out with the help of eigenvalue analysis over linearized system models. In addition, Hopf bifurcation point detection was performed to show the effect of MGs on the system loadability margin. In the study results, it is seen that MGs affect system stability positively by increasing system loadability margin and has a damper effect on the critical modes of the system and the electromechanical local modes, but they make the damping amount of the electromechanical interarea modes reduce.

**Keywords :** Eigenvalue analysis, microgrid, Hopf bifurcation, oscillatory stability

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