

Modal Analysis of Power System with a Microgrid

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Abstract : A microgrid (MG) is a small power grid composed of localized medium or low level power generation, storage systems, and loads. In this paper, the effects of a MG on power systems voltage stability are shown. The MG model, designed to demonstrate the effects of the MG, was applied to the IEEE 14 bus power system which is widely used in power system stability studies. Eigenvalue and modal analysis methods were used in simulation studies. In the study results, it is seen that MGs affect system voltage stability positively by increasing system voltage instability limit value for buses of a power system in which MG are placed.

Keywords : eigenvalue analysis, microgrid, modal analysis, voltage stability

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