## Virtual synchronous generator and system stability with control of active and reactive power with liner and binary algorithm method

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Distributed generators such as photovoltaic, wind turbine and gas cogeneration system have been paid more attention. Distributed generators are often connected to a grid by inverters. Inverters used in distributed generators are generally controlled by a PLL (Phase Locked Loop) in order to be synchronized with power system frequency and phase. The concept of "Virtual Synchronous Generator" (VSG) which is to control inverters to behave like a real synchronous generator has been proposed. VSG has virtual inertia which is realized by a small energy storage device to mimic rotor's inertia and obtain synchronizing power. In this paper, a novel implementation of the inertia by using H quantity carried out that amount of inertia used in VSG be matched in same its existing amount in conventional synchronous generators. Then two different strategies are suggested by using the concept of linear and binary algorithms in order to voltage and frequency drop control for active and reactive power control respectively. Power control successfully implemented using different amounts of inertia in different scenarios through MATLAB-SIMULINK

Keywords : virtual synchronous generator virtual inertia stability Distributed generator

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