Function of a New Concept of Inertia Constant in a Virtual Sync Generator for Immersion of Inertia

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Inverters used in scattered products are usually controlled by a PLL (phase closed loop) to synchronize the phase and frequency of the power system. The control of inverters in a manner similar to a real synchronous generator is proposed as the concept of "virtual synchronous generator" (VSG). The virtual inertia of a VSG is accomplished by a tool for emulating rotor inertia and frequency synchronization. In this dissertation, a new implementation of inertia was implemented using H quantity, so that the inertia used in VSG is self-consistent with a combination of inertia in combination control, can eliminate the disruption. Then, the proposed scheme was compared with previous inertial control methods. During a test, it has been shown that the use of self-consistent inertia and damping agent in different time intervals of a frequency disorder using the proposed method can improve the attenuation of a constant parameter or fixed damping, which is the shortest □t□ _s has about 0.2 S. This □t□ _s is 85/3% shorter than the constant parameter method. The proposed control scheme has been successfully implemented by the MATLAB-SIMULINK simulation tool.

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