عنوان مقاله:

Suggestion of Employing Dual-input PSS3B tabilizer in Steam Unit of Khoy CCPP to Reduce Emergency Outages

محل انتشار:

پنجمین کنفرانس نیروگاههای برق (سال: 1391)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Javad Morsali - *Electrical and Computer Eng. FacultyTabriz UniversityTabriz, Iran*

Hossein Morsali - *Khoy Combined Cycle Power PlantW. A. Elect. Power Gen. Mang. Co.Khoy- Iran*

Rasool Kazemzadeh - *Electrical Engineering DepartmentSahand University of TechnologyTabriz, Iran*

خلاصه مقاله:

In order to obtain a reliable power plant, it is valuable to investigate ways of improving its overall stability. Regarding strategic situation of Khoy CCPP from aspects of participation in supplying important zonal and international substations, furthermore, regarding this point that existing steam unit lacks any omplementary stabilizer, it seems to be necessary to equip the unit (which is vulnerable to disturbances) with a high-performance stabilizer such as PSS3B to decrease risk of suddenly trips. Current paper engages in robust coordinated design of PSS3B and AVR of Siemens RG3 excitation which itself is simulated according to IEEE AC7B excitation. PSS3B can be employed as an add-on to retrofit excitation systems in refurbishment programs. Our coordinated design problem based on state space model is focused on concurrent adjustment of tunable parameters of PSS3B-AVR controllers utilizing PSO technique according to an eigenvalue-based cost function. To validate the robustness and effectiveness of recommended controllers, eigenvalue analysis and time domain simulations in MATLAB/Simulink are carried out for different operating conditions and perturbations. The results show that outstanding improvement is obtained in overall stability of steam unit leads to reduce emergency outages and solve unit generation limits by considering PSS3B-AVR controllers with effective parameters

کلمات کلیدی:

rotating-diodes brushless excitation system RG3;IEEE type AC7B excitation; PSS3B - AVR coordination; PSO;steam unit overall stability improvement