Power Oscillation Damping with Optimal Unified Power Flow Controller (OUPFC) Devices

Pantea Avazpour[1], A. Lashkar Ara[2]

1-MSc Student in Electrical Engineering, Dezful Branch, Islamic Azad University, Dezful, Iran, pantea_avazpour@gmail.com
2- Dezful Branch, Islamic Azad University, Dezful, Iran, lashkarara@iust.ac.ir

Abstract:

In this paper a new Lyapunov–based controller for optimal unified power flow controller (OUPFC) is introduced. The Lyapunov energy function is used to mitigate power oscillation damping in power systems by using local control parameters.The OUPFC is a hybrid FACTS device which is constructed by combination of a UPFC and a PST. The considered energy function is derived by using a power injection model of series FACTS in a preserving structure model. In order to have a comparison between UPFC and OUPFC, simulations of both controllers are done on MATLAB – simpower. Transientstability improvementsshown in simulation resultsaresign of capabilities of OUPFC.

keywords : Phase Shifting Transformer, Optimal Unified Power Flow Controller, Lyapunov Energy Function, Unified Power Flow Controller

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