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MODELING OF IPFC WITH-OUT COMMON DC LINK FOR POWER FLOW CONTROL IN 3-PHASE LINE

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Abstract

The Seperated IPFC presented is a new concept for a FACTS device. The S-IPFC is an adapted version of the IPFC, which eliminates the common DC link of the IPFC and enable the separate installation of the converters. Without location constrain, more power lines can be equipped with the S-IPFC, which gives more control capability of the power flow control. Instead of the common dc link, the exchange active power between the converters is through the same ac transmission line at 3rd harmonic frequency. Every converter has its own dc capacitor to provide the dc voltage. This paper presents the basis theory of the S-IPFC, steady state analysis, primary control loop and the corresponding simulation results. It is derived from the IPFC, an possesses all the control capability of the IPFC. The 'master' converter can adjust the voltage magnitude, transmission angle, and line impedance. The 'slave' converter provides the active power for 'master' converter, and at the same time adjusts its own line reactance. The S-IPFC eliminates the common dc link of the IPFC, which enable the long range installation for converters and gives more flexibility of the IPFC

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