

CONTROL AND VALIDATION OF THE SERIES CONNECTED DGFFACTS

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ABSTRACT

A series voltage source connected between the supplier and the consumer of the electric network supports the voltage in that line. If the voltage injected by this series coupled system is likely to be controlled (mainly the angle with the current on the line), the active power which fits the load consumption can be freely matched between the network and the series device (sDGFFACTS hereinafter). Thus, the requirements for storing energy are reduced, or the time that the series connected device continues to compensate voltage is increased. The introduced power losses are the main problem of the series voltage compensation by means of electronic devices when the line current flows through it. When the series connected compensation device is injecting power, the losses can be assumed; but when compensation is not needed, since the voltage stands within the limits, then it is preferable to disconnect the series device. An interrupter is used to bypass the series connected system. The connection or disconnection actions must be carefully treated, in order to increase the durability of the device. A method to synchronously connect or disconnect the system to or from the electricity network is presented.