

Title: Distributed Control Approach for Distributed Power Flow Control

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Description:

The goal of this project is to show the benefits achieved by using Distributed Flexible AC Transmission Systems (D-FACTS) devices. These devices are capable of influencing line parameters and therefore where power flows. The main question is how to determine the optimal settings of these devices. In this project, we develop a distributed DC Corrective Security-Constrained OPF (SCOPF) for electricity networks in which the transmission lines are potentially instrumented with D-FACTS forms. Hence, in the considered SCOPF, the transmission lines' reactance along with the generators' output is considered as control variables. The objective of this SCOPF model is to obtain minimum generation cost while maintaining the system N-1 secure. The distributed approach is based on solving the equations resulting from the first order optimality conditions using innovation updates. Like this each bus is capable of updating the local variables given the input from neighboring buses.