## Economic Assessments of FACTS Devices in the European Electric Power Market

## Adrian Buergler

## Diploma these (2003)

This work deals with one aspect of the liberalization of the electricity markets. This project studies the effect of congestions on transmission costs in conjunction with FACTS devices. For this purpose two transmission pricing methods were looked at.

Modifications to these pricing methods were made to obtain a congestion cost, which acts as a market signal when line flow limitations are about to be reached. The modifications control directly the congestion costs.

A six bus network has been used to test the modified transmission pricing methods. Congestion costs could be shown shortly before a problematic line reached flow limitations. The transmission costs were distributed unevenly and the per unit transmission cost at the buses showed big differences. This per unit cost at the buses showed that the additionally introduced congestion cost works well in some cases but in some other cases is not good enough of an economic signal to handle congestions.

A final investigation showed that changing network parameters influences greatly transmission costs and congestion costs which result in a great sensitivity for the economic signals returned to the market.