

Power system security in multi-area power systems

Dr. Olly Makela

18.12.2015

Time: 11:00

Location: Room R7, Montefiore Institute (B28), ULg

This talk discusses the power system security in multi-area power systems taking the future challenges into account. Firstly, a challenge rises from fluctuating in-feed sources like wind and PV. This is due to a fact that in the planning there is uncertainty regarding the in-feed at the moment of supply and this calls for probabilistic methods. Secondly, another challenge is the multi-area nature of power systems. As the electricity market has been liberalised, the trading of electricity across borders of control areas has increased significantly. This development requires that actions of control areas have to be coordinated, and one good option for the coordination is to use a centralised approach. The centralised approach, however, requires methods to solve large-scale optimisation problems which might be very difficult to solve with existing methods in an appropriate time. This talk discusses LP-relaxations and distributed optimisation techniques that enable solving of large-scale optimisation problems in the context of multi-area power systems arising from the use of the centralised coordination.