

**The 13th International Workshop on Electric Power Control Centers
Bled, Slovenia, May 17-20, 2015**

**PMU-based Wide-Area Protection-System. - Concept and application in a
large longitudinal transmission system**

**Prof. Reiner Krebs,
Siemens AG**

Abstract

In the last ten years, PMUs play an important role for the on-line monitoring and analysis of the state of the electrical systems. Combining PMU measurement, model based DSA simulations and SCADA enables to enact a wide area protection and control (WAPC) arming and disarming pre-calculated system integrity schemes. In this WAPC a multi-dimensional decision matrix is installed, which decides about the best system integrity scheme for the current system situation and in case a major disturbance takes place the most suitable countermeasure can be activated. For a large longitudinal 500 kV system the concept will be described and applied. Using the PMU/DSA based WAPC system the necessary load shedding (system integrity scheme) can be selected to adapt the power balance depending on the actual power flow and location of the fault.