Synchronized Phasor Measurements of a Power System Event in Eastern Denmark

Two sets of synchronized phasor measurements 200 km apart have been performed during a planned outage of a double 400-kV tie-line between Eastern Denmark and Southern Sweden. The interconnection between Eastern Denmark and Southern Sweden comprises of a double 400-kV line and a double 132-kV line. The outage of the 400-kV tie-line weakened the Eastern Danish power system and excited power oscillations in the interconnected power systems. During this event prototype Phasor Measurements Units (PMU) gave the opportunity of realtime monitoring of positive sequence voltage and current phasors using satellite-based Global Positioning System (GPS). Comparisons between real-time recordings and results from dynamic simulations with PSS/E are presented. The main features from the simulation analysis are successfully verified by means of the corresponding synchronized phasor measurements.

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