

SIMULATOR BASED OPERATOR TRAINING FOR POWER SYSTEMS WITH LARGE SCALE WIND GENERATION

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ABSTRACT

Based on an existing Operator Training Simulator (OTS) for power systems, a comprehensive environment for training the impacts of Distributed Generation (DG) on power system operation was developed. The simulation capabilities include both the control centre views of large interconnected systems with a growing number of distributed – especially wind – generators, as well as of remote DG based power systems. The DG modelling concept provides component blocks which can arbitrarily be combined to individual DG plant configurations, aggregated if applicable (e.g., wind parks), and integrated into the OTS environment. For training purposes the OTS is set up with the given power system, comprising all entities involved such as control centres of regarded and interconnected power systems as well as control of power production including DG if applicable. Thus, operational realism of high fidelity is achieved in the training sessions, including the interactions and communications between operators of the particular entities. Training is supervised from the trainer's desk, allowing to invoke accidental events (e.g. system failures, sudden gusts or wind speed change); appropriate design of training courses gets the operators solidly acquainted with the newly arising operational tasks and gives them hands-on knowledge and experience especially in operating power systems highly penetrated with wind generation.