

System Restoration Navigator Integrated with Operator Training Simulator

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Abstract

System operators and planners develop and implement restoration plans based on off-line simulation studies, and accumulated experience and knowledge. One of the challenges in developing a restoration plan is to sift through numerous possible restoration scenarios and paths, in order to identify those that are technically feasible. And, when implementing a restoration plan in an on-line environment following a blackout, the operators need to adapt to the actual outage scenarios and available resources, and be constantly mindful of anticipated voltage and frequency excursions that must remain within system and equipment tolerances. In recognition of these challenges, EPRI has developed the System Restoration Navigator (SRN), which is a decision support tool for operators and planners to develop, evaluate, revise and implement system restoration plans. In 2014, EPRI developed SRN version 3.0, which is designed to facilitate its integration into a commercial operator training simulator (OTS) (AKA a digital training simulator, DTS). The integration of SRN 3.0 with an OTS allows operators to obtain experience in simulating, developing, experimenting with and revising system restoration plans, and to address related NERC standards. The integration expands the usability of SRN 3.0 by providing the OTS platform for training purposes and for the purpose of interfacing SRN 3.0 with operational power system models to be able to explore near real time application of SRN 3.0. This 2014 development work also included the integration of SRN 3.0 into EPRI OTS, and its application on the Florida Reliability Coordinating Council (FRCC) power system. An account of development of SRN 3.0, its integration into EPRI OTS and its application to FRCC system is presented in this technical paper.