

Abstract

With the higher grid dynamics and increasing power system control complexity, advanced distribution automation system should be deployed to ensure the normal operation of the system. This thesis tries to complete a feasibility study on using Petri Net theory for modeling and analyzing the distribution automation system. The flexibility of SCPN and STPN is illustrated by a detailed study on the 6 major use cases at the MV level of IDE4L in component level and function level. The performance comparison of different architectures and protection approaches verify the advantages and necessity of the IDE4L system and the possibility of improvement. The analysis method can also be implemented in other system architecture.