

The Situation and Future of the Technology for IEC 61850 based Substation Automation System in Korea.

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Abstract

Recently, the development and field application of technologies related to digital substation have been rapidly expanding worldwide. Digital substations are built largely on IEC 61850 standards that define the Communication Networks and Systems for power utility automation technology. IEC 61850 define logical node on analog signals of substation facilities and provide communication services for data exchange as international standards. For the functional characteristics of IEC 61850, the standards can provide interoperability between the electronic devices (IEDs) for protection, monitoring, metering, control and automation in substations. The Korea Electric Power Corporation(KEPCO) started building a digital substation based on the IEC standard in 2013 and now operates about 30 digital substation facilities. Digital substations have the advantages of self-monitoring and improvement in reliability. Also, all the objects within digital substation are standardized and defined along to the power system context. In this paper, we will first introduce a core overview of IEC 61850 standards, their advantages and disadvantages in applying them, and the operational status in KEPCO. In addition, we will review the research and development status of KEPCO and present future plans for the development and construction of IEC 61850 based digital substation automation system.