

Distribution Automation Tutorial

The concept of distribution automation dates back to the 70's. The main motivation was to use evolving computer and communications technology to improve operating performance of distribution systems. Initially, a few small pilot projects were implemented by a few utilities to test the concept. In the 80's, we saw several major pilot projects. By the 90's the technology had matured and that resulted in several large and many small projects at various utilities. It was expected that most of the utilities would embark on large-scale distribution automation. However, many utilities found it difficult to justify distribution automation based on hard cost-benefit numbers. Business uncertainties due to deregulation and restructuring of the power industry slowed implementation of distribution automation. Now, there is renewed interest in distribution automation due to emergence of new technologies, specifically new measuring devices and sensors, more powerful and refined communication equipment, highly advanced computing equipment, advanced power electronics equipment, and new control and protection ideas.

The Distribution Automation Working Group offered tutorials on Distribution Automation in 1988 and in 1998. The technology has changed significantly since 1998 and thus this tutorial will cover the latest technology related to distribution automation. Specific topics will include distribution automation functions, communication systems, technical/operation benefits, economic evaluation methods and case studies.

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