

Superconductivity Application for Electric Power Industry

전력산업에 기여하는 초전도 응용 기술

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Korea Electric Power corporation (KEPCO), the sole electric power utility in Korea, is facing the most drastic reform in its whole history. Since established in 1961 KEPCO has been a government-owned utility company and maintained practically exclusive rights to generate, transmit, and distribute electricity in Korea. According to the world-wide trend of deregulation in the utility business, the competition will be introduced in the electric power industry from the latter part of this year. First, the hydro and thermal power generation sectors will be separated from KEPCO and divided into several independent power generation companies that are to be privatized later on. Next, the distribution sector will be divided and privatized in years, leaving the transmission sector only for KEPCO. Under these circumstances it is most urgent that KEPCO and other power industries should sharpen the competitive edge of technology to maintain the technological superiority in supplying high quality electricity at low price in the electricity market. In this report we will present an analysis on the environmental changes in R&D policies in KEPCO. Then, we will review the result of previous R&D projects in superconductivity application, and see the current status of superconductivity application projects for fault current limiters, copper-sheath BSCCO wires, and flywheel energy storage, and so on. In addition, the future strategies to implement superconducting power machines such as HTS cables and transformers in the transmission system will be briefly described.