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## Realization of 1000kV Substation Equipment

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<< Abstract >>

While the new power plants will tend to be located in remote places in Japan, 1000kV transmission systems are planned to realize in the future. To prepare for 1000kV systems, Tokyo Electric Power Company (TEPCO) has started a development and field verification project for 1000kV-substation equipment. Full-scale field verification test plant "Shin-Haruna Substation" had been constructed for this purpose. A three-phase of 1000kV-3000MVA power transformer bank and one bay of 1000kV-8000A Gas-Insulated Switchgear (GIS) with control and protection system were developed and installed by Toshiba and other parties in the Substation. Various innovative technologies are being used for each equipment.

TEPCO has been conducting various field verification tests using these facilities. Rated voltage is being applied and three-phase continuous current up to 10,000A is being conducted. Artificial transients are being generated, and seasonal or long-term changes, if any, in the characteristics through the year have been verified. Various characteristics of the equipment have been measured periodically and/or continuously in the field. More than six years have passed since the field tests have started, and the operation has been quite satisfactory. This experience is considered valuable and applicable to realize the equipment for commercial 1000kV substation.