

**Evaluation of the Deterioration of Sub-Station Equipment
by Condition Monitoring Devices**

Masataka AKAGI Hiroki TANAKA Tsurugi YOSHII Tomoyoshi USHIOGI

In order to prevent equipment damage and to extend equipment lifetime, the early detection of the deterioration is necessary in Sub-Stations. So, we developed three kinds of condition monitoring systems. First, the volatiles released from the insulator of power feeding cables during overheating can be detected by a gas condition sensor. Second, the mechanical damage of manipulation devices in circuit breakers can be detected by a piezo-electric vibration sensor. Third, the partial electric discharge of insulators can be detected by a wall surface voltage sensor. In addition, we developed a diagnostic algorithm of the deterioration of Sub-Station equipment.