

**Preparation of Abstract for
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**Development of Estimation Method for Inner Corrosion of ACSR
Applied to Overhead Transmission Line**

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Abstract

Corrosion of ACSR conductors applied to overhead lines progresses from the surface or from the inner layer. The surface corrosion is often caused by the smoke from a factory. Inner corrosion is often caused by sea salt.

In Japan, which is an island country, so many overhead transmission lines are close to the sea compared to a continental country. Therefore, approx 70% of corrosion of ACSR conductors is inner corrosion caused by sea salt. However, it is difficult to detect early inner corrosion in visual check because there is no change on the surface. Consequently, it is so difficult to estimate corrosion speed and to make long-term replace plan.

In the service area of us (Kansai Electric Power), a lot of overhead lines were constructed more than 40 years ago. We consider that the lifetime of ACSR conductors is approx 80-100 years. However, the lifetime of them near the sea is shorter. So, the amount of ACSR conductors needing replace should increase, and it becomes a very important issue to replace them taking account of both stable power supply and replace cost.

For this reason, we have developed an estimation method for an inner corrosion speed and time to replace, by analyzing the correlation between corrosion levels of the removed ACSR conductors and environmental conditions of the spot which is salinity density and humidity.

In this paper, we introduce the mechanism of ACSR inner corrosion caused by sea salt, and the estimation method for inner corrosion and time to replace of conductors.