

Introduction of AC Interference of Underground Pipelines

Jiunn-shyong Luo

*Material and Chemical Research Lab, Industrial Technology Research Institute,
Hsinchiu, Taiwan*

*E-mail address corresponding author: rolly@itri.org.tw

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In recent years, the field of underground pipelines has been concerned with determining the risk of AC-induced corrosion caused by the dual effect of AC interference and cathodic protection. Many corrosion cases showed that traditional cathodic protection (CP) criteria cannot effectively suppress AC-induced corrosion of underground pipelines. Cases of AC-induced corrosion often occur with insufficient cathodic protection or cathodic overprotection; under such circumstances, AC interference can lead to accelerated corrosion of pipelines.

Due to increasingly stringent requirements for low-carbon electricity, Taiwan has increased the effort to develop offshore wind power and low-carbon petrochemical power generation. Under these conditions, the route of high-voltage cables will overlap with underground pipelines. AC interference and corrosion of pipelines are expected to be more serious.

To evaluate pipeline integrity, it is necessary to use on-site CP survey data and power transmission parameters (such as voltage and current) to determine the risk of AC corrosion. Consequently, the power transmission data supplied by power companies is a crucial element in mitigating AC interference and corrosion, thus ensuring the long-term safety of underground pipelines.