

ANALYSIS OF TEMPERATURES AND DAILY FIELD DATA ON THE SOIL THERMAL PARAMETERS OF OPERATING CIRCUITS

Abstract

One of the most critical and least understood aspects of the thermal circuit for directly buried cables is the thermal resistivity of both the material directly adjacent to the cable, and the natural soil surrounding the circuit. These are also the components that most directly influence the current rating of the cable.

Modern technology has reduced (and is continuing to reduce) the cost of remote monitoring, providing the opportunity to monitor soil properties at specific questionable locations throughout a cable route. This paper describes the techniques developed and experience gained with remote daily measurement of in-situ soil thermal parameters, distributed temperature sensing via fibre optic cables, and finite element analysis modelling techniques.