

French feedback on civil and installation works of transmission underground cable systems

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The number of underground cable systems of long length is growing significantly at RTE - the French transmission system operator - for both HVAC and HVDC circuits.

The design and the fulfillment of a project raises various difficulties or challenges as not only the cable route selection, the mean length of elementary cable sections, the length of the civil works allotment assigned to tenderers, the skills adequacy of the contractors performing the cable unwinding and installation, but also the difficulties of acceptance by local residents, and the taking into account of environmental criteria or local employment.

The optimisation process is based on the improvement of construction yields and the reduction of the number of joint bays. Nevertheless, the inherent increase of section length must remain compatible with the control of the high voltage cables unwinding and pulling, and complying with the technical reference framework of RTE.

Solutions fit with the identified constraints and the limits of technological offers: production capacity of long cable length, drums transportation, unloading and cable pulling.

The calculation of cable pulling forces is both a key factor of optimisation and a safety feature ensuring not to exceed the permissible stress.

The authors discuss in the present paper the approach implemented in France within the recent years.