

ENVIRONNEMENTAL IMPACT OF UNDERGROUND LINKS ACROSS FIELDS

Alexandre IRLE, RTE (France), alexandre.irle@rte-france.com

Jean ISOARD, RTE (France), jean.isoard@rte-france.com

Pauline BONNEVIOT RTE (France), pauline.bonneviot@rte-france.com

ABSTRACT

RTE is building an ever increasing part of its new power lines in underground technique to meet social demand. In order to mitigate the additional cost of these new lines, RTE optimizes their length by adopting straight routes. In countryside, such a choice leads to settle underground lines straight across cropped fields.

Thanks to a long-held mutually profitable partnership, RTE started early discussions with farmers' representatives in order to reduce possible burdens to landowners. This led to:

- *Elaborate burying yard conditions that take into account farmers' constraints;*
- *Carry out a study to assess the impact of this technique on crops growing over the buried line.*

KEYWORDS

Underground links, Environnemental impact, Cooperation

INTRODUCTION

Over the past few years RTE has been building more and more of his new lines in underground technique, thus responding to the ever increasing demand of the society to lessen the visual impact of high voltage overhead power lines. As a result, a majority of new 63 – 90 kV power lines are undergrounded.

Underground lines are somehow more expensive than overhead, which led RTE to look for ways to reduce their cost. Reducing the length of the new power lines by adopting straight routes is one of these ways. Straighter route reduces both the length of cable and the number of joints. But even more beneficial is the fact that across fields, underground links can be laid straightforwardly in bare soil which allows a much faster - and cheaper- work.

In countryside, this technique will lead to building underground links across fields, which is a new matter to discuss with farmers representatives. The present paper reports on some of the arguments and facts gathered to facilitate the cooperation with the farmers' stakeholders.

TECHNIQUES USED FOR SETTLING UNDERGROUND LINKS ACROSS FIELDS

A technique ensuring to farmers a reduced work disturbance

Underground power links through fields are laid in PEHD pipes, laid in bare soil. This technique ensures quicker work, hence limiting the duration of the disturbance for farmers.

Moreover, the techniques used to lay the power lines tend to limit the soil compaction phenomenon (this

phenomenon can be harmful to plant growth).

In addition, laying underground links straight through fields rather than following existing roads reduces the traffic disturbance on the roads, thus leaving free the access to the other fields of the farmers.

Work conditions taking into account farmers' constraints

RTE has a long held partnership with farmers' stakeholders. In this general cooperation framework, both RTE and farmers' representatives agreed on particular work conditions for undergrounding power links across fields that prevent or reduce disturbances for the farmers. Among these are:

- The soil dug when opening the trench is sorted and stored next to the trench. After the work, the trench is filled with this same soil allowing a faster reconstitution of the top soil;
- To prevent soil compaction, work can be stopped if there is too much rain;
- Temporary fences are installed to prevent accident with cattle;
- In fields equipped with agricultural drains, RTE is committed to repairing those drains if they had to be cut when settling the power lines.

Any damage caused during the works is compensated, accordingly to a penalties scale negotiated at national level but with local adaptation.



Figure 1 : Settlement of an underground power link straight across a field in western France.

Replanting crops above underground links

To facilitate mutual acceptance, RTE allows farmers to plant any annual crop over its underground power lines,