



A.2.4. Développement et qualification d'une liaison sous-marine 90 kV par câbles à isolation synthétique pour l'alimentation de l'île de Guernesey

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A.2.4. Development and qualification of a submarine 90 kV cable system using extruded insulation for the electric supply of Guernsey island

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Résumé

Le projet d'alimenter l'île de GUERNESEY à partir de la FRANCE a conduit au développement d'un câble sous-marin triphasé, à isolation synthétique, destiné à être utilisé sous une tension alternative de 90 kV.

Ce câble résulte de l'assemblage de trois câbles unipolaires, recouvert d'une double armure constituée de fils d'acier.

Le câble et ses accessoires ont subi avec succès l'ensemble des essais mécaniques et électriques de qualification définis par une spécification établie pour cette liaison.

Cette technologie, faisant appel à des câbles à isolation synthétique, possède l'avantage de ne pas nécessiter de maintenance en exploitation.

Abstract

The project to supply the island of GUERNSEY from FRANCE has led to the development of a three-phase synthetic insulated submarine 90 kV a.c. cable feeder.,

This feeder was developed in 1989 and is composed of an assembly of three single-core cables, covered with a double armour consisting of steel wires.

The cable and its accessories have successfully completed all of the mechanical and electrical approval tests.

Using cables with synthetic insulation, this technology has the advantage of not requiring any maintenance in service.

1 - Context of the project

The supply of electrical energy to the island of Guernsey by submarine cables from France (see map at figure 1) has been under study since 1988. The transmission capacity of this link is required to be 50 MW.

A study has been conducted of the sea bed, the depth of which is not more than 45 metres, and of the streams which exist in this area of the English Channel. A possible route for the link has been selected, and is shown in figure 2.



Figure 1

The ability to incorporate an optical-fibre cable was also to be contemplated.

The length of the projected submarine link was to be 51.5 kilometres. It was not intended that the cable should be buried.

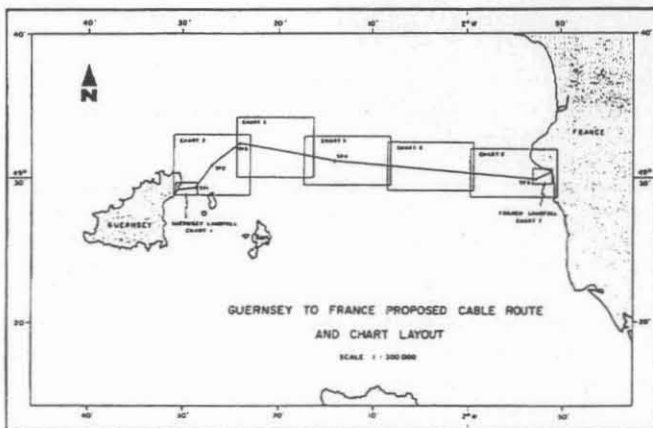


Figure 2

This electrical link can be provided by high d.c. or a.c. voltage cables. The direct-current option does not recommend itself technically, given the length of the link, and is associated with the disadvantage of requiring the construction of conversion stations.