



With the support of CIGRE  
Committee B1 : Insulated Cables

## WETS'15 QUESTIONNAIRE

World Energy Transmission System

Form N° ...

### Achievement and experience in service of long length (> 10 km), HV, EHV and UHV electrical links by AC and DC insulated power cables

The results of the surveys for WETS'05 / WETS'07 / WETS'11 are available on the  
site [jicable.org](http://jicable.org) page Workshops. See also CD Roms WETS'07 and WETS'11

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## Insulated power cables AC

### LINKS

#### 1.1 . Geographical situation of the link:

Country : \_\_\_\_\_

Area : \_\_\_\_\_MARITIME

#### 1.2 . Characteristics of the link:

Network : \_\_\_\_\_

Link name : \_\_\_\_\_

Nominal power (MW): \_\_\_\_\_

Nominal voltage (kV): \_\_\_\_\_

Link length (km) : \_\_\_\_\_

Number of circuits : \_\_\_\_\_

#### 1.3 . Characteristics of the cables:

Cable type : \_\_\_\_\_

Manufacturer(s) \_\_\_\_\_

Installation: underground (in tunnels, in ducts, in concrete, directly buried) , submarine (embedding depth, cable protections )

\_\_\_\_SUBMARINE\_\_\_\_\_

\_\_\_\_\_

Forced cooling:

Yes :  , type : \_\_\_\_\_

No :

Insulating material : \_\_\_\_\_  
polymer, paper, ò

Metallic screens  
bonding : \_\_\_\_\_

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Testing of the link  
(before  
commissioning, and  
during operation):

#### 1.4 . Is a compensation of the reactive power achieved?

Yes :

No :

Why? :

Position of the compensation :  
At the end, intermediary, Why?

#### 1.5 . Characteristics of the compensation:

Nominal  
power (Mvar) :

Technology :

Occupied space (m<sup>2</sup>):

Cost (" or US\$) :

#### 1.6 – How are considered the problems of cable integration into the system?

- Stability of voltage and frequency:
- Propagation of slow transients, resonances:
- Distribution of currents related to the different impedances

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### 1.7 . Operating results of the compensated link:

Technical and economical performances :

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### 1.8 . Publications or available documents concerning this link:

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## 2 – HV, EHV and UHV insulated power cables DC links

### 2.1 . Geographical situation of the link:

Country :  CANADA  MARITIME

Area :  Newfoundland-Nova Scotia

### 2.2 . Characteristics of the link:

Network : \_\_\_\_\_

Link name :  MARITIME LINK

Nominal power (MW):  400 \_\_\_\_\_

Nominal voltage (kV):  200 \_\_\_\_\_

Link length (km) :  175 \_\_\_\_\_

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### 2.3 . Characteristics of the cables and accessories:

Cable type : \_\_\_\_\_  
Manufacturer(s) \_\_\_\_\_  
Installation : underground (in tunnels, in ducts, in concrete, directly buried), submarine (embedding depth, cable protections )  
\_\_\_\_\_ SUBMARINE \_\_\_\_\_

Forced cooling:

Yes :  , type : \_\_\_\_\_

No :

Insulating material : Polymer, paper, \_\_\_\_\_  
PAPER \_\_\_\_\_  
\_\_\_\_\_

Characteristics of the accessories: \_\_\_\_\_  
Testing of the link (before commissioning, and during operation) : \_\_\_\_\_

### 2.4 . What are the reasons for choosing this technology?

\_\_\_\_\_ RELIABILITY \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### 2.5 – What are the difficulties of integration of the conversion station in the network and the solutions (problem of protection of the link and of the network...)?

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## 2.6 . Operating results of the link:

DC link and Converters:

\_\_\_ UNDER CONSTRUCTION

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## 2.7 . Publications or available documents concerning this link:

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## 3 – General issues concerning terrestrial or submarine insulated power cables AC or DC links

3.1 – What is the logistics of major projects and planning issues in particular in the case of tunnel (e.g., the problem of routing of large drums ...)?

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3.2 – What are the results of studies on the failure rate of these links taking into account the number of joints (elementary sections related to the capacity of drums). What is the estimated reliability of these links? What repairing solutions to reduce the duration of unavailability in case of failure?

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**3.3 – How did react suppliers in terms of availability and responsiveness to the different phases: design, supply, repair (Question for power utilities)?**

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**3.4 – Are there any diagnostic methods for assessing the health status of a submarine link of 100 km?**

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**3.5 – What are the acceptance tests for significant long length links?**

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**3.6 – What are the technical solutions to realize links with three ends?**

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**3.7 – What is estimated cost of the investment and operation of these links (the distribution of these costs to the supply, installation work and assembly / test)?**

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