CIGRE Study Committee B1

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP (1)

WG* N° B1.40	**Name of Convenor :** Christian Jensen (DENMARK) **E-mail address**: CHJ@energinet.dk
Technical Issues # (2): 9, 10	**Strategic Directions # (3): 1**
The WG applies to distribution networks (4): Yes	
Title of the Group: Offshore generation cable connections	

Scope, deliverables and proposed time schedule of the Group :

Background :

Today a lot of offshore wind farms have been built or are under construction - and even more farms are already planned. Wind farms have got the main focus, but also cable connections to other types of offshore generations will come. So at this moment there are already gathered a lot of experiences about the cables for grid connection, and a lot of that experience could in a Cigré Brochure be shared to the common benefit of the entire industry.
For a good part of the offshore projects the companies responsible for the grid connection (TSOs, turnkey park builders etc.) are first time buyers and do not have experience in purchasing submarine cable, let alone submarine cables for offshore generation, and some guidance should therefore be appreciated.
Also for the manufacturers mistakes could be avoided with a common knowledge base, and the benefit of having a well informed customer is always evident.
There is a need for guidance for asset owners, TSOs, turnkey park builders, cable manufacturers etc. about relevant studies and surveys to get permission from the authorities, the choices between technological solutions, the cable design and installation methods for cable connections to offshore generations.

Scope :

All topics shall be treated so the document can be a comprehensive guide to cables for offshore generation and interconnection. A lot of subject can be covered by references to other works, but shall be mentioned, given the very different nature of the readers.

1. Initial studies for permission, choice of technology, submarine cable characteristics, cable rating, installation, service and maintenance.
2. Export cables, inter array cables and interconnections
3. Medium and high voltage AC cables
4. HVDC cables for export cables
5. Dynamic cables for floating generation or platforms shall be mentioned

Deliverables : A standard 6 page Electra article, a technical brochure to be submitted and discussed at 2014 SC B1 meeting and a tutorial in collaboration with the TAG.

Time Schedule : start : January 2012 **Final report** : 2014

Comments from Chairmen of SCs concerned : B3, B4

Approval by Technical Committee Chairman : Klaus Fröhlich **Date** :27/02/2012

Table 1: Technical Issues of the TC project "Network of the Future" (cf. Electra 256 June 2011)

1	Active Distribution Networks resulting in bidirectional flows within distribution level and to the upstream network.
2	The application of advanced metering and resulting massive need for exchange of information.
3	The growth in the application of HVDC and power electronics at all voltage levels and its impact on power quality, system control, and system security, and standardisation.
4	The need for the development and massive installation of energy storage systems, and the impact this can have on the power system development and operation.
5	New concepts for system operation and control to take account of active customer interactions and different generation types.
6	New concepts for protection to respond to the developing grid and different characteristics of generation.
7	New concepts in planning to take into account increasing environmental constraints, and new technology solutions for active and reactive power flow control.
8	New tools for system technical performance assessment, because of new Customer, Generator and Network characteristics.
9	Increase of right of way capacity and use of overhead, underground and subsea infrastructure, and its consequence on the technical performance and reliability of the network.
10	An increasing need for keeping Stakeholders aware of the technical and commercial consequences and keeping them engaged during the development of the network of the future.

Table 2: Strategic directions of the TC (cf. Electra 249 April 2010)

1	The electrical power system of the future
2	Making the best use of the existing system
3	Focus on the environment and sustainability
4	Interactive communication with the public and with political decision maker