

A need to push forward the development
of compatible joints between different
cable manufacturers



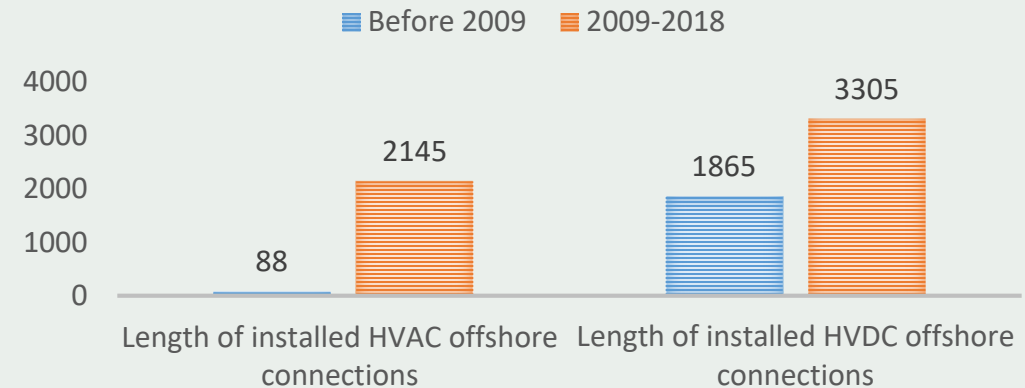
10th International Conference on Insulated Power Cables

An observation: the demand for offshore power links is booming (data for Europe)

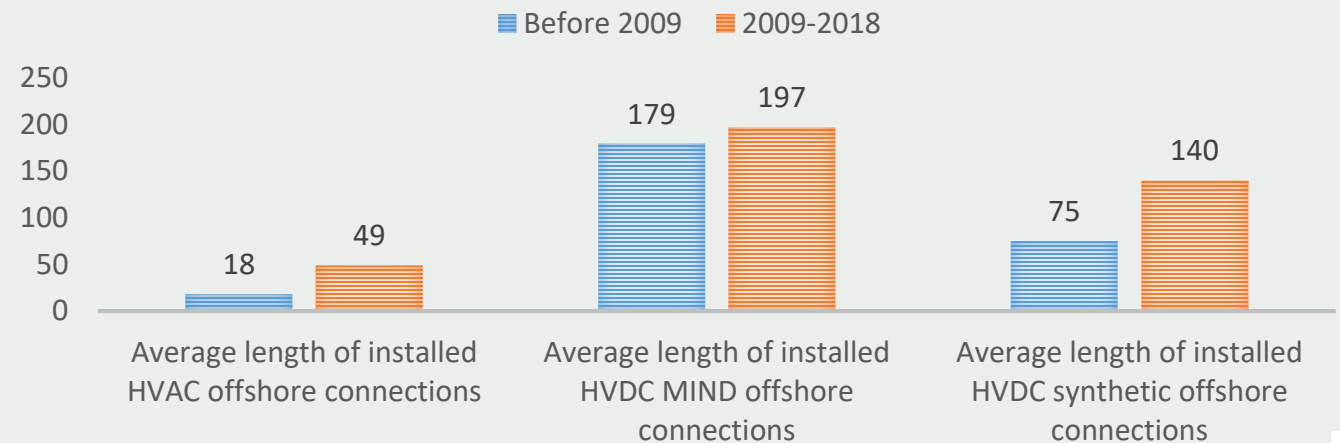
This demand is associated with:

- ❖ Installation of more offshore generation
- ❖ Capability of submarine links to withstand higher transit and higher voltages
- ❖ Increase of the average length of each link because generation is distant from the shore (AC and DC)

EVOLUTION OF INSTALLED OFFSHORE CONNECTIONS



EVOLUTION OF AVERAGE LENGTH OF INSTALLED OFFSHORE CONNECTIONS



Be prepared to face the challenges related to this growing need

Challenge N°1

- Reduce the long periods of **unavailability** of the electrical link : repair capability

Challenge N°2

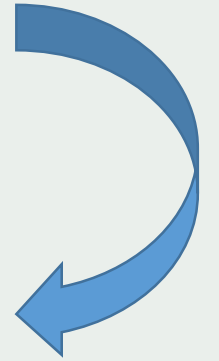
- Overcome the **limitation of production capacity** of each manufacturer : need for longer links

Outcome

- To reduce :
 - the loss of generated energy
 - the associated financial losses
 - the associated claims
- To ease:
 - the development of long interconnectors in AC and in DC

Solution

- To develop “Compatible Joints” connecting different cable designs regardless of the cable manufacturers, for repairing and building



Majors keys for the development of compatible joints for the offshore cables

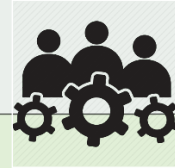
Pre-study & Development

tests



- Confidentiality
- Intellectual property issues
- Need for investigation tests
- Standardization of materials
- Design of the joints

Cable design - Operation



- Need for Cigré recommendations and IEC standard
- Compatibility of the systems
- Qualification tests
- Risk on project Schedule
- Responsibility

Maintenance



- Qualification of CJ
- Reduction of repair stock
- Reduction of repair time
- Contractual issues
- Responsibility after warranty period

Actions to be considered for the development of compatible joints for the offshore cables

- ❖ Discussion between TSO to share experience, identify opportunities to ease the development of compatible joints (ENTSO-E)
- ❖ For the new projects, TSO should ask for the development and qualification tests on compatible joints early in the Tender.
- ❖ Fill the lack of Cigré recommendations on extruded compatible joints qualification (compatibility, design...).

Conclusion

Compatible joints exist for HVAC underground cables

(One compatible joint has already been developed for HVAC offshore link)

Developing and qualifying compatible joints for AC and DC offshore links ?

YES we can !



Outcome of such development

- Capability for manufacturers to address very long link tenders**
- Lower downtime periods and loss of green generation**
- Lower stock of spare parts**

Thank you for your attention

Questions - Discussion

