Dynamo

Dynmic cable monitoring

DURATION: 26 months (2020-2023) | BUDGET: €1,304K

CONTEXT

Dynamic submarine cables, which are required to export the electricity produced by all floating ORE systems, are critical components subject to much more varied constraints than their static counterparts. Their in-service monitoring is therefore of paramount importance. **Some technologies are used for monitoring submarine cables, but they have their limitations and are not always suitable for monitoring a dynamic cable in operation.**

OBJECTIVES

- To prepare guidelines for the farm-scale deployment of in-service monitoring solutions for submarine cables
- To propose a roadmap for the development of promising in-service monitoring technologies

MAIN ACHIEVEMENTS

- Determination of the parameters reflecting the emergence of failure modes, state of the art of sensors capable of detecting a change in these parameters and promising technologies
- Acquisition of experimental data on local failure modes during electrical and mechanical test campaigns (bending, compression and tension tests)
- Application of the methodology developed for risk analysis to cases including different farm architectures and failure modes

CONCLUSION

DYNAMO has developed tools and guidelines for the deployment of a farm-scale sensor network for in-service monitoring of export and interconnection cables. These are based in particular on experimental data from electrical and mechanical tests carried out on real multi-instrumented cable sections.

TECHNOLOGIES

STAGES OF THE VALUE CHAIN

Preliminary studies | Design | O&M

OUTPUTS

- **Database** of local failure modes of dynamic cables, associated with physical parameters modified by the development of the failure
- **Analysis grid** of sensor technologies for in-service monitoring
- **Guidelines** for farm-wide deployment of a sensor network to monitor the health of interconnection and export cables
- **Roadmap** for the development of future sensor technologies

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