

# Paris Session 2022



## Fatigue analysis of installed dynamic cable system for offshore floating wind farm “Fukushima FORWARD Project”

SC B1 Insulated Cables - PS1 - Q4

K. Koyama (Japan)



Group Discussion Meeting

© CIGRE 2022

1

© CIGRE 2021

# DYNAMIC CABLE SYSTEM FOR OFFSHORE FLOATING WIND FARM

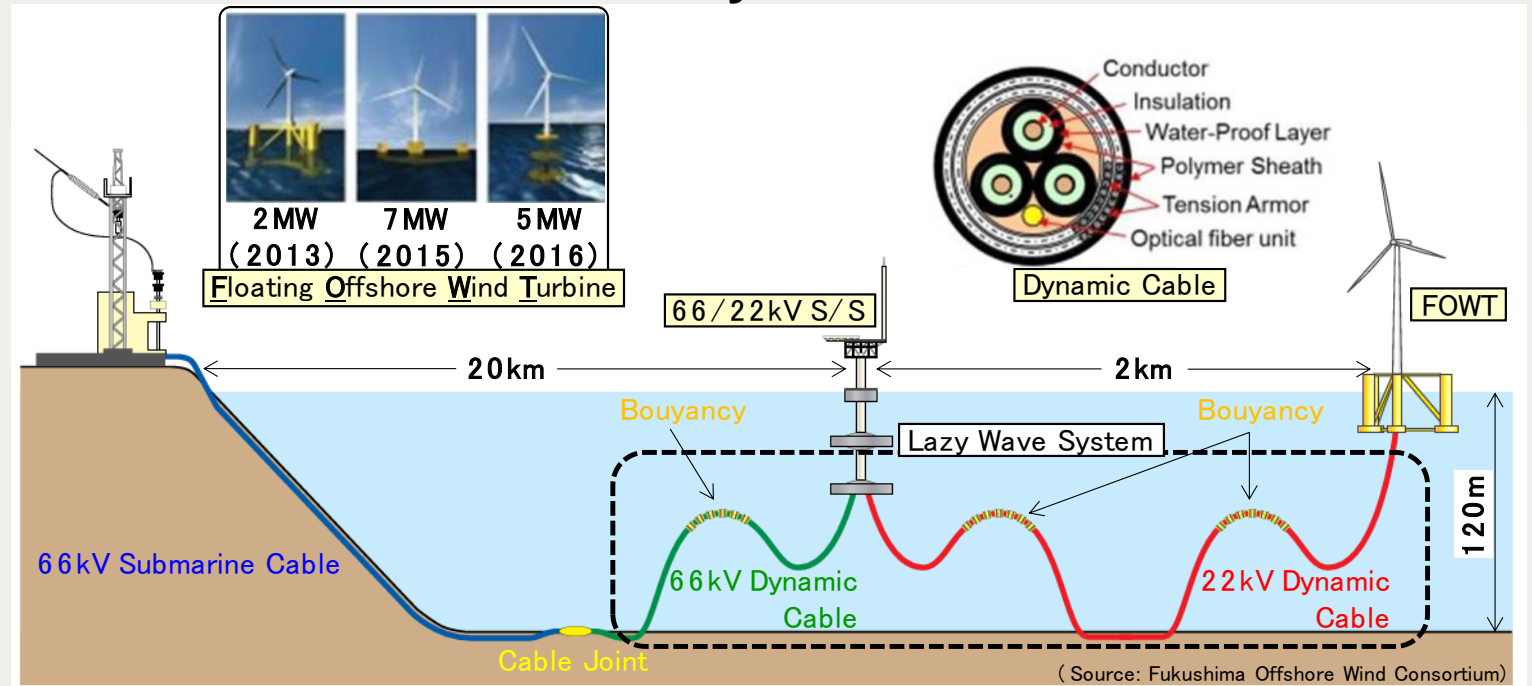
- Offshore floating wind farm facilities have been designed and constructed. Power transmission system consists of 22kV and 66kV **dynamic cables**.

- Dynamic cables and their configurations have been designed to be suitable for **dynamic marine condition** through analytic simulations and experiments.



- **Validity of the design of cable behavior** was confirmed.

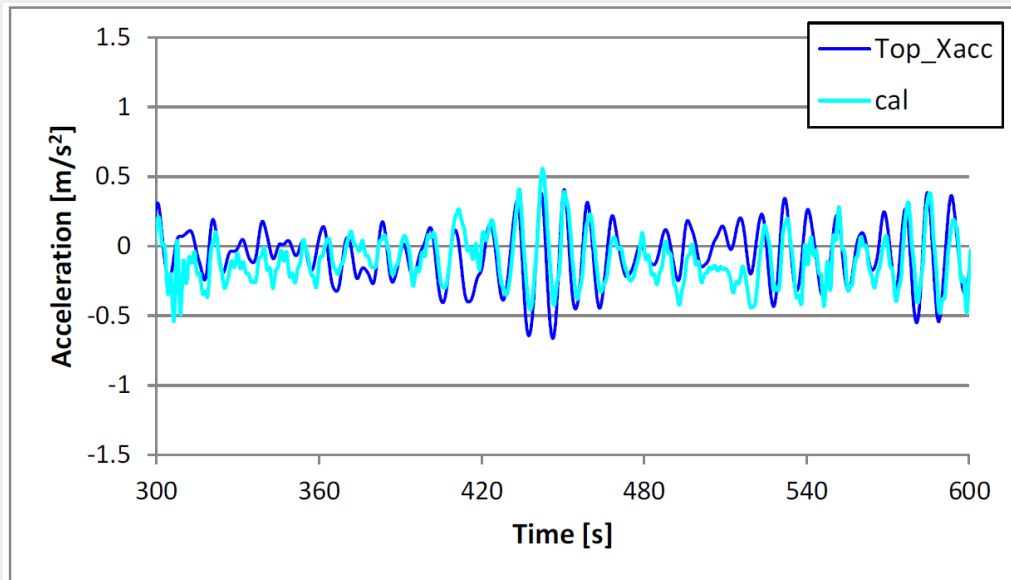
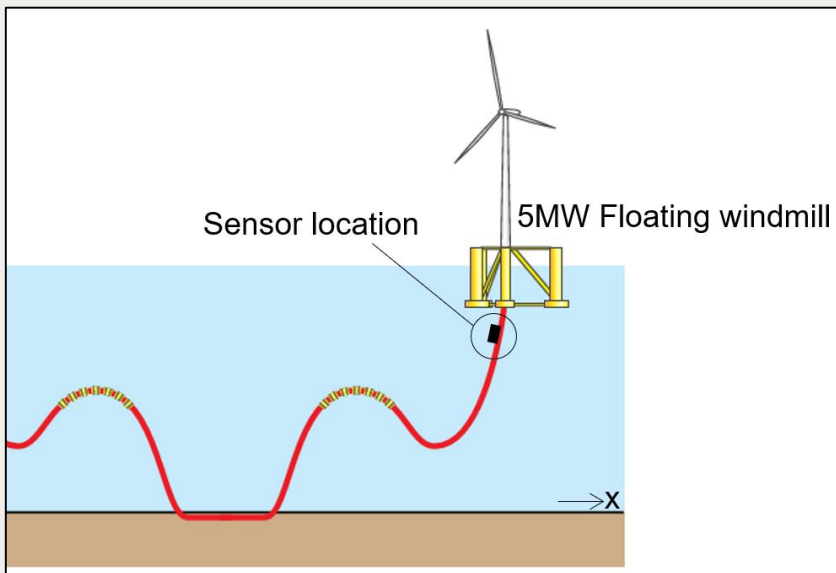
Group Discussion Meeting



# MONITORING RESULTS OF BEHAVIOR OF INSTALLED DYNAMIC CABLE

- The behavior of dynamic cable was continuously monitored throughout the operation by acceleration sensors attached on the cable.

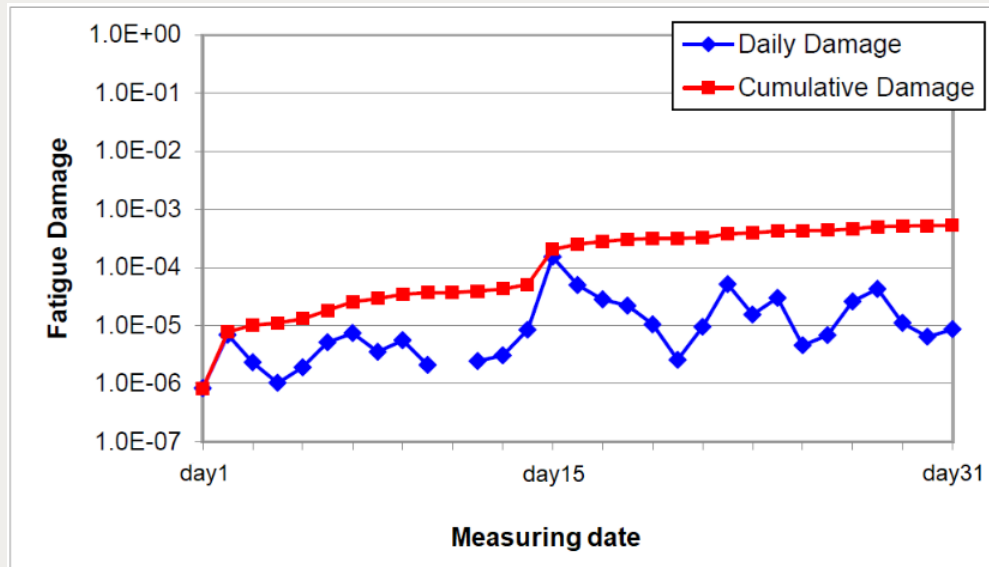
The values obtained in the field agreed well with the simulation.



Group Discussion Meeting

# FEEDBACK FROM MONITORING RESULTS

- Fatigue damage was analyzed from measurement results.



The fatigue damage indicated that dynamic cable has sufficient margin in their mechanical life time, more than 5 times the project period.

There is a possibility of optimizing the cable design by making use of behavior monitoring.

It was confirmed that the measuring of the behavior is important for the cable design improvement.