

CHALLENGE 2

Protect bolt head and nuts against corrosion after torque application



Background

Bolted connections in offshore applications are exposed to aggressive environment and need a robust corrosion protection. This corrosion protection might lose its effectivity or can be damaged over time by some impact, e.g. mechanical impact of tools. One of the original corrosion protection might be paint, which requires some effort to restore a full effective corrosion protection, once it is damaged

The Challenge

This project is asking for a tool or equipment with the following features:
Clean up a bolted connection as preparation for further application of any corrosion protection, but applied process has to ensure to reach required stage of preparation
Apply corrosion protection in a subsequent step. Process has to ensure sufficient amount and coverage of protecting material



CHALLENGE 3:

Co2 neutral Shipping for Offshore Wind – CTVs or SOVs



Background

Offshore wind energy is expected to contribute to the transition to a low carbon energy system; the estimates are that in 2050 this should amount to 60GW on the Dutch North Sea. It is clear that the ambition for offshore wind deployment in the Netherlands cannot be achieved based on the same methods and technology as today. This jump in scale creates bottlenecks related to costs, implementation rate, spatial planning, safety, ecology and the integration of large amounts of electricity in the energy system.

TKI Wind op Zee has based their Offshore Wind Innovation Program on these issues. This program covers three main themes:

1. Cost reduction and optimisation of roll out (safe and affordable scale up)
2. Integration in the energy systems (including energy conversion and storage)
3. Integration in the environment (ecology and multi-use)

The CO2 footprint of the offshore wind activities themselves are also subject of this program.

The Challenge

It is the ambition to have a CO2 free energy system. This implies that also the manufacturing, construction, operations and decommissioning of the offshore wind farms should also be CO2 neutral. Today that is not the case.

One of the elements in CO2 emissions related to the offshore wind farms during the life cycle is shipping. This includes large installation vessels as well as smaller crew transfer vessels.

This challenge aims to generate concepts for CO2 neutral shipping for offshore wind in the area of the CTVs or SOVs. We expect to see ideas for the development of these vessels that will be evaluated on CO2 footprint, cost, addressable market and time to market.

The price for this challenge is funding for a preliminary investigation into the design of the vessel. This funding is based on TKI PPP Allowance and must comply to the associated regulations. An important aspect is that this should be collaborative R&D including a Dutch knowledge institute.



Illustration: example - Ecoliner Farwind

