



Case Study : CBRA for submarine cable system

Cathie performs CBRA and burial assessment for Sofia Offshore Wind Farm.





The project

Sofia is a 1.4GW offshore wind farm situated over a 593km² site off the coast of Teesside in the North East of England, making it one of the largest offshore wind farms in the world. It represents almost £3 billion investment in the UK's electricity infrastructure and will generate enough energy to power around 1.2 million UK homes each year.

In 2018, one of Europe's leading offshore wind farm operators, *innogy* (now RWE), engaged Cathie's renown cable expertise to support with the proposed submarine cable system.

Our challenge

As one of the world's biggest offshore wind farms, situated 195km from shore, there are a range of possible obstacles and hazards that may affect the subsea cables required for this site – both within the site and exporting power back to shore. In order to ensure the security and reliability of the subsea cables, Sofia needed to understand and quantify these risks, and determine the installability of the cables.

The solution

Cathie were contracted to carry out Cable Burial Risk Assessments (CBRA) for both the array and export cable systems. We assessed seabed conditions and identified primary and secondary threats and hazards to the cable, both natural and man-made. This enabled us to break down the cable routes into sections, evaluate the overall risk to the cables in each section and provide recommendations for the best way to mitigate them.

We then worked closely with the Sofia team to determine the necessary cable burial depths to adequately mitigate the risk of cable damage for each part of each route.

Finally, based on the site conditions and hazards we identified, we also carried out a preliminary burial assessment to indicate the best cable burial techniques to achieve this burial based on the local ground conditions of each route section.

The impact

The work we carried out helped the Sofia team to understand the seabed environments across the site and the export cable route as well as how these local conditions might pose issues to the cables once they have been installed. Engaging us at an early stage meant we were able to foresee where there may be installation challenges and provide solutions to mitigate any risks. This gave the Sofia team visibility of where risks may lie and where further data would be of benefit.

As one of the lead authors of the Carbon Trust CBRA guidance, and the author of the application guide, we were able to deliver an efficient solution to Sofia which also incorporates in-house improvements to the method. Our experience across 17,000km of subsea power cable projects meant that we were able to bring a deep level of knowledge about burial tool asset performance at the construction stage, into the preliminary burial assessment.

Our work will continue throughout 2020, refining our analysis with new data, determining permissible subsea cable risk and continuing to provide unique value and insight to the Sofia Offshore Wind Farm team.