INCREASE OF OFF SHORE WIND PARKS IN CO-EXISTENCE WITH TELECOMMUNICATION SUBMARINE CABLES

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Abstract: Driven by more sensitive environmental policy and by more sceptical attitude against nuclear power, an increased demand for clean and safe energy has been noticed in the recent past. As a consequence a significant number of Off Shore Wind Parks are currently planned, especially in Europe. Since some Off Shore Wind Parks are already in service, first experiences have been made for the operators of telecommunication submarine cables. The operators of Submarine cables and the submarine cable consortia should be aware about the upcoming situation in some areas in order to save their rights. The poster intends to give an impression about the future situation of the sea bed usage in some areas. This will be mirrored with the respective ICPC Recommendations. The poster will also inform the viewer and will raise discussions about this topic.

1. INTRODUCTION

Because of environmental discussions in many countries the demand on clean and green energy is increasing significantly. Also some terrible accidents in nuclear power stations have raised the discussions about alternative energy sources. A significant number of energy wind mills have been installed in many countries on the mainland, but also the installation of Off Shore Wind Parks, especially in the North Sea is growing rapidly. The major advantages are no mutilation of landscape and the almost limitless availability of wind in that areas. But the installation of the windmills itself, the power cable connection between the windmills and the power cable connection to the main land have some influences to existing and new laid telecommunication submarine cables. In many cases, the Off Shore Wind Parks are planned and build on the routes of telecommunication submarine cables. This raises many questions about future operational possibilities for cable repair vessels in the respective areas.

2. PLANNED OFF SHORE WIND PARKS IN THE NORTH SEA AREA

The currently available information regarding planned Off Shore Wind Parks is showing, that in some countries large sea areas, mostly within the Exclusive Economic Zone (EEZ) of a country, could be covered by windmills, producing clean power. Especially in the North Sea area on the cost of Germany, Netherlands and Belgium are many Off Shore Wind Parks in the planning stage. A remarkably number of planned Off Shore Wind Parks have already permission, for others the

permission is still outstanding. But due to the economical and political circumstances the permissions are expected to be granted for those Off Shore Wind Parks in the near future. The installation is in that way, that hundreds of windmills are linked together and forming big Wind Parks with a power connection to the main land. An overview about planned Off Shore Wind Parks in the North Sea area (German EEZ) is shown in Figure 1.

Also if not all of the planned Off Shore Wind Parks will be realized in the near future, the currently existing and future build Off Shore Wind Parks will surely influence the routes of existing and new submarine cables, especially the repair scenarios will be affected.

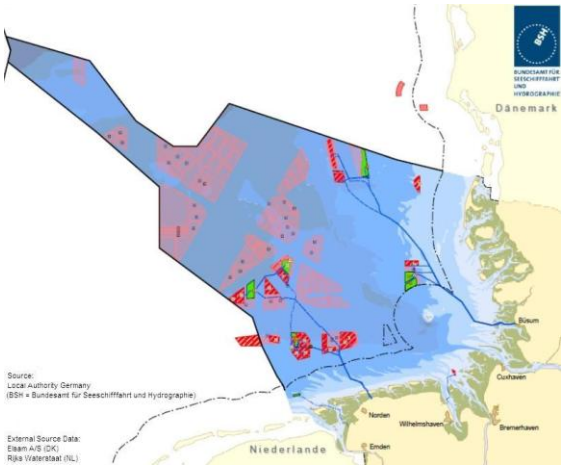

Figure 1: Planned Off Shore Wind Parks in the German EEZ

3. OFF SHORE WIND PARKS ON SUBMARINE CABLE ROUTES

The regulations concerning distance of windmills to submarine cables are varying in the different countries. The distance of windmills, but also the distance of the power cables to telecommunication submarine cables has to be taken into account. Since the permission of Off Shore Wind Parks are pure national matters of the respective countries, the mandatory safety regulations are very different. For cost reasons, Planning offices of Off Shore Wind Parks are trying to minimise the safety regulations and to transfer low levels of safety regulations from one country to the other. This may not be in interest of the operators of Telecommunication Submarine Cables.

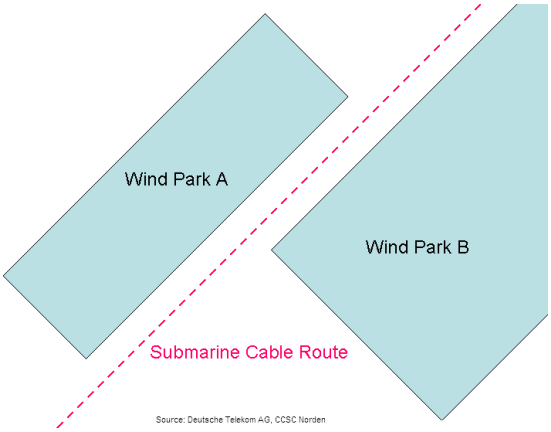

Figure 2: Planned Off Shore Wind Park on Telecommunication Submarine Cable route.

4. NATIONAL REGULATIONS VERSUS ICPC RECOMMENDATIONS

Knowing submarine cable repair scenarios with grapnel activities, ROV operations, etc, a minimum of operation range for a submarine cable repair vessel is absolutely necessary. But there are no international agreed regulations and rules concerning distances from energy windmills to telecommunication submarine cables. But the distances to energy windmills on both

sides of a submarine cable system are forming an operation and repair corridor for cable repair vessels. This minimum repair corridor is very important and should be based on a common international agreement for all submarine cable systems. For that reason the ICPC has worked out special recommendations, which are describing exactly the space requirements of a submarine cable repair vessel during a repair scenario. However, these recommendations are not mandatory to Off Shore Wind Park planning offices. It has been shown, that in some countries the distance of 250 m from a telecommunication submarine cable to an energy windmill is considered as sufficient. This would form a repair corridor of 500 m. However, the ICPC recommendation requires a minimum distances of 500 m to an energy windmill, which forms a repair corridor of 1000 m. Furthermore the ICPC recommendations are taking the water depth into account. However, the various regulations in the different countries could maybe not give a clear picture to planning offices for Off Shore Wind Parks. In worst case this could result in disadvantages for the world wide acting operators of submarine cables.

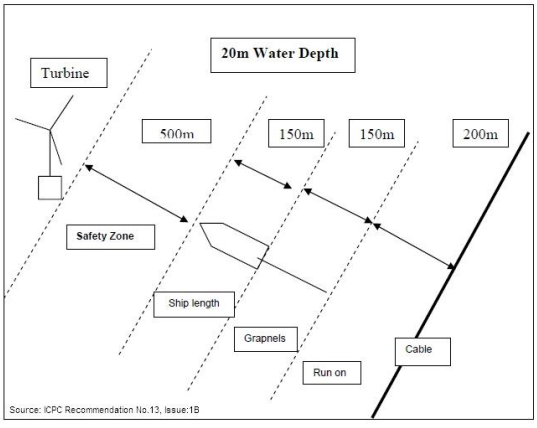

Figure 3: Example of ICPC Recommendations

5. CHALLENGES TO SUBMARINE CABLE OPERATORS

Unless Submarine cable operators are having a high degree of experience in co-operation with other seabed users, the situation with the number of upcoming Off Shore Wind Parks in some areas will be challenging in the future. In the planning phase of upcoming Off Shore Wind Parks, the Local Authorities of each country are responsible for granting the permissions. Normally all other seabed users are also involved in the approval process. The challenge in the future will be not to rely exclusively on national regulations of each country, but to combine the interests of the submarine cable consortia and also the maintenance agreements (ACMA) with the regulations of the Local Authorities. For that reason the Telecommunication operators should agree on international standards in co-operation with Off Shore Wind Park Operators. The safety specifications for the co-existence between telecommunication submarine cables and Off Shore Wind Parks are an important key- factor on that. The ideal situation would be that the ICPC recommendations, which are developed in co-operation with the maintenance agreements, would be adopted by all operators of telecommunication submarine cables. If those standards are becoming the basis for local authorities in regard to the permission of new Off Shore Wind Parks, it would be in advantage for telecommunication submarine cables in the future. Also for the Planning offices of Offshore Wind Parks it would be an advantage to have a clear picture to the safety regulations. If the operators of telecommunication submarine cables are acting with “one voice” and on basis of agreed regulations to the Off Shore Wind Park companies, they will save their rights and will avoid major problems in operation, processes

like repair and laying of telecommunication submarine cables.

6. SUMMARY

The intention of the poster is to give an overview about the ongoing activities in regard to the upcoming number of Off Shore Wind Parks in some areas. The attention will be focussed on the influence on operational processes for telecommunication submarine cables. The necessary repair corridors are visualized as well as the minimum safety distances from telecommunication submarine cables to the energy windmills. One of the other topics will be the different regulations in the different countries. Taking into account, that most of the telecommunication submarine cables are passing several countries with different local regulations, it could be important for the submarine cable consortium, to agree on standardized safety distances and repair corridors. If the submarine cable consortia could co-operate with the Off Shore Wind Park planning offices on basis of agreed standards, the requirements of the maintenance – and repair agreements could be satisfied. For that reason, the actual status of the ICPC recommendations are reflected in the poster. The telecommunication submarine cable operators will be made aware about the upcoming situation, and about the necessity to liaise with Off Shore Wind Park Operators "with one voice" on basis of the ICPC Recommendations. As a result, the planning offices of Off Shore Wind Park will have a clear understanding of the same regulations in different countries and all telecommunication submarine cable consortia.

REFERENCES

The paper is based on practical experiences from the recent past. The Competence Centre Submarine Cable of Deutsche Telekom AG has made this experiences with Off Shore Wind Park planning offices, construction companies for Off Shore Wind Parks and with Local Authorities.

Source Figure 1:
Local Authority Germany
BSH= Bundesamt für Seeschifffahrt und Hydrographie

Source Figure 2:
Competence Centre Submarine Cables, Deutsche Telekom AG

Source Figure 3:
ICPC Recommendations 27 Sep 2010

