

The SDS Study

Software and Decision Support Systems for Offshore Wind Energy Exploitation in the North Sea Region

The study identifies potentials of the application of Software (and) Decision Support (SDS) Systems in the course of the planning and realization processes of offshore wind farms in the North Sea Region. It reports on existing Decision Support Systems and software tools for on and offshore planning. An internet research, a literature research and a questionnaire was performed to get an overview on corresponding software. Gaps were identified and current demands of the offshore wind energy sector were analysed.

What is a Decision Support System

Decision Support Systems in the offshore context are designed to support the development, construction and operation of offshore wind farms. For instance, during the planning process a whole series of requirements from various fields show up (engineering, costs, financing, ecological environment, shipping, military, exclusion zones, sediment properties, accessibility ...). Those Decision Support Systems integrate various data, general information and mathematical models, in order to support problem identification and solving, optimisation and decision-taking processes.

Which Approach we followed?

As a basis for the study a survey was performed. The goal was to provide an overview of existing Decision Support Systems and individual software tools as well as to define the demand for and requirements of Decision Support Systems for the planning and implementation of offshore wind farm projects in the North Sea area. The parties addressed here were developers, planners, authorities, manufacturers, universities, financing groups etc. An internet research and a literature research on existing Software Decision Support Systems was performed. A questionnaire regarding the use of Decision Support Systems in the offshore sector and related software tools was developed and sent out to relevant parties in Western Europe. The responses were evaluated and analysed. Personal communications and supplementing researches did complement the assessment.

The result:

If you are interested in the results you might download the short or extended version of the study below. We provide also the poster presented at EWEK 2006 and the questionnaire, which was the basis for the study.

Please see the documents section for the executive summary, the EWEK Poster, the complete study and the questionnaire.

ANEMOS IDSS

An interactive Game for Offshore Wind Energy

Planning offshore wind energy projects also means to look on specific interest groups (e.g. fishermen, tourist organisations), which partly support and partly back offshore wind energy. Exchange of different approaches dealing with stakeholder interests to emphasise synergies and objectify discussions in the participating countries is one important issue in the work stream planning and participation. The interactive prototype Information and Decision Support System (IDSS) Anemos IDSS was designed considering actual decision procedures within the planning period of an offshore wind farm to be located off the German North Sea coast.

ANEMOS is primarily intended to provide an environment of experimental learning for the broad public and

interest groups. Playing ANEMOS the participants experience the complexity, insecurities, and environmental as well as social dynamics planning an offshore wind farm. Secondly, the objective is to use ANEMOS to observe, investigate and deepen the insights into societal preferences both, with respect to the offshore wind energy development in general and the evaluation of certain projects. According to these two primer goals ANEMOS is made for the broad public and interest groups (stakeholder) that are either involved in the decision making process or affected in some way by the installation of an offshore wind farm.

On this basis in ANEMOS people can slip in the two different roles of a project developer or an approval authority; the last one representing the stakeholder interests, e.g. of an environmentalist, a tourism manager or also a shipping representative and plan. Together a virtual offshore wind energy project is realised. By doing so the user will become acquainted with challenges but also synergies of offshore wind energy without the slightest effort; he will discuss the project with other online-users and will finally try to find an optimal solution - thus a project design that meets with the interests of all participants. The web-based prototype of ANEMOS is now available! Please click on the following link to play and test the IDSS.

PLAY ANEMOS

If you are interested in realising a workshop with ANEMOS, please contact the Institute for Chemistry and Biology of the Marine Environment, University of Oldenburg.
please see the documents section for the Summary of the Anemos IDSS!

ANEMOS On Board

An interactive Board Game for Offshore Wind Energy

ANEMOS has been also realised as board game: ANEMOS on Board. According to the principles of the online-version, a minimum of four players up to twelve players acting as different interest groups try to plan and realise together a virtual offshore wind energy project. This version is particularly suitable for presentation purposes and the application in schools and universities in the course of dealing with the topic offshore wind energy.

ANEMOS on Board was presented for the first time within the framework of the cultural event "Century Step 05" in Oldenburg (G) in July 2005. Thirteen people attended the interactive POWER workshop "Be once Don Quichote". Under guidance of three scientists from the Institute for Chemistry and Biology of the Marine Environment a lively as well as interesting discussion of synergies and bottlenecks of offshore wind energy arose. Not only the attendances gained fundamental knowledge regarding the decision procedure of offshore wind farms but also the developer of the game got input on how to improve the system. The results will also flow into the development of the online version of ANEMOS.

AnemosOnBoard Workshop

If you are interested in realising a workshop with ANEMOS on Board at your school or university, please contact the Institute for Chemistry and Biology of the Marine Environment, University of Oldenburg.

Responsible Organisation and Contact:

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