Offshore wind energy, opportunities and threats for regional and national socio-economic development - DE

1. Policy Objective & Theme

- ADAPTATION TO RISK: Preventing and managing natural hazards and technological (human-made) hazards
- SUSTAINABLE USE OF RESOURCES: Sound use of resources and promotion of less resource intensive processes/products
- SUSTAINABLE ECONOMIC GROWTH: Balancing economic, social, cultural development whilst enhancing environment

2. Key Approaches

- Integration
- Participation
- Knowledge-based
- Socio-economic

3. Experiences that can be exchanged

The impact of offshore wind energy development based on different scenarios are evaluated with analysis tools that have been developed for this purpose. Communication with, and input from, stakeholders ensured a good data basis for modelling the scenario's impacts. The toolbox and methods can be adjusted for other areas and circumstances.

4. Overview of the case

Offshore wind parks off the west coast of the federal state Schleswig-Holstein will have major impacts on the socio-economic development of the coastal region as well as nationwide. New chances and new conflicts arise. A stakeholder analysis including their economic, social, and political surroundings showed possible socio-political developments. Visions had been developed together with stakeholders and were used for further communication. Potential economical impacts under different wind power development scenarios (installed amount of wind power) and different regional wind power related economy development was studied for the region and the nation. The socio-economic study can serve as a tool to ease political decision making in terms of economical supports for the region development.

5. Context and Objectives

a) Context

Several wind parks are planned in the German EEZ of the North Sea. 38 applications have been handed in, 15 have been authorised. Thus, until 2030 between 20,000 and 25,000 MW power will be installed offshore, with the potential to produce about 15 % of the national annual energy consumption. The west coast of the federal state Schleswig-Holstein is a model for the impact analysis and assessment of offshore wind power development. The marine area is used by tourism, fisheries, production of raw materials, and the military, while the terrestrial area is mainly used by tourism and agriculture. The whole region of the Wadden and outer sea is protected by different conventions: the Wadden Sea is a national park, the outer sea areas are protected by Natura 2000 status. The sea area is a feeding and nursery ground for birds, fish, benthic, and pelagic invertebrates, as well as seals and harbour porpoises. Wind energy research, development, and the formation of wind energy parks have grown in economic importance. A great future is predicted for this economy under the condition of improved infrastructure and successful management to reduce intra-regional competition. Offshore wind parks offer new economic

opportunities in the alternative energy sector with regional implications for the ecosystem, and socio-economic development and with national and international relevance for the reduction of climate relevant CO2 emissions. Offshore mari-culture also arises as a new economical possibility. On the other hand, wind parks cause potential new conflicts with nature conservation, tourism, fisheries, military, shipping, and aeroplane traffic.

Frameworks for coastal and ocean conservation in the region are the OSPAR (Oslo-Paris) Convention, valid for the North East Atlantic including the North Sea, and the Trilateral Wadden Sea Plan, and the Water Framework Directive. A regional development plan for the west coast of the state Schleswig-Holstein and the county Northern Frisia has to be added to the regional development concept for the county Dithmarsche on the southwest coast. These development plans implement the ICZM approach.

b) Objectives

The aim of the case study was to evaluate the future developments of the social, political, and economical stakeholders and factors in the region. The regional perspective on employment and added value, as compared to national development, was assessed according to different scenarios of offshore wind power development and development of wind energy related economy in the region.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

The study “Socio-economical impact analysis and assessment of opportunities and threats of offshore wind energy development” was co-ordinated by GKSS-Forschungszentrum Geesthacht GmbH. together with the Science Centre for Social Research, Berlin (Wissenschaftszentrum Berlin für Sozialforschung).

b) ICZM tools

Tools for integrated impact assessment were to be applied and thus evaluated. Participation of stakeholders were aiming at identifying chances and risks in the cause of offshore wind energy development. Recommendations for action were to be developed from the impact analyses identifying option possibilities of specific stakeholders.

A stakeholder analysis depicted the positions of different stakeholders and the reasons for their positions, and the positions communicated in the media and via networks. It revealed interest conflicts and convergences, and it analysed stakeholder participation within the planning procedures for three wind parks. The stakeholder analysis was compared with statements from the local public. Landscape aestethics played a major role as public value and led to some, but not strong, opposition to offshore wind power development. Weak opposition in general went hand in hand with weak support. To increase the chances for a beneficial effect of offshore wind power it is, thus, recommended to increase information and participation at the local level. The development of a spatial planning concept for the sea was a demand of several stakeholders.
Economic models were used to calculate impacts based on different development scenarios for the region as compared to nationwide impacts. Further, the economics study analysed the conditions that are necessary for beneficial development. The predicted employment development overlaps with the social development, employment being the main driver for spatial development of social structures. General demographic developments were included in the study. Indicators developed within this sub-project were integrated into the Driver-Pressure-State-Impact-Response (DPSIR) model depending on different scenarios

7. Cost and resources

The work was financed by the German Federal Ministry for Education and Research (BMBF) in the framework of the the call for tender for “Research for a sustainable coastal management” (Forschung für ein nachhaltiges Küstenmanagement).

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The impact of offshore wind park development on future socio-economic developments based on different scenarios were

studied: stakeholders and the public participated in the process. Recommendations were developed from the analyses and with input from stakeholders: improvement of local level participation, suggestions for regional steering and options for specific stakeholders, a strong desire for spatial sea planning and specific ICZM measures. A vision was developed after presentation of the beneficial or adverse impacts of future socio-economic development. The compilation of uses and the political-administrative surroundings and the analysis of development trends provided an important basis for the development of a national ICZM strategy. The objectives were achieved in due time.

9. Success and Fail factors

For the economic scenarios, investment into wind power ended in 2030. Thus, future projections are misleading. The author stated that in reality one can expect further investment due to replacement of old engines, for example, and that this would lead to cyclic effects on the long run.

The need to develop a national ICZM strategy was in accord with the wish of stakeholders for an integration of the sea into planning procedures.

10. Unforeseen outcomes

The broad acceptance of offshore wind power development without great sectoral or vertical divergences was surprising. Environmental organisations had some objections but estimated the conflicts as resolvable. One demand was to integrate offshore wind park planning into a marine spatial planning framework.

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13. Sources

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