FACT SHEET

Societal and economic questions

Societal opportunities and success conditions for offshore wind expansion

The joint political plans of the North Sea neighbouring countries aim to develop the largest European power plant for renewable energies through extensive offshore wind expansion in the North Sea in the coming years. Germany intends to contribute to this goal by increasing its offshore wind capacity from currently just under ten gigawatts to 70 gigawatts by 2045. German offshore wind capacity is expected to triple by 2030 alone. This ambitious expansion target, pursued under considerable time pressure, raises not only many technical questions but also economic and societal questions. Resolving these issues is essential for the success of this major transformation project of the energy transition.

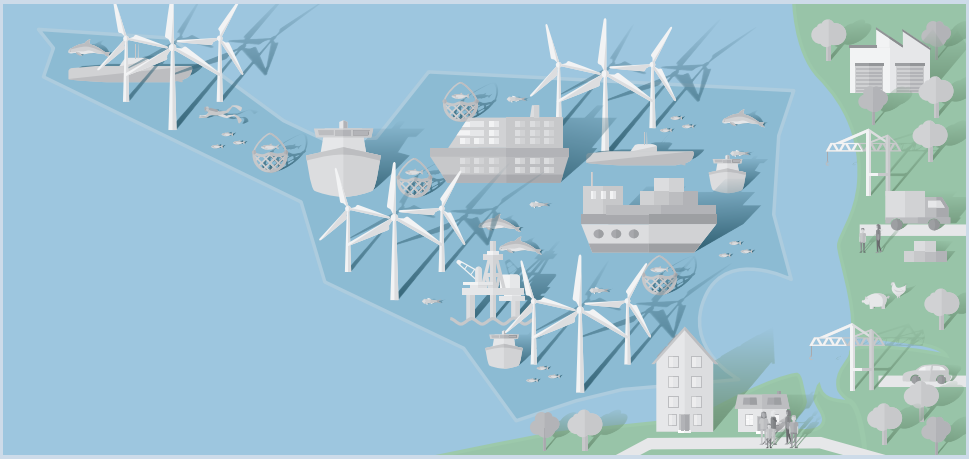
- **How are companies dealing with the challenges of offshore wind expansion?**
- **What sector-wide solutions can be developed?**

► A sector taking shape: Offshore wind energy is a young form of energy generation. The first German offshore wind farm only began operation in 2010. This points not only to numerous unresolved technological questions. The sector itself is still developing in many areas and faces major challenges due to the accelerated pace of offshore expansion. Offshore wind energy opens up a promising new market. At the same time, the young industry must develop strategies for dealing with these challenges. Extremely high investment costs involve considerable risks for companies in a dynamic political environment. Industry-wide forms of cooperation between companies are only partly emerging. Securing a skilled workforce is becoming an increasingly urgent issue across the sector.

- **What conditions are needed for successful offshore wind expansion?**
- **What obstacles exist for implementation?**

► Infrastructure requirements: Not only the sector and technology are still young; many framework conditions also need to be developed and established politically. German auctions for new wind farm areas failed in 2025, and policymakers and industry representatives are now seeking ways to reduce high investment risks and connection costs in future auctions while enabling low electricity prices. Legal requirements for the upcoming decommissioning of the first wind turbines also remain unresolved. Offshore expansion could also be slowed by insufficient investment in port infrastructure. To create the regulatory and infrastructural conditions required for successful implementation of expansion targets, policymakers must sometimes pursue new approaches.

The North Sea is a densely used area: wind farms, shipping routes, fishing grounds, military zones, tourism and nature conservation areas all require their own designated spaces. These overlapping uses create potential conflicts and negotiation processes, which are investigated by the Living Lab.



- **Which concrete challenges do municipalities and districts face, and how do they address them?**

► Industrialisation processes: The expansion of offshore wind capacity creates opportunities for parts of the coastal regions. New businesses can bring additional jobs and attract workers to the region. However, these opportunities must first be developed and made usable locally. Implementing expansion plans requires not only the development of energy, port and transport infrastructure or the establishment of companies. Other material and social infrastructures may also need to be adapted.

- **How can offshore wind expansion contribute to regional development in coastal regions?**
- **What opportunities exist for better coordination between regional development and the implementation of the energy transition?**

► Offshore wind expansion and regional development: Many regional actors see opportunities for regional industrialisation due to the high availability of renewable energy, with offshore wind energy potentially serving as an important energy source alongside others. Some regional initiatives aim to market offshore electricity landing points as a "green power outlet" for energy-intensive industries. Others see opportunities for developing hydrogen production. So far, however, these considerations and the expansion of offshore wind energy and the necessary transmission grids largely exist separately from one another.

- **How can the energy transition and nature conservation be considered together?**
- **What shared opportunities for shaping ecologically and socially focused regional development can be developed with different actors?**

► Ecological and social changes in the energy transition: Achieving ambitious expansion targets also requires increasing land use, for example for port areas or production facilities. These areas often include natural or protected areas, and their conversion creates considerable potential for conflict among different stakeholders. Expanding areas in support of the energy transition can conflict with protecting existing nature and with coastal regions' understanding of experiencing nature and near-natural recreation.

- **Which actors need to be involved in regional energy transition development and which participation approaches can be developed?**
- **Is there participation by citizens in coastal regions, and how can it be shaped?**

► Participation and co-design: Although offshore wind expansion mostly takes place in the Exclusive Economic Zone (EEZ) and therefore outside the responsibilities of coastal municipalities and districts, these regions are affected as locations for ports and production facilities, as bases for offshore wind farm activities and through the construction of necessary grid infrastructure. The question therefore arises locally of how regional actors and citizens in coastal regions can be involved in shaping development.

Within the Living Lab, these processes are investigated and supported. The aim of this innovation area is to create, together with different stakeholders, a "map" of conflict potentials, opportunities and success conditions for offshore expansion. This provides relevant practical knowledge for implementing this major energy transition project. A particular focus lies on accompanying and analysing participatory processes in the implementation of offshore expansion and the energy transition.

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