Growth Opportunities of Offshore Wind Energy and Decommissioning in the North Sea Region

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Outline

1. Why Offshore Wind matters
2. What about Decommissioning?
3. Practical Challenges
4. Conclusion
About us

• Independent economic research institute
• Main areas of research:
  • Energy and environmental economics
  • Urban and regional economics
  • International economics
  • Labour, education and demography
• Application-oriented research
• Involved in various European cooperation projects
1. Why Offshore Wind matters

- Greenhouse gas emissions must be reduced significantly
- Fossil fuels have to be substituted
- Wind energy is flourishing
- Focus on offshore energy
- Multinational industry
- Significant job effects

1. Why Offshore Wind matters

- Europe has been a frontrunner in offshore wind
- USA and Asia catching up in recent years
- Germany and UK (Europe), China, Japan, Taiwan (Asia), USA (North America) are dominating
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• ~15% of European power demand is met by wind energy
• Increase installed offshore wind energy capacity in Europe to 300GW by 2050 (Green Deal)
• At current speed 90GW until 2050 is expected

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• North Sea Region (NSR) as a focus region for offshore wind
• 62% of European installed offshore wind capacity
• Favourable conditions: high wind speeds, shallow water, mostly small waves
• High further development potential

2. What about Decommissioning?

- Offshore wind is established in the NSR
- Construction dates reflect national cycles
- Pioneers now have the oldest wind farms
- Question of decommissioning arises

2. What about Decommissioning?

- Expected lifetime of 20-25 years
- Sometimes lower lifetime
- First decommissioning projects already completed

2. What about Decommissioning?

- Two cycles of decommissioning
- Increasing numbers of wind farms qualified for decommissioning
  - ~120 in 2023
  - ~250 in 2029
  - ~1,000 in 2030

2. What about Decommissioning?

- Experience from former decommissioning projects highlight complexity
- Educational example: Vindeby wind farm in Denmark – world’s first offshore wind farm
  - Lack of documentation
  - Complicated recycling
3. Practical Challenges

- Expected decommissioning costs differ significantly
  - £40,000 per MW
  - £100,000 – £300,000 per MW
- Legal uncertainties
- Ecological questions
- How to recycle composite materials?
- Access to qualified labour force
- Availability of adequate infrastructure
4. Conclusion

- Time is running
- Prepare for decommissioning
  - Regulation
  - Processes
  - Infrastructure & qualification
- Expect the unexpected
- Make Europe a decommissioning pioneer
Thank you for your Attention!

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Decom Tools
https://northsearegion.eu/decomtools/

Market Analysis 2019
https://northsearegion.eu/media/11753/market-analysis_decomtools.pdf