

Final Symposium of the research project

SeeOff – Strategieentwicklung zum effizienten Rückbau von Offshore-Windparks

Development of efficient strategies for offshore wind farm decommissioning

March 30th 2022



SeeOff

Strategieentwicklung zum effizienten Rückbau von Offshore-Windparks

SeeOff - Strategieentwicklung zum effizienten Rückbau von Offshore Windparks

(Development of strategies for sustainable offshore wind farm decommissioning)

- **Project duration:**

- November 2018 – April 2022

- **Projekt coordination:**

City University of Applied Sciences Bremen

- Prof. Dr.-Ing. Silke Eckardt

- **Website:**

- www.seeoff.de

Supported by:



Federal Ministry
for Economic Affairs
and Climate Action

on the basis of a decision
by the German Bundestag



- 09.00** **Welcome and introduction**
(Prof. Dr.-Ing. Silke Eckardt, City University of Applied Sciences Bremen)
- 09.20** **Dismantling of offshore wind farms at sea**
(Bernd Köhler, Deutsche Windtechnik)
- 09.40** **Comminution of offshore wind farm components and recovery of materials at land**
(Dr. Sven Rausch, Nehlsen AG)
- 10.00** **Q & A Session**
- 10.20** ***Coffee Break and Networking in Lounge-Area***
- 10.35** **Economic efficiency of offshore wind farm decommissioning**
(Janina Bösche, City University of Applied Sciences Bremen)
- 10.50** **Environmental impacts of offshore wind farm decommissioning**
(Vanessa Spielmann, City University of Applied Sciences Bremen)
- 11.10** **Occupational safety of offshore wind farm decommissioning**
(Mandy Ebojie, City University of Applied Sciences Bremen)
- 11.25** **Q & A Session**
- 11.45** ***Lunch Break and Networking in virtual Lounge-Area***
- 12.15** **Bringing economic efficiency, environmental impacts and occupational safety together: Multi criteria decision making for offshore wind farm decommissioning**
(Vanessa Spielmann, City University of Applied Sciences Bremen)
- 12.30** **Public acceptance of offshore wind farm decommissioning**
(Philipp Tremer, German Offshore Wind Energy Foundation)
- 12.45** **Q & A Session**
- 13.05** ***Goodbye and subsequent Networking in Lounge-Area***
- 13.45** **Closing of conference platform**

Final Symposium of the research project *SeeOff*, March 30 th 2022



Public acceptance of offshore wind farm decommissioning

Philipp Josef Tremer

Foundation OFFSHORE WIND ENERGY

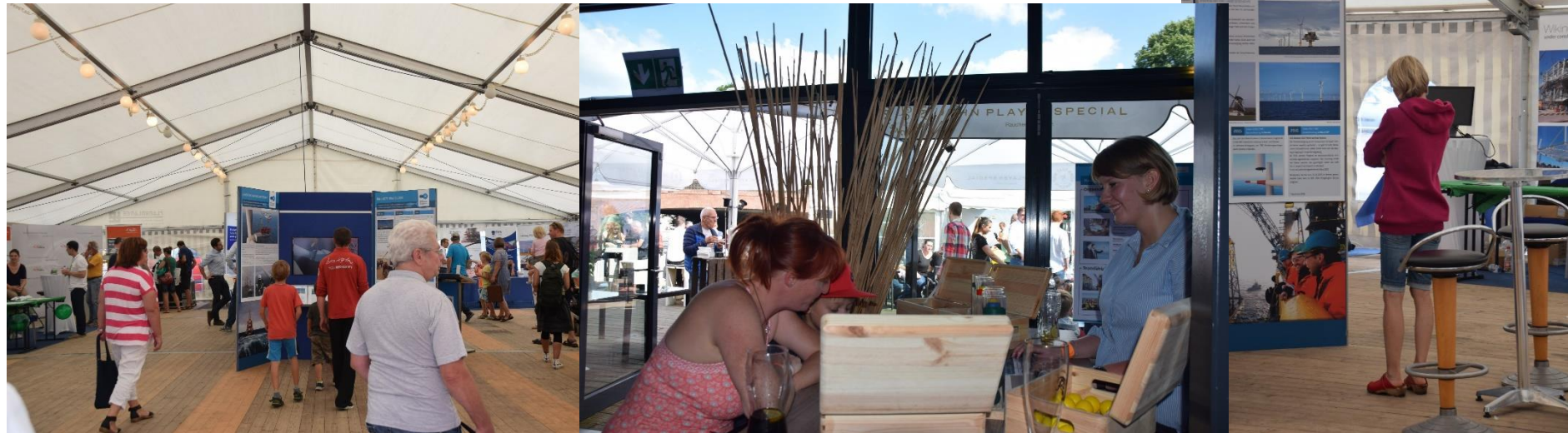


SeeOff

Strategieentwicklung zum effizienten
Rückbau von Offshore-Windparks



WHY ACCEPTANCE?



Method

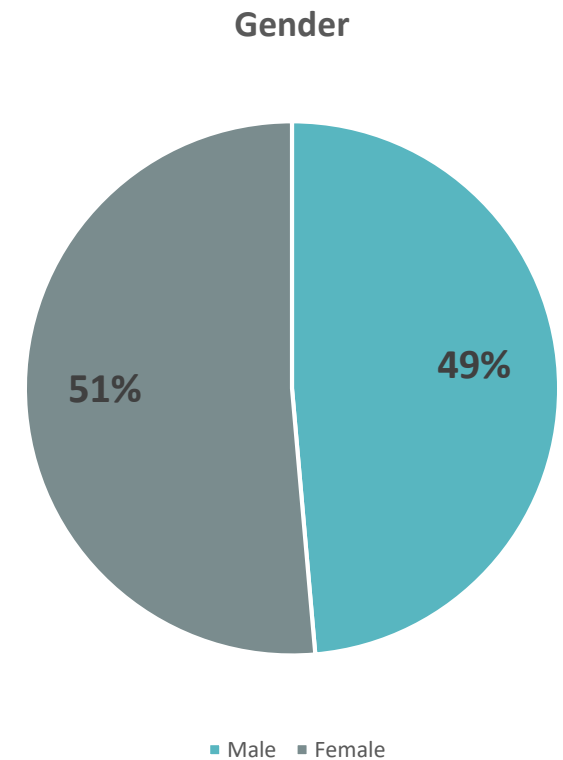
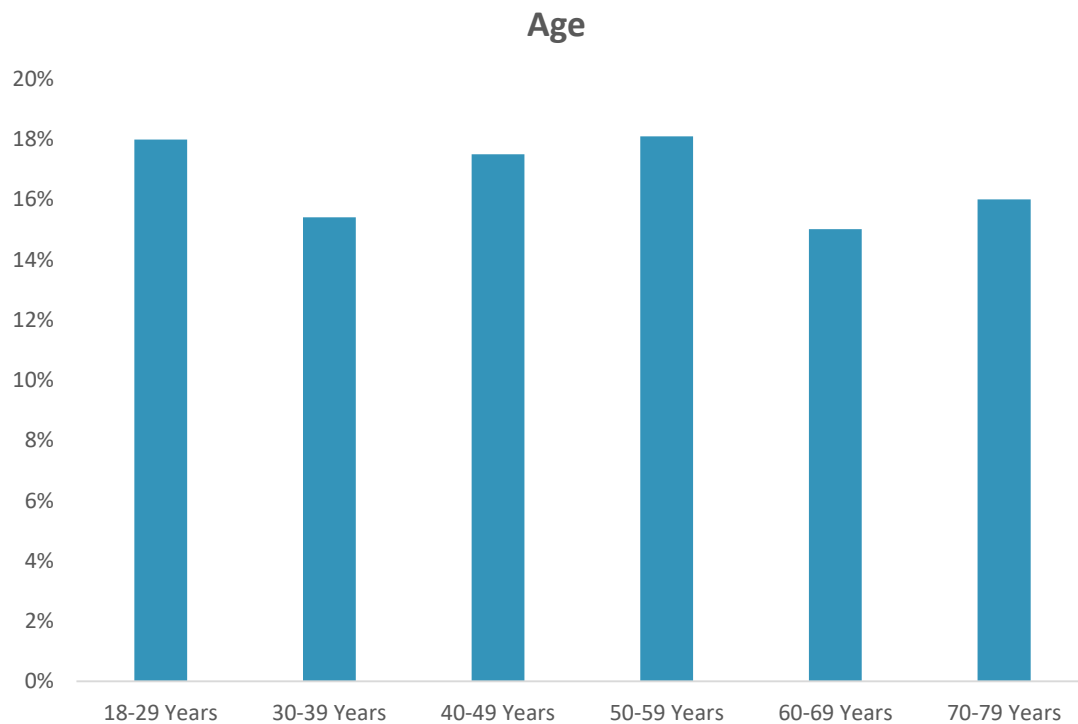
Implementation:

TREND RESEARCH Gesellschaft für Markt- und Kommunikationsforschung mbH

Table 1: Acceptance survey for the development of efficient deconstruction strategies.

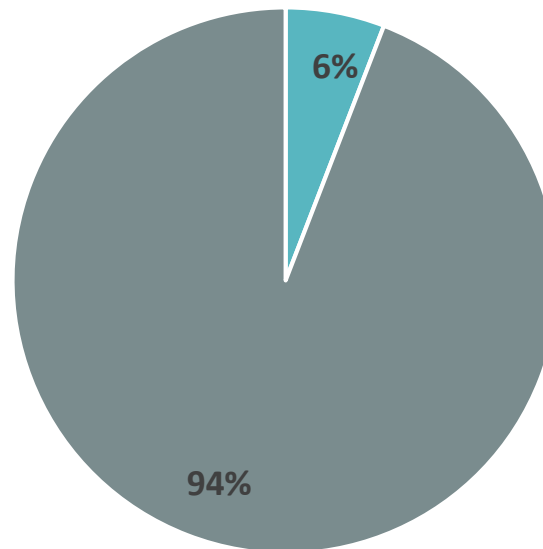
Number of cases (N)	1006
Target group (E)	Age 18 – 79
Period	07th - 14th September 2020
Method	online

Survey participants



Survey participants

Are you or is someone in your close circle of acquaintances active in offshore wind energy or have/has something to do with offshore wind energy in their profession?



■ Yes ■ No

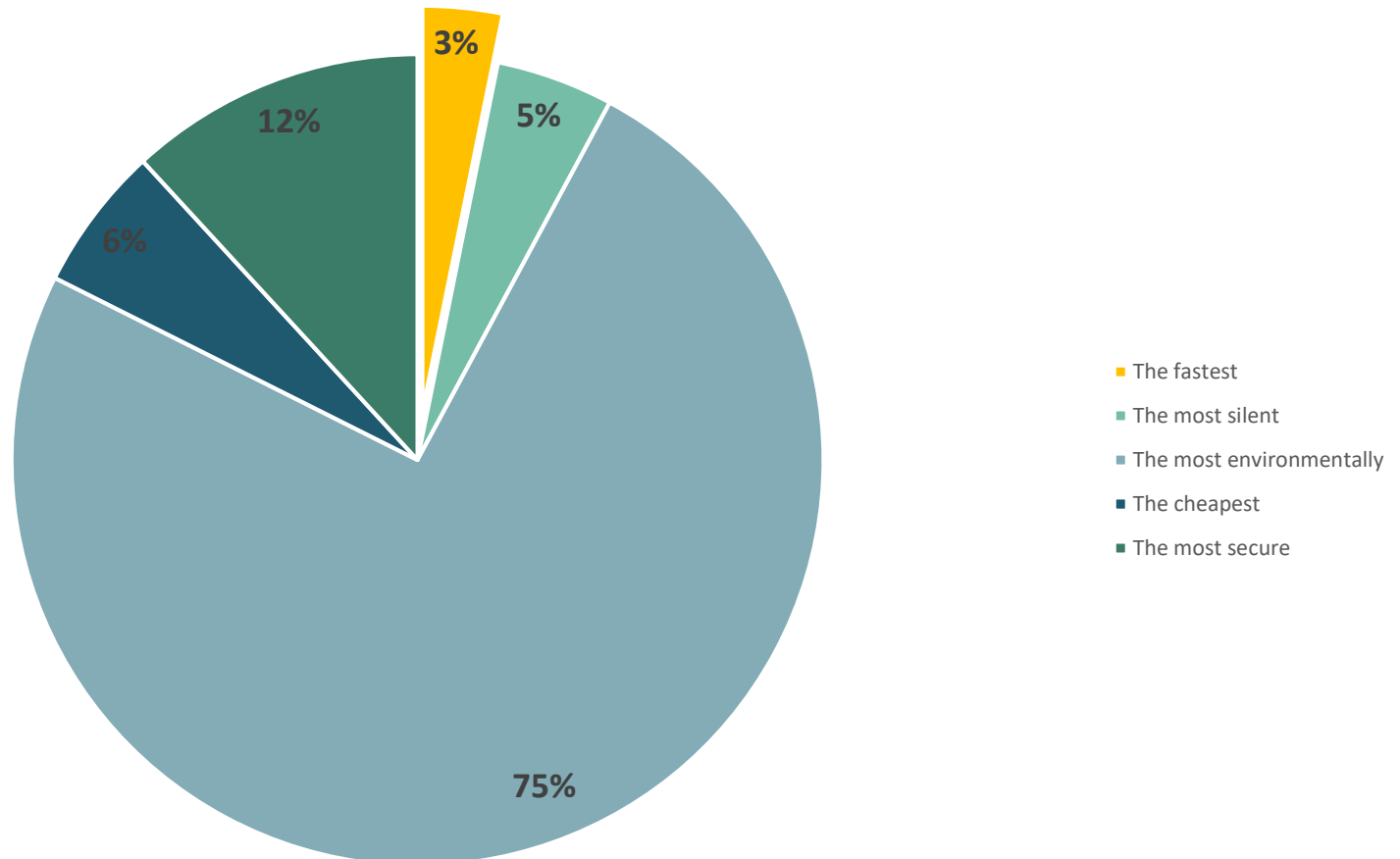
Question creation

For the development of the questionnaire, a total of six key questions were identified that are directly or indirectly affected by decommissioning.

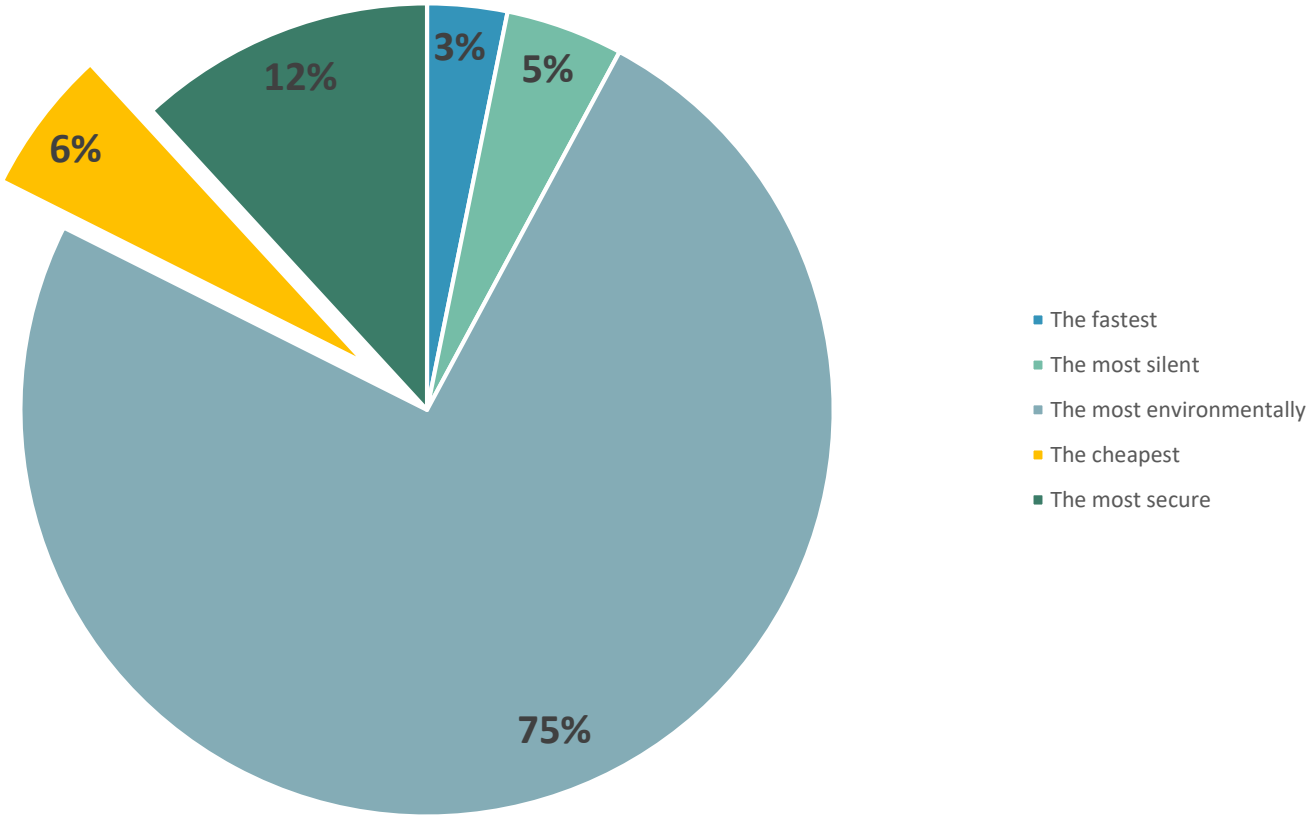
- **Time**/duration of decommissioning
- **Costs** and follow-up costs; economy / profitability of decommissioning
- **Fisheries** in conflict with decommissioning
- **CO₂ emissions** and the impact on the climate
- **Local environmental** impact / **local species** protection
- **Occupational safety** during decommissioning

RESULTS!

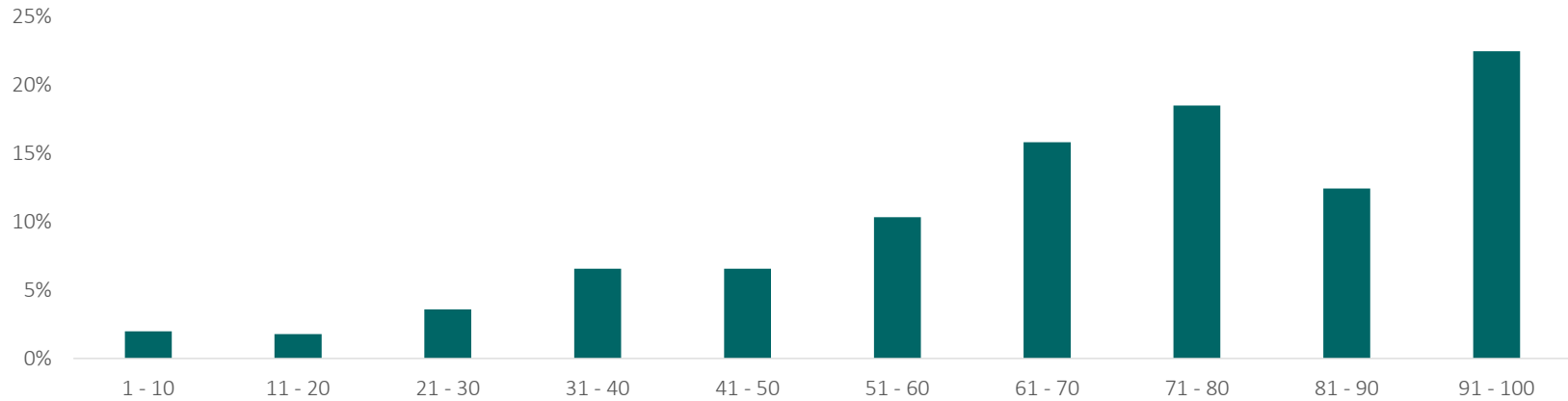
Q27: Which technology should most likely be used for the decommissioning of an offshore wind farm?



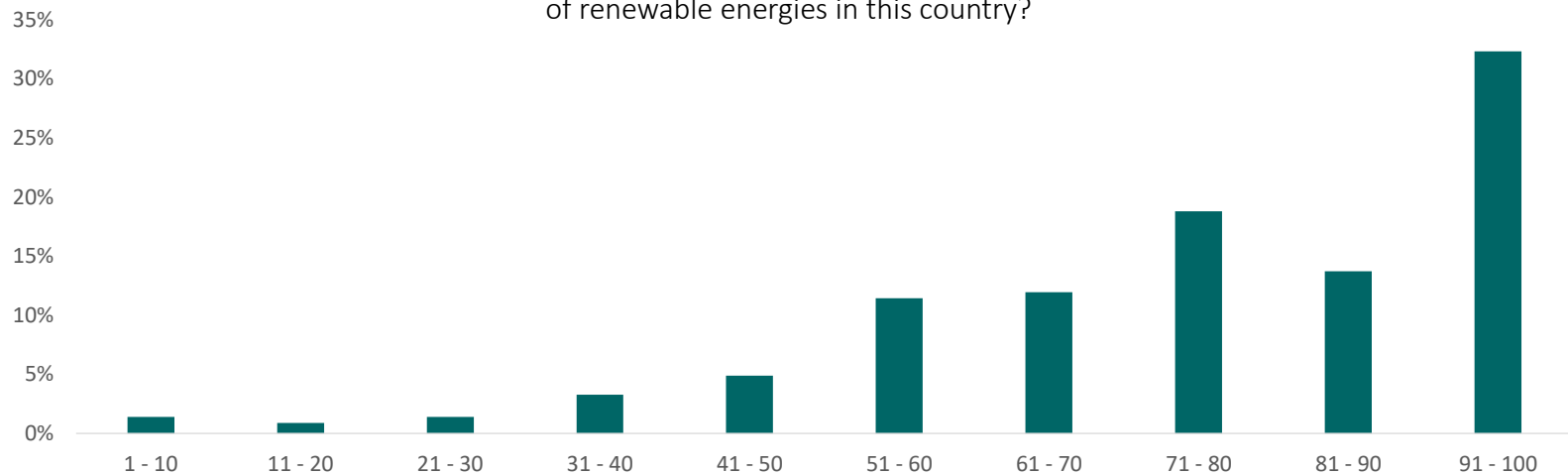
Q27: Which technology should most likely be used for the decommissioning of an offshore wind farm?



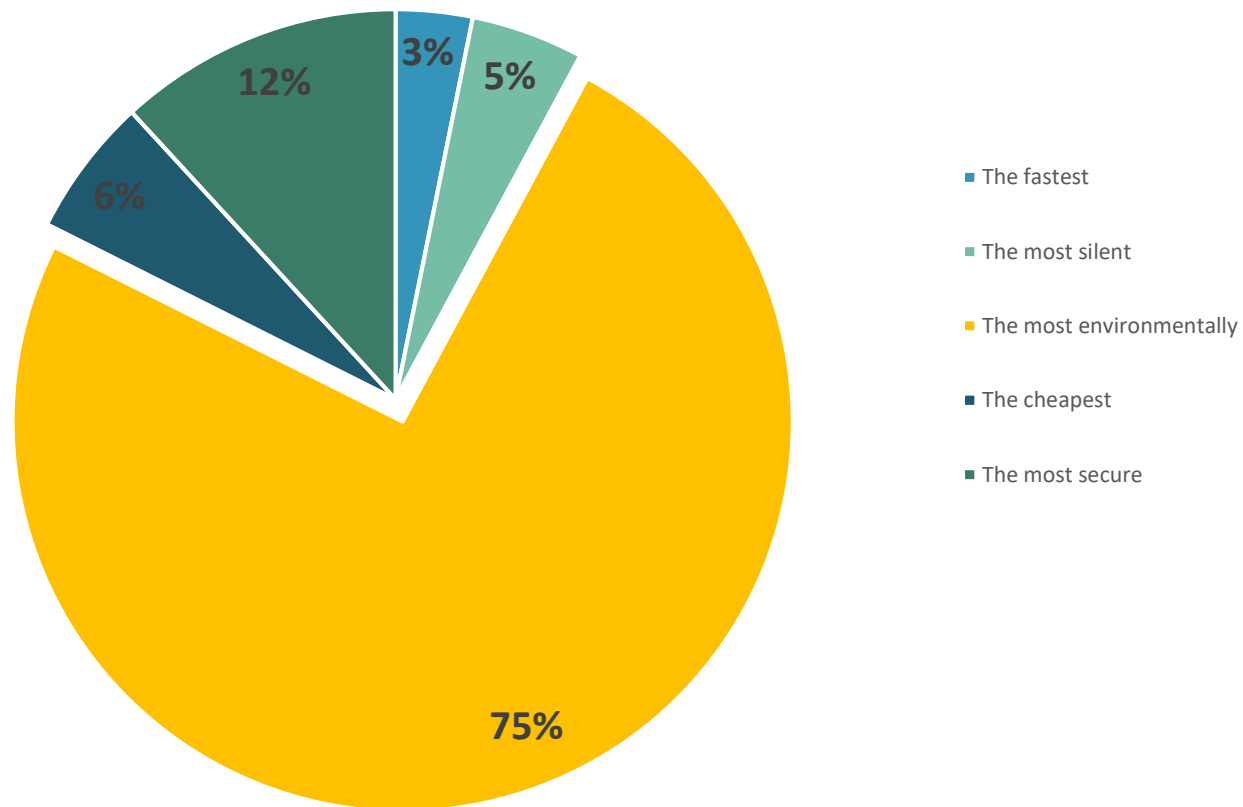
Q14: How important is it to you that the decommissioning of offshore wind turbines is as cheap as possible?



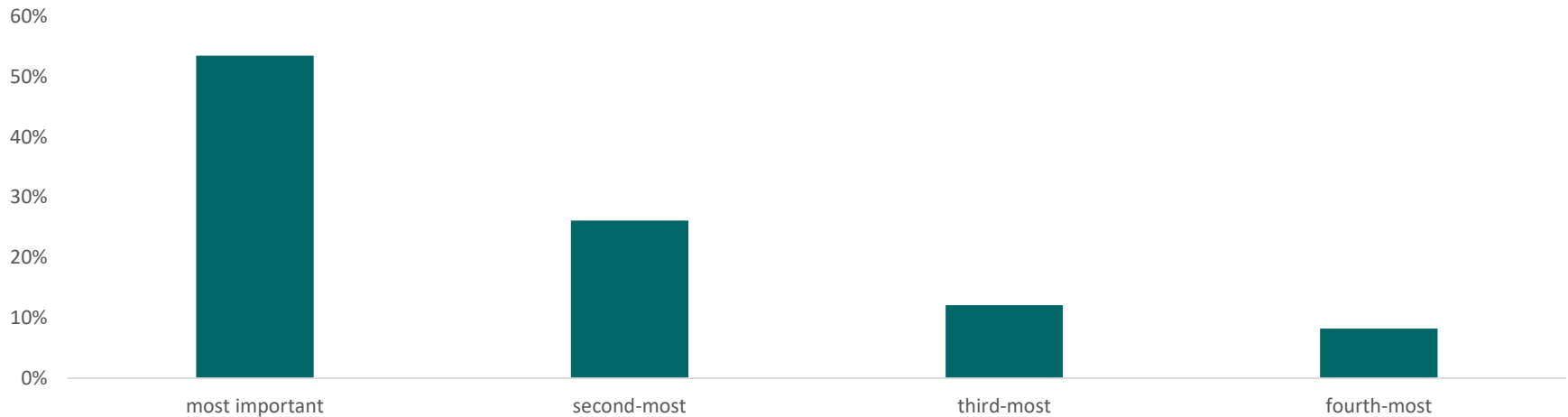
Q10: How important is it to you that German companies benefit from the expansion of renewable energies in this country?



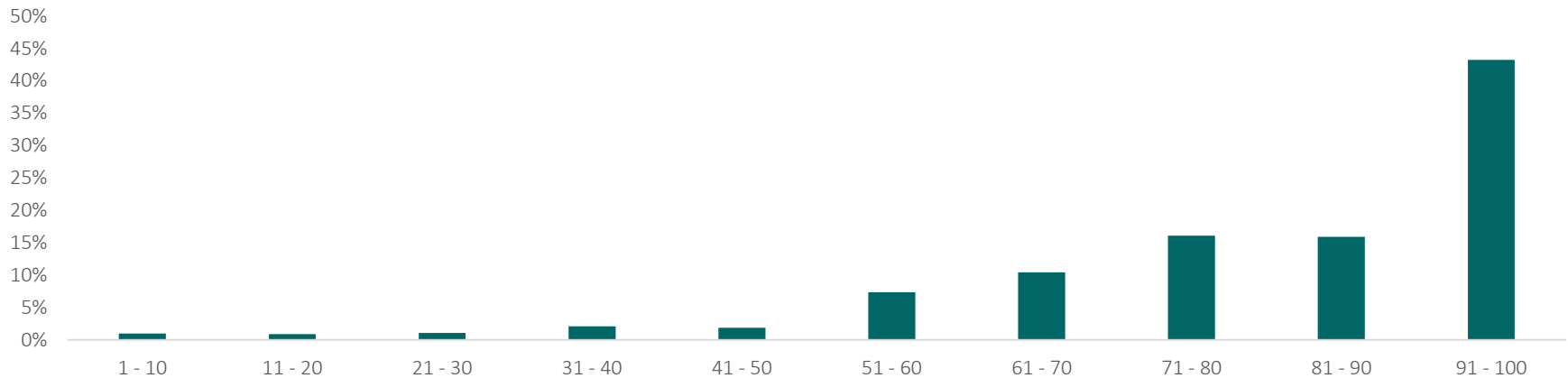
Q27: Which technology should most likely be used for the decommissioning of an offshore wind farm?



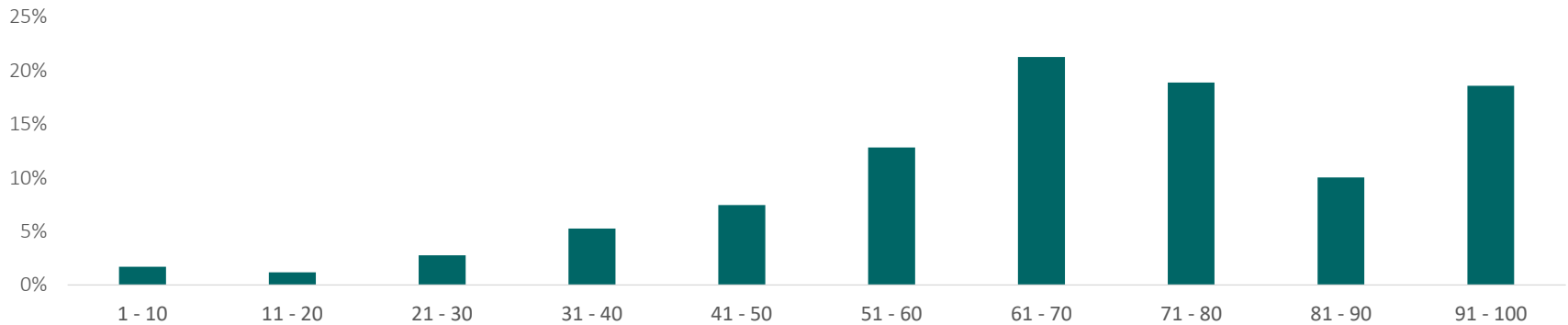
Q13: How important is the term environment for you in relation to the decommissioning of offshore wind farms?



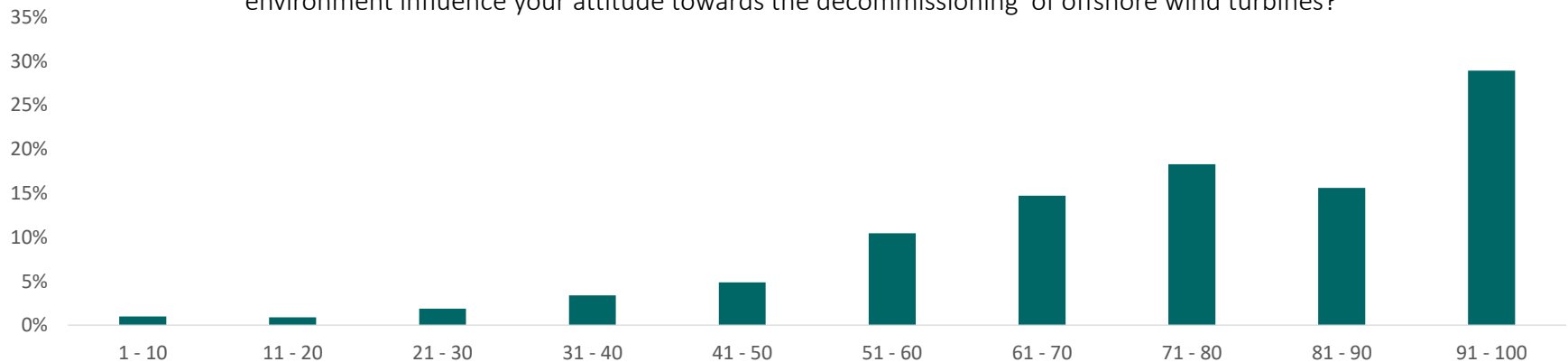
Q16: How important is it to you that the decommissioning of offshore wind turbines has as little impact as possible on local species richness?



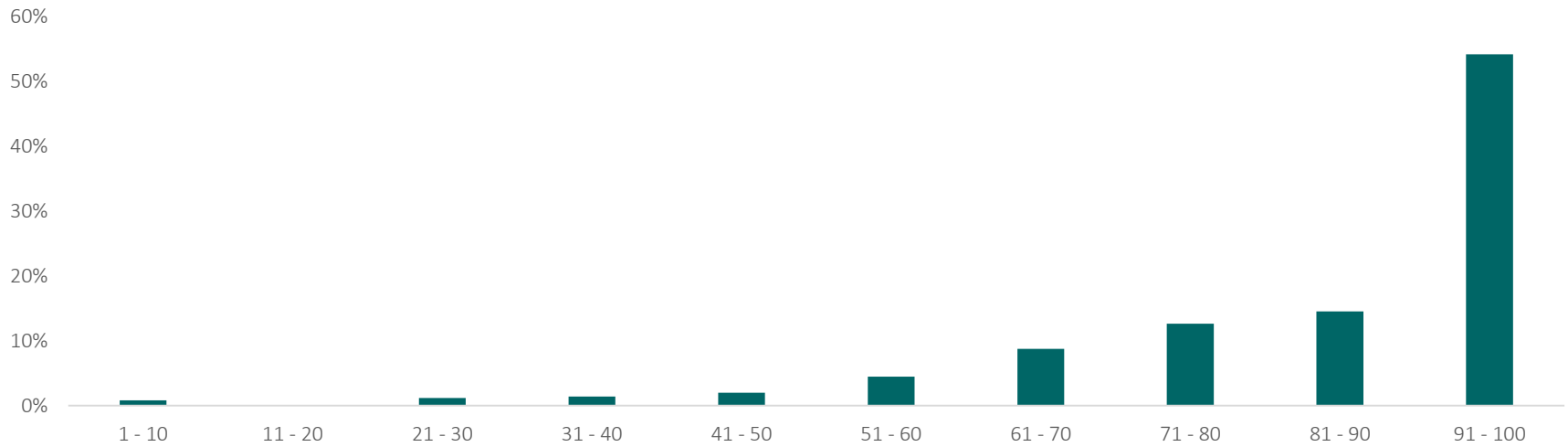
Q23: Offshore wind turbines provide habitat for several native species. How much does the removal of these habitats at the end of their useful life influence your attitude towards the decommissioning of offshore wind energy?



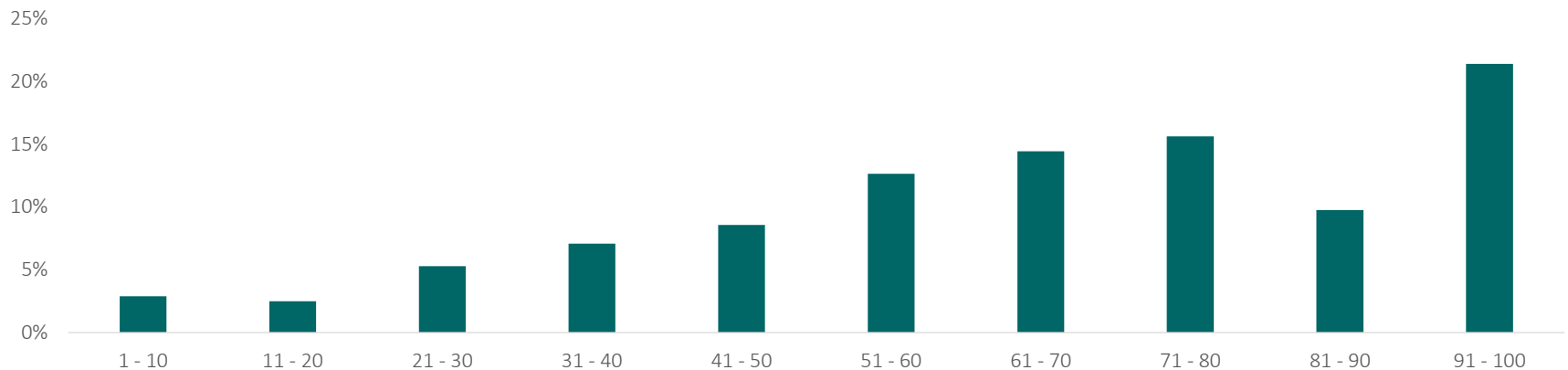
Q22: How much does the discharge of harmful substances or substances classified as toxic into the marine environment influence your attitude towards the decommissioning of offshore wind turbines?



Q18: How important is it to you that the decommissioning of offshore wind turbines is carried out in such a way that as many materials and raw materials as possible can be reused (recycling)?

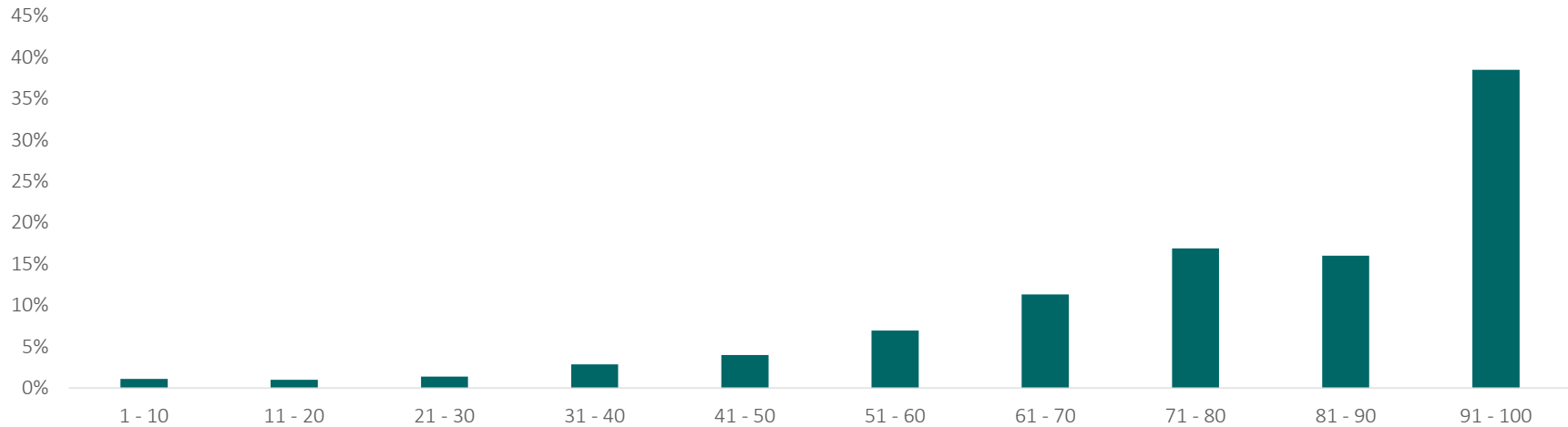


Q25: In your opinion, how important is the complete decommissioning of all parts of an offshore wind farm?

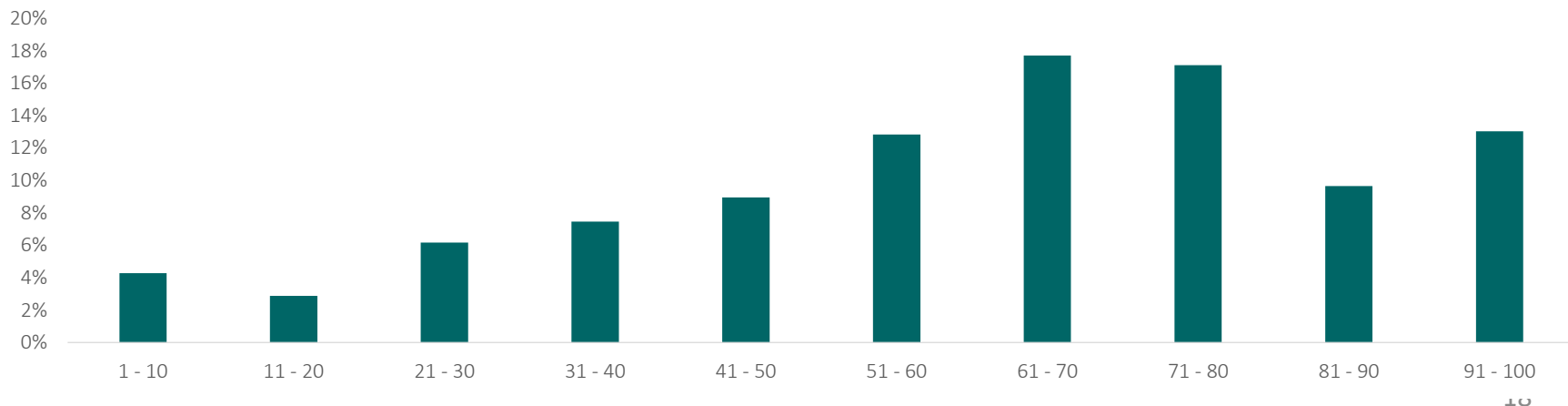


CO₂ emissions and the impact on the climate

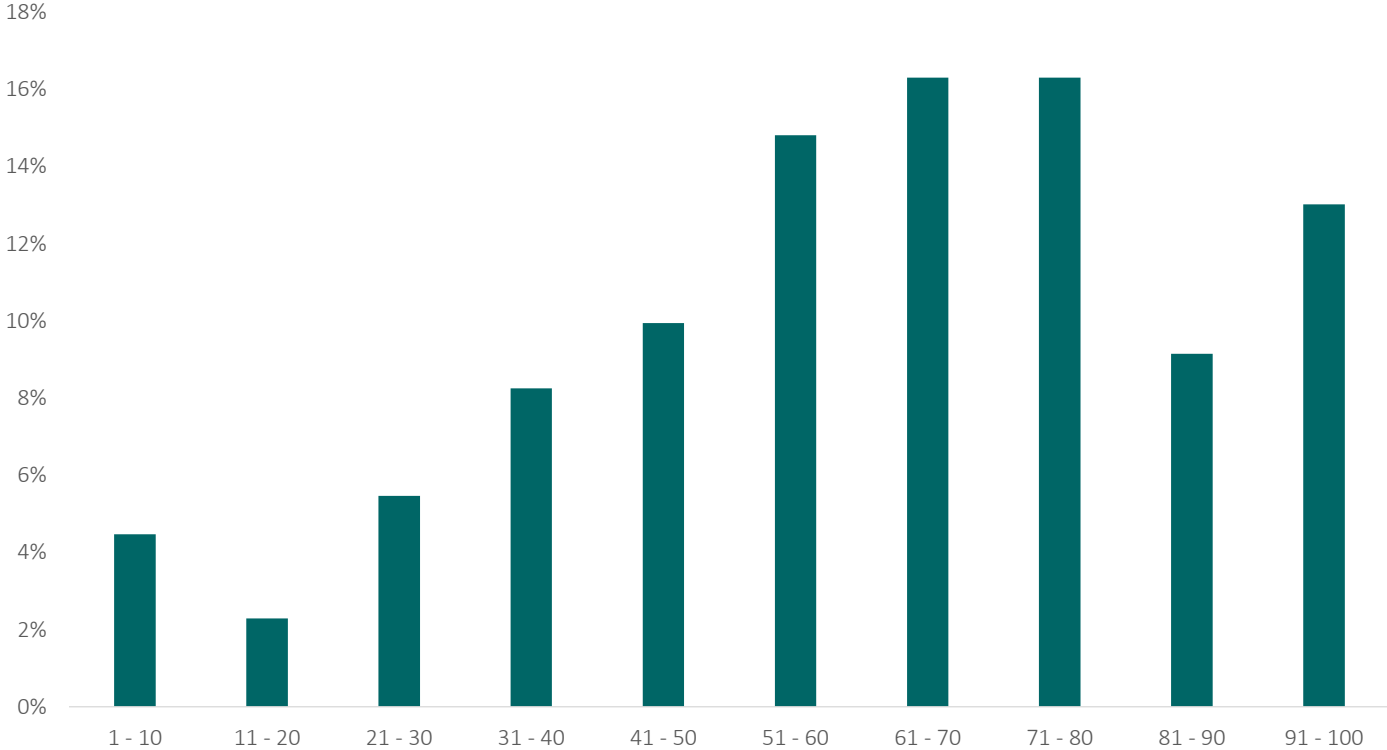
Q15: How important is it to you that the decommissioning of offshore wind turbines is responsible for as few carbon dioxide emissions as possible?



Q24: Vessels are used to dismantle offshore wind turbines. How much does the level of emissions from these vessels influence your attitude towards decommissioning offshore wind turbines?



Q21: How much do stricter health and safety requirements influence your attitude towards the decommissioning of offshore wind turbines?



Summary

- **Environmental protection and species conservation enjoy the highest priority**
 - Species richness should be affected as minimally as possible
 - No substances classified as toxic should be released into the environment
 - Sustainable use of resources
- **CO2 emissions during dismantling have an influence on public acceptance**
 - The shipping traffic used in the dismantling process also matters
- **Economic aspects are important to the population to some degree**
- **Time and duration of dismantling do not play a major part in social acceptance**
- **Stricter rules on occupational safety have only a very small impact on acceptance**

Recommendations

- We recommend that the topic of environmental protection be considered in the early stages of the dismantling project.
- Decommissioning should be designed in a sustainable way (e.g. high recycling rate)
- Reduce CO2 emissions as far as possible (e.g. use of modern ships)
- Designing dismantling in a cost-efficient way