



Offshore wind: Accommodating biodiversity and stakeholders

Preliminary results from an upcoming study



Nordic Energy
Research

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Aim

Identify key elements and recommend actions to accommodate biodiversity and stakeholder engagement for further offshore wind developments in the Nordics

Illustrate key elements by case studies (as a Nordic complement to the IUCN guidelines)

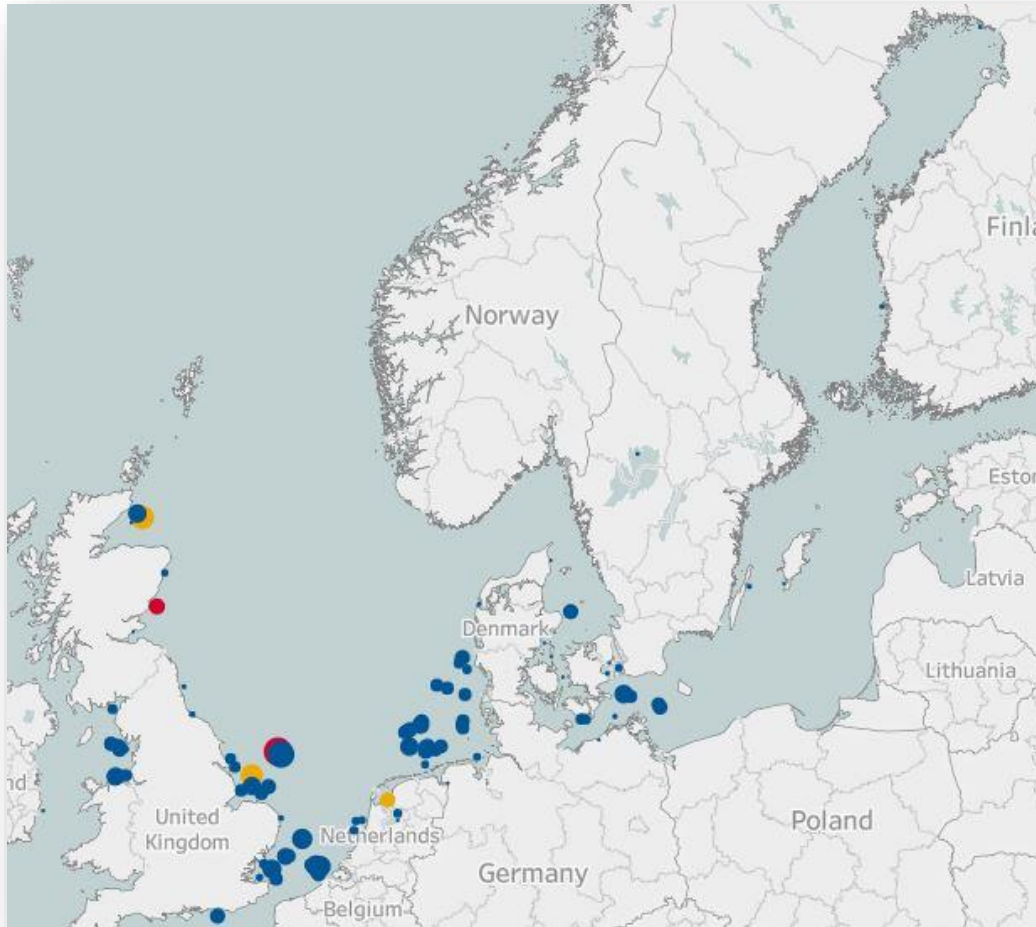
Process

Review of authoritative literature

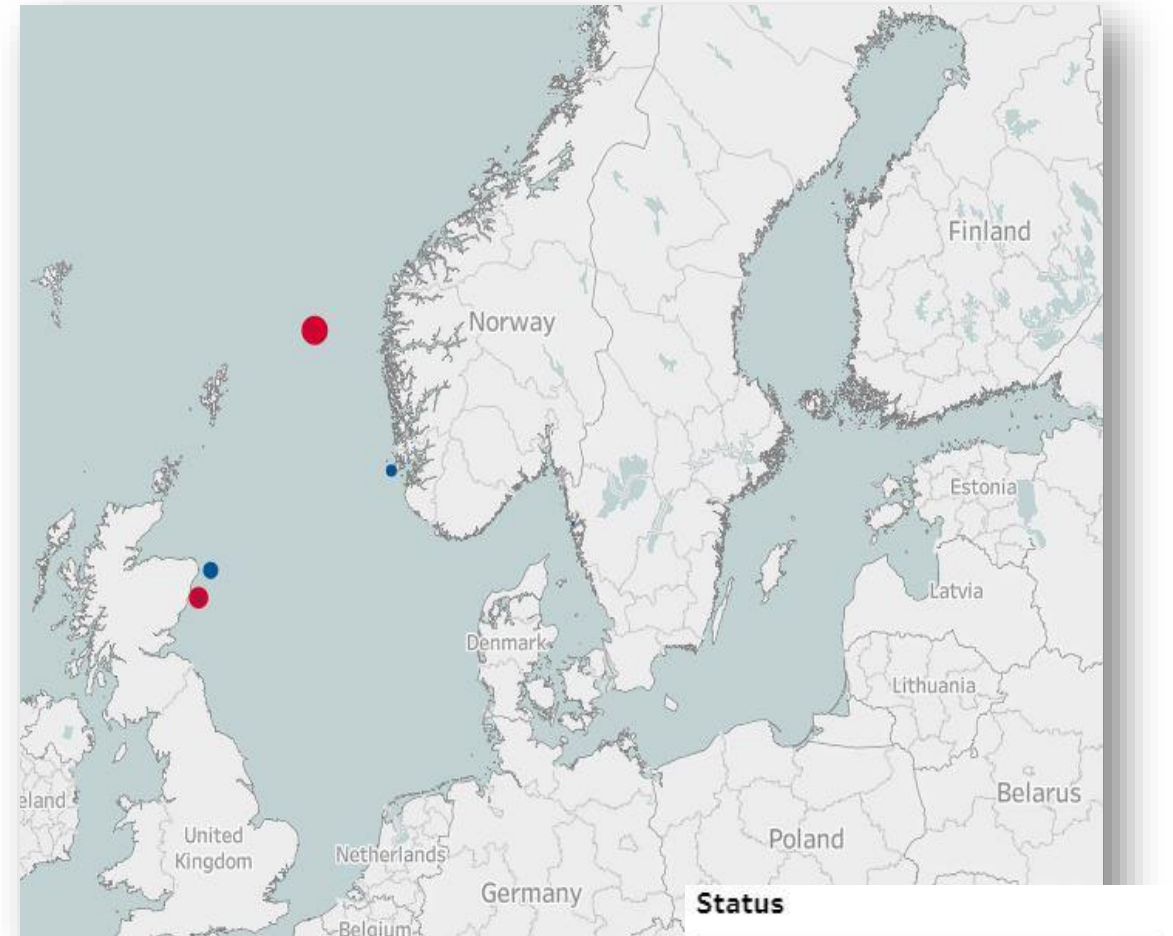
Discussions with stakeholders: manufacturers, regulators, scientific institutions, and NGOs

Current situation

Bottom fixed



Floating



Status

Online



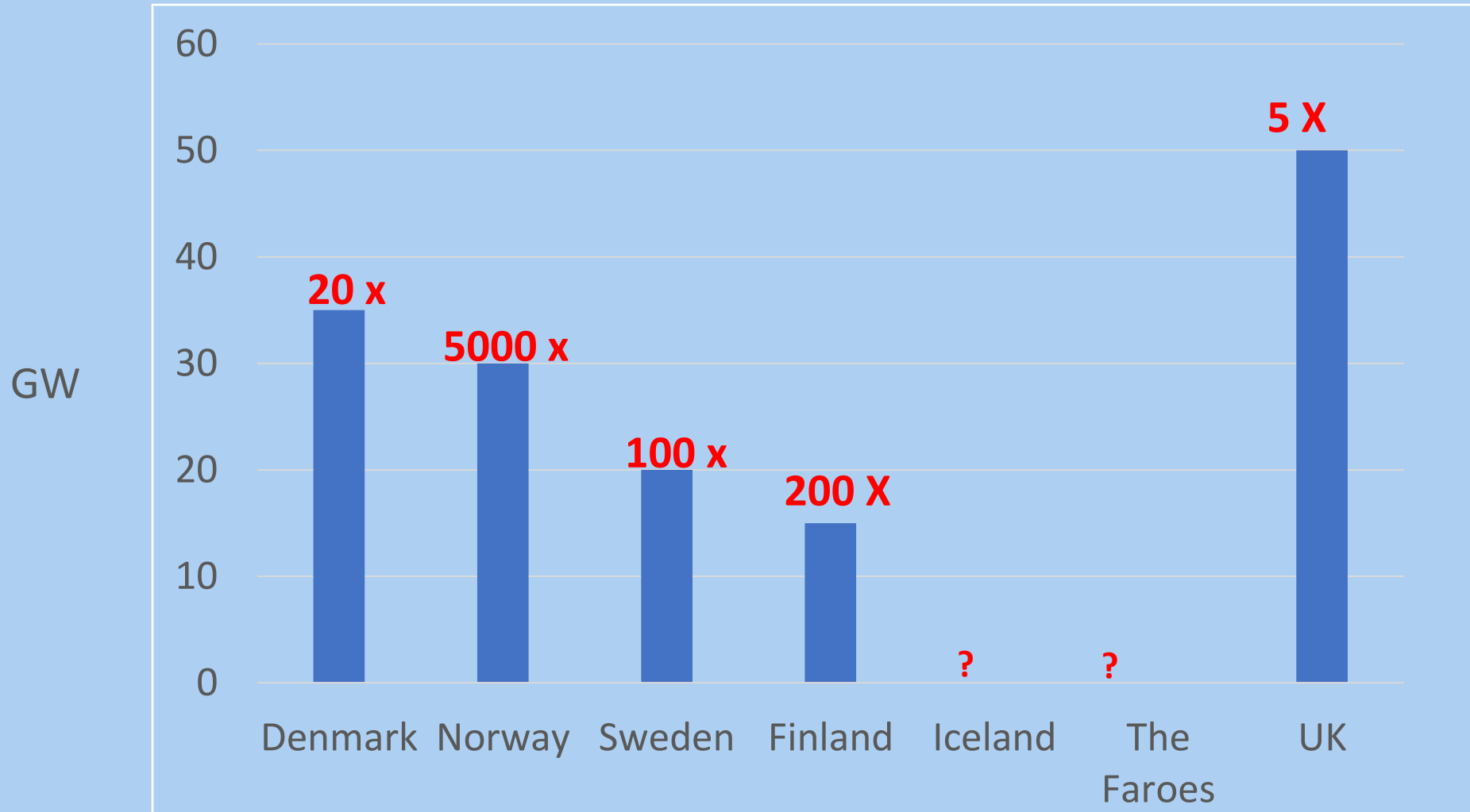
Partially online



Under construction



Connected capacity 2050



Fold increase compared to current capacity



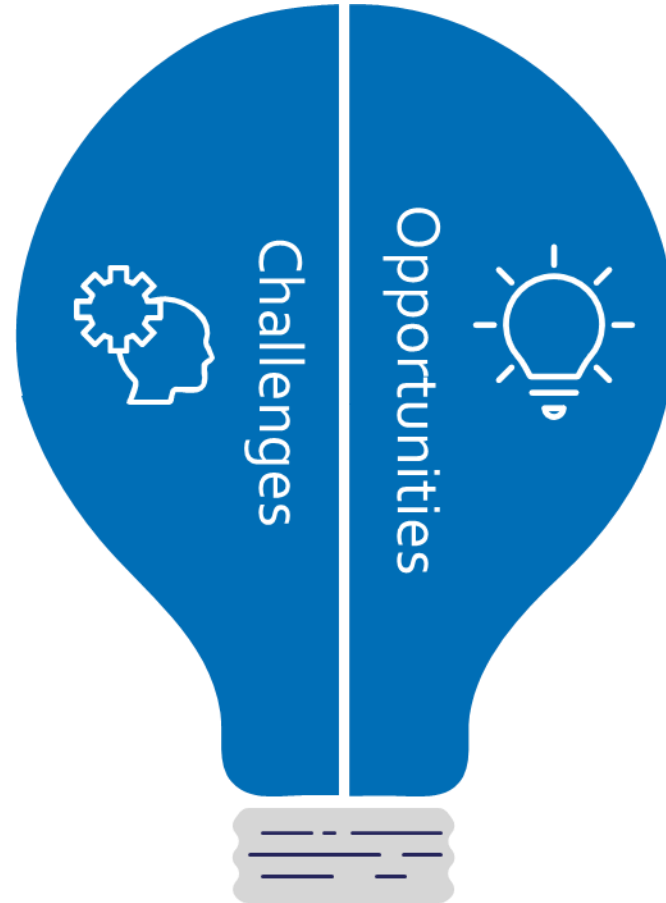
Expansions entail challenges & opportunities

Additional pressure on ecosystems

Lack of data on ecosystems and impact

Conflicts for space (fisheries)

Complex stakeholder engagement processes



Knowledge-base increasing

Certain flexibility for siting

Opportunities for co-existence

Ecosystem restoration/enhancement

Significant offshore experience

Leverage existing collaboration frameworks

Biodiversity impacts



Indirect

Conserve biodiversity by reducing GHG emissions

Direct

Physical changes (habitats, barriers, hydrodynamics)

Underwater noise (disturbance)

Electromagnetic fields (disturbance?)

Cumulative

Total impact arising from all activities in an area over time

Mitigating impacts

Avoid

Minimize

Offset

Restore



Mitigating biodiversity impacts associated with solar and wind energy development

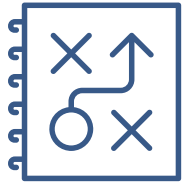
Guidelines for project developers



IUCN GLOBAL BUSINESS AND BIODIVERSITY PROGRAMME



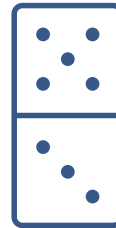
Key elements to accommodate biodiversity and stakeholders



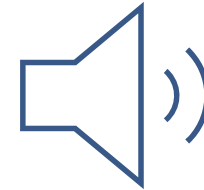
Strategic
planning



Environmental
data



Cumulative
impacts



Underwater
noise



Stakeholder
engagement

Case studies

Strategic planning
process

Environmental
data

Cumulative
impacts

Underwater noise

Stakeholder engagement

Danish Process of Opening Areas
Continuous stakeholder process

Hywind Scotland Pilot Park
Continuous stakeholder process

Sound Mitigation by Bubble Curtains
Stakeholder trust

Coordinated Environmental Monitoring: examples from Belgium and O&G in Norway
Stakeholder involvement, transparency of data, trust

Research on Cumulative Effects: CEF (Scotland) and MARCIS (2021-2025) (Norway)
Stakeholder trust



Concluding remarks

Large planned expansion in the Nordics entails challenges and opportunities

Significant offshore experience to build upon

Important to leverage existing Nordic frameworks for data collection and cumulative impact assessments

Important to establish dialogue and multinational processes for marine spatial planning at sea basin-wide scales to understand and accommodate biodiversity and stakeholders



What's next?

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Thank you for your attention!



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