Planning van een andere Noordzee?

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NORTH SEA
NORWAY
SWEDEN
DENMARK
BRITAIN
NETHER-LANDS
GERMANY
BELGIUM
FRANCE
Shetland
Orkney
Pobie Bank
Viking Bank
Forty Mile Ground
Sumburgh Head
Fair Isle
Utsira High
Fladen Ground
Smith Bank
Little Halibut Bank
Duncansby Head
Moray Firth
Inverness
Spey
Aberdeen
Dee
Buchan Deep
Long Forties
Tay
Dundee
Scalp Bank
Devil's Hole
Firth of Forth
Edinburgh
Lindisfarne
Tweed
Farn Deeps
Newcastle
South Shields
Tyne
Sunderland
Hartlepool
Tees
Middlesbrough
Scarborough
Flamborough Head
Hull
Ouse
Humber
Grimsby
Trent
Witham
The Wash
Nene
Great Ouse
Norwich
Great Yarmouth
Lowestoft
Stour
Ipswich
Colchester
Southend
London
Thames
Isle of Sheppey
Margate
Medway
Folkestone
Strait of Dover
Brighton
Hastings
Eastbourne
English Channel
Calais
Dunkirk
Ling Bank
Revet
Eigersunds Bank
Norwegian Trench
Skagerrak
Little Fisher Bank
Great Fisher Bank
Jutland Bank
Dogger Bank
Silverpit Crater
Outer Silver Pit
Inner Silver Pit
Norfolk Banks
Cleaver Bank
Oyster Ground
Frisian Front
Broad Fourteens
Southern Bight
German Bight
Heligoland
Heligoland Bight
North Frisian Islands
East Frisian Islands
West Frisian Islands
Horns Rev
Blåvands Huk
Esbjerg
Ribe
Vidå
Skjern
North Jutlandic Island
Aalborg
Limfjord
Mors
Kiel
Kiel Canal
Cuxhaven
Hamburg
Elbe
Bremerhaven
Wilhelmshaven
Emden
Ems
Bremen
Weser
Leeuwarden
Groningen
Den Helder
Alkmaar
Haarlem
Amsterdam
Leiden
The Hague
Rotterdam
Waal
Meuse
Rhine
Bergen op Zoom
Terneuzen
Ostend
Bruges
Ghent
Scheldt
Antwerp
Brussels
Oslo
Drammen
Fredrikstad
Oslofjord
Kristiansand
Stavanger
Karmøy
Bokn fjord
Sola
Ora
Orust
Fjorn
Bergen
Sognefjord
Osterøy
Sotra
Tysnesøy
Stord
Bømlo
Hardangerfjord
Bathymetry
0 m 25 50 100 200 400 600
Map Scale
0 km 50 100 150 200
0 mi 50 100
Population
Over 500,000
100,000–500,000
50,000–100,000

Noordzee: van 30GW naar 300+ GW

Nederland: van 4,5GW naar 70+ GW

Een belangrijke stap…

‘Marine Spatial Planning’ in Nederland tussen 2009 en 2019 als een vorm van ‘strategische sectorale planning’ (Spijkerboer et al. 2020)

Noordzee Akkoord (2020): we hebben te maken met drie gekoppelde transities: natuur-, energie en voedseltransitie

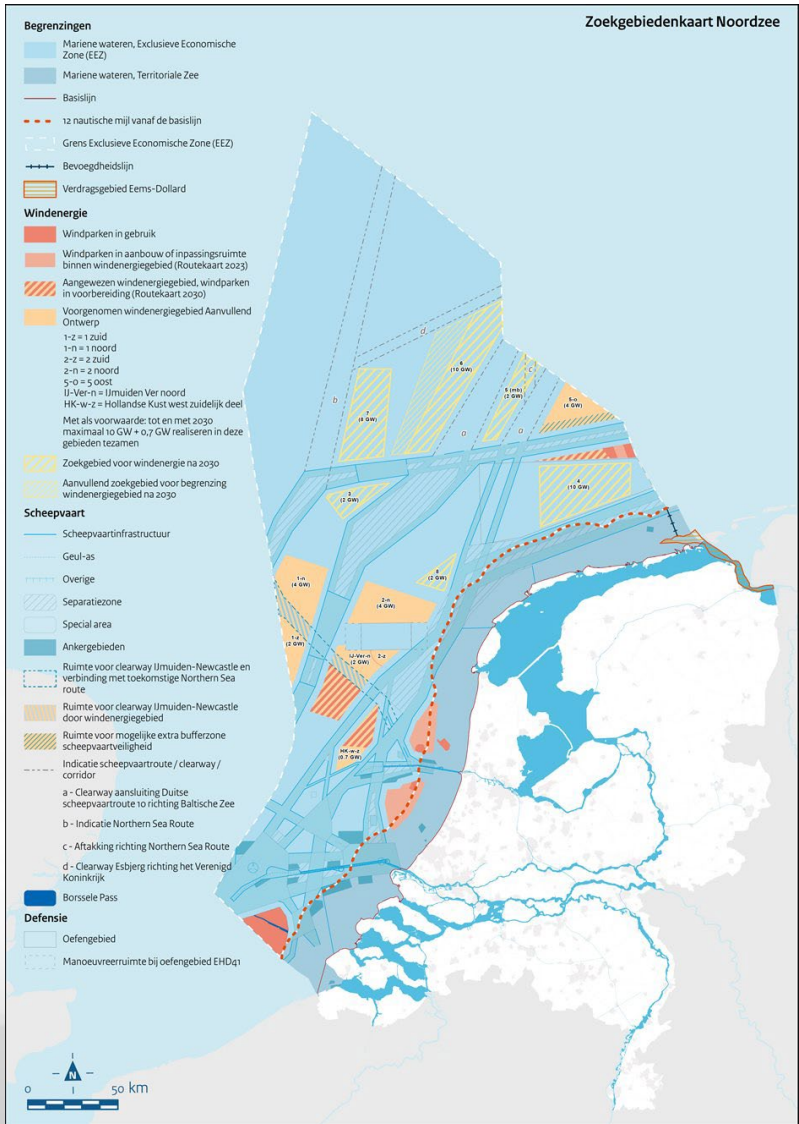
-> Hoe kunnen we die ruimtelijk inpassen?

Ruimtevraag

TNO 2022 (Taminiau & vd Zwaan)

59 GW op ‘direct beschikbare ruimte’
99 GW met ‘slim medegebruik’

- Hoe interpreteren?



Hoe interpreteren we ‘ruimte’?

- Wat kan waar?
- Wie wil waar?
- Wat kan samen?
- Verandering?
- Hoe bepalen?

Hoe interpreteren we ‘ruimte’?

- Wat is het belang vanuit verschillende sectoren voor een bepaald gebied?
- In hoeverre is het mogelijk belangen te combineren in een gebied?
  - Wat kan technisch? Wat kan beleidsmatig/juridisch?
  - Nu of pas later (innovatie)?
  - Wat is wenselijk?

‘Ruimte is geen statisch gegeven, maar een dynamische interpretatie’

Hoe interpreteren we ‘ruimte’?

- Tussen 2017 en nu verschillende studies

Laura Gusatu

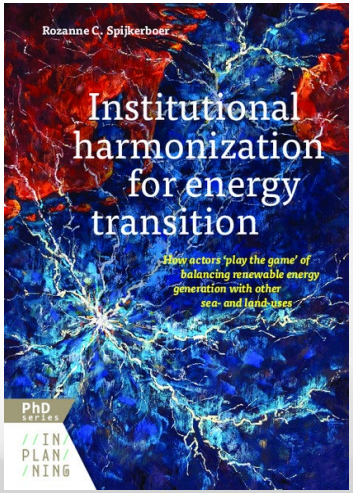
Rozanne Spijkerboer

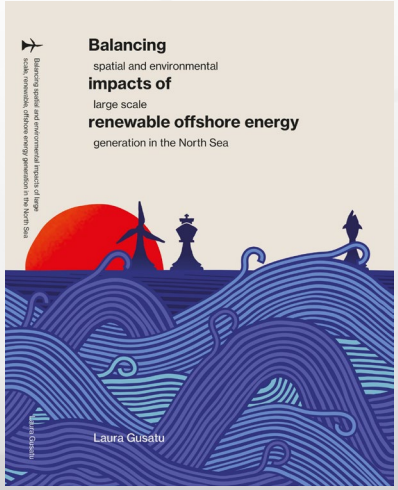
Juul Kusters

Jort de Vries

Studies

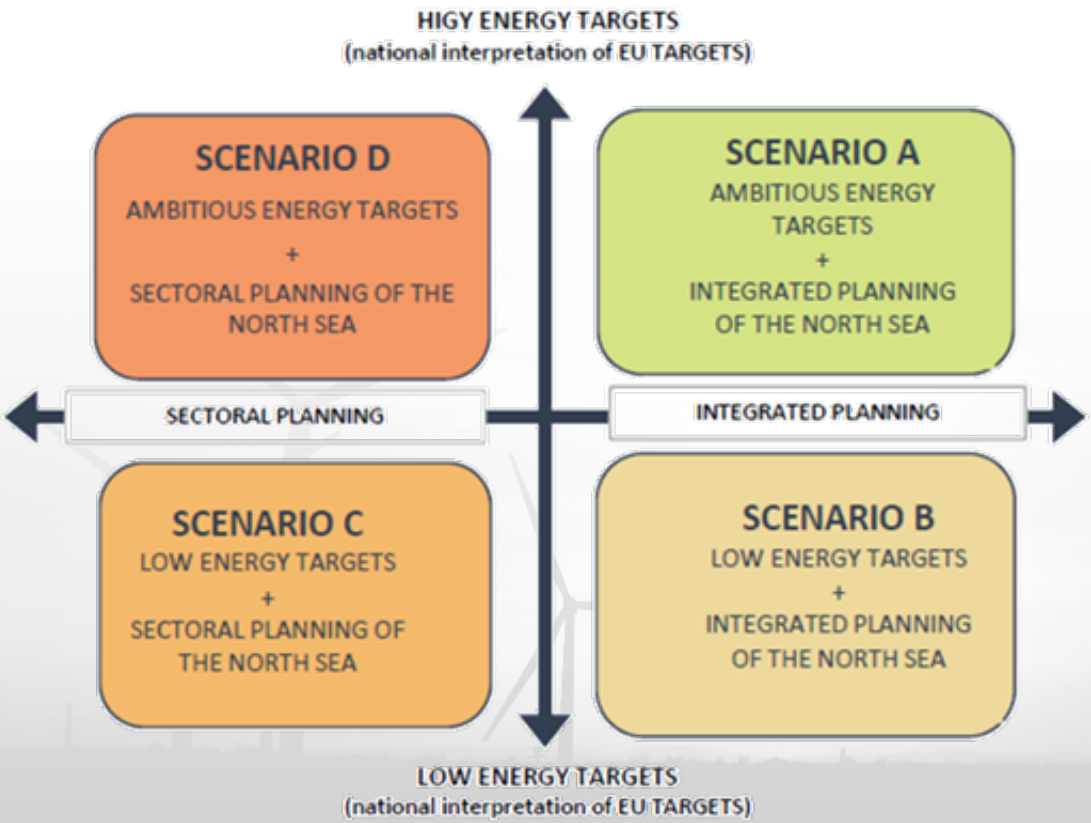
- Institutionele harmonisatie en beleidsintegratie voor ‘Marine Spatial Planning’
- Innovatie, systeemintegratie als thema’s in beleidsagenda’s
- Strategische planning en milieubeoordelingen
- Ruimtelijke analyses





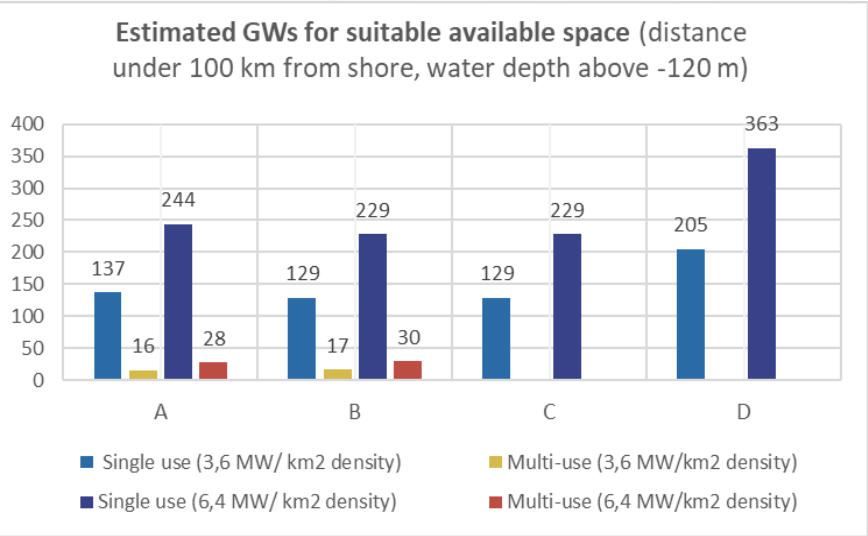
Ruimtelijke analyse

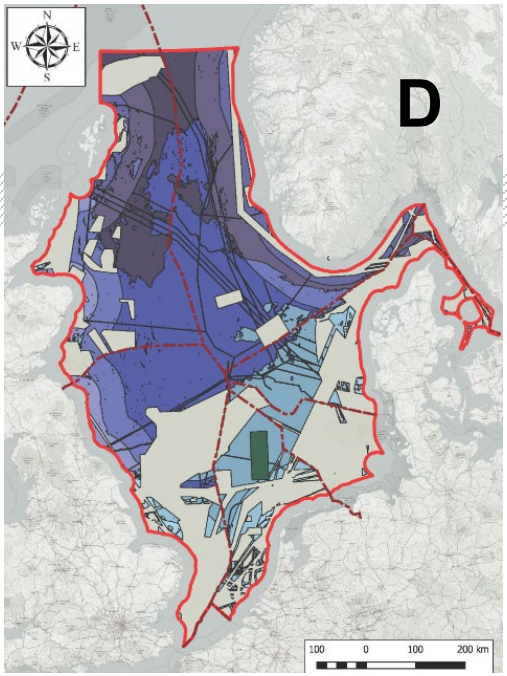
- Een verkenning: vier scenario's voor de toekomst

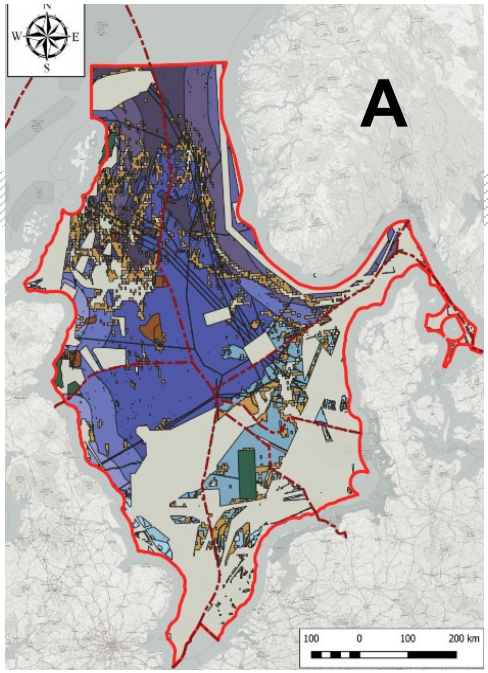


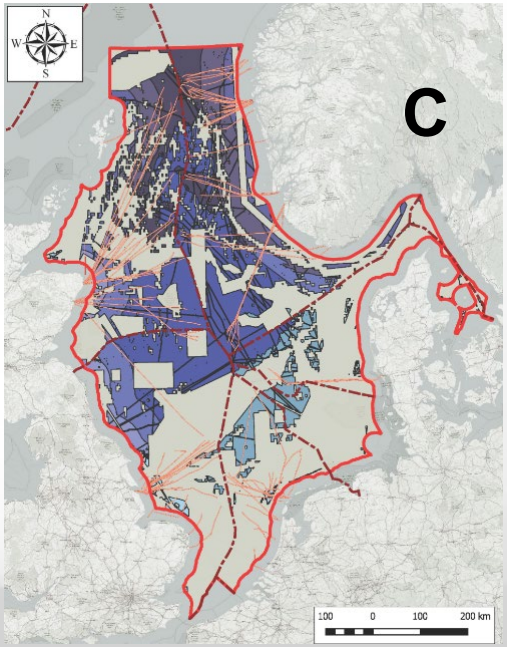
Ruimtelijke analyse

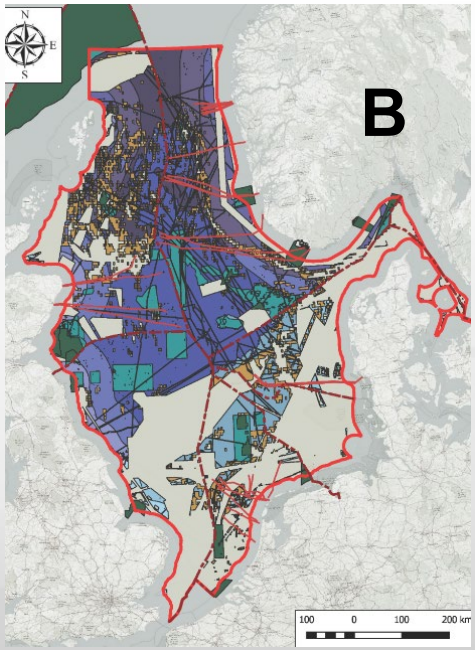
- Vier scenario's





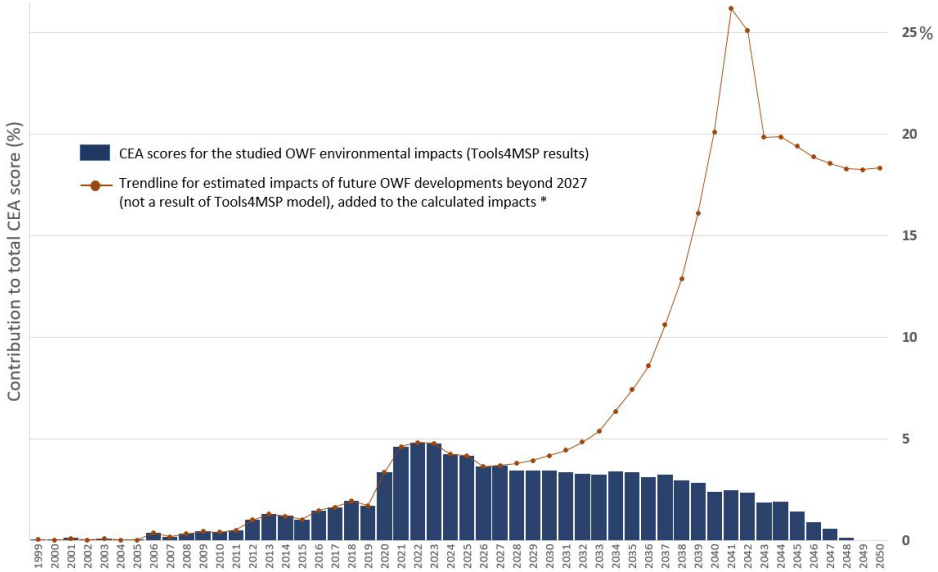






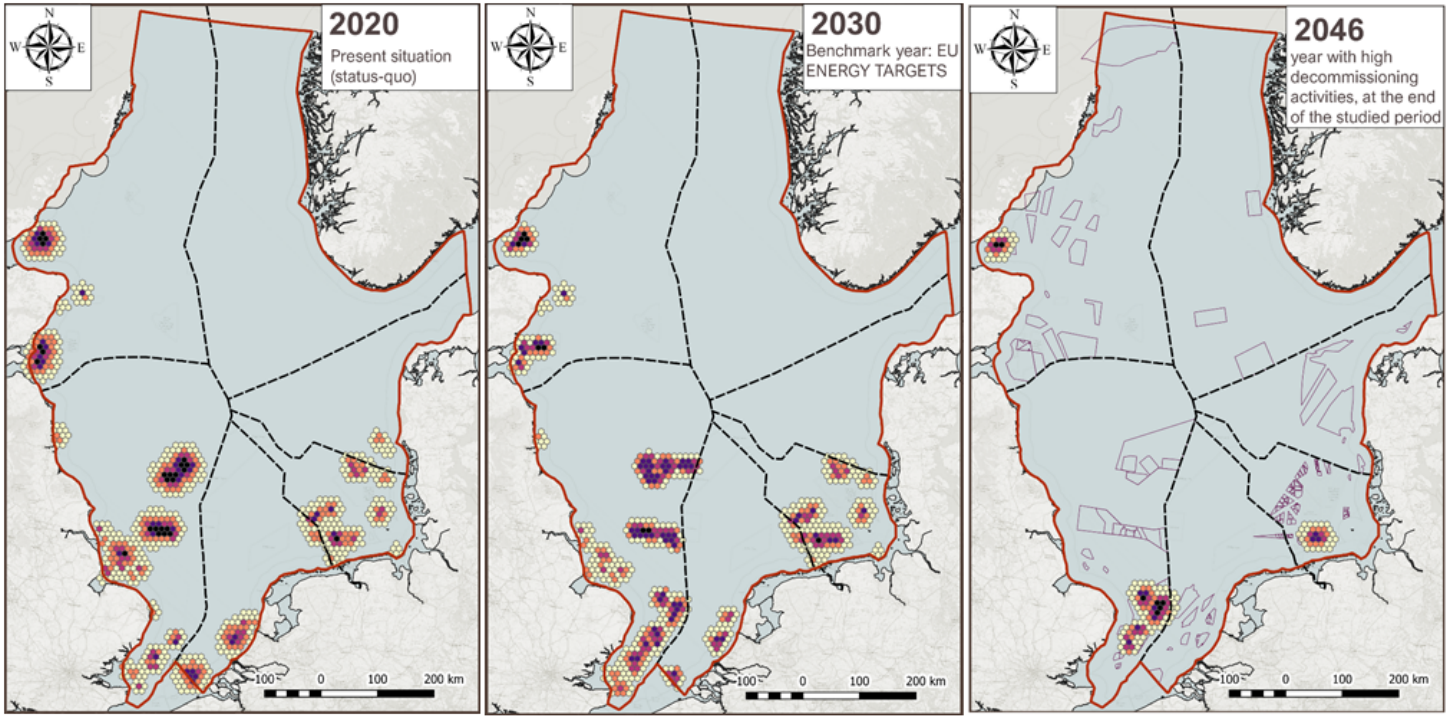
Ruimtelijke analyse

Cumulatieve milieu impact



Environmental impacts of OWFs in the 3 development phases (construction, operation, decommissioning),spanning 1999 -2050 (results from Tools4MSP), and the trendline of OWF environmental impacts taking into account the future OWF developments beyond 2027*

*the added environmental impacts are calculated using a yearly growth rate of installed OWFs of 33%, the average CEA score /d evelopment phase and a lifetime of 20 years of operation for OWFs. The calculated estimationsdo not account for the location of future OWF developme nts in relation to the species habitats and are not results of Tools4MSP model.



Spatial distribution of normalized CEA scores

2020 – present situation
2030 – benchmark year
2046 – end of analysed period and high decommissioning

Area of study
Exclusive Economic Zones (country limit)

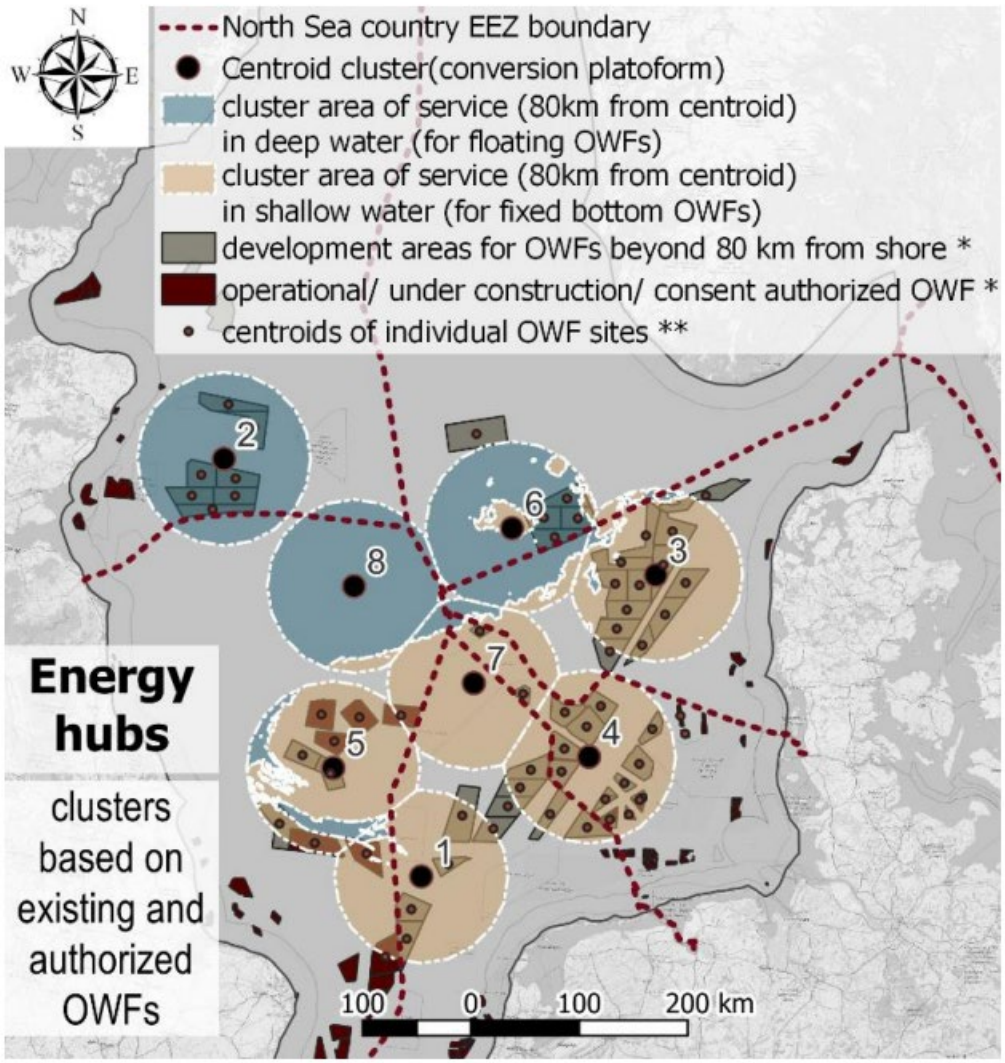
Contribution (%) to the total CEA score (1999-2050)

- 0.0002%-0.002% (CEA: 10 - 90)
- 0.002%-0.007% (CEA: 90 - 325)
- 0.007%-0.015% (CEA: 325 - 670)
- 0.015% -0.025% (CEA: 670 - 1060)
- 0.025% - 0.038% (CEA: 1060 - 1603)

potential development/search/scoping areas for the future development of OWFs (beyond the OWFs analysed in this study)

Ruimtelijke analyse

- NSOG
  (systeem integratie)
- Studie RUG/TNO
  (Martinez-Gordón et al 2022)



Studies

Drivers influencing the scenario narrative:	*II. Spatial planning approach*	
I. Sectoral objectives and challenges	Integrated planning (sectoral cooperation, investments in fostering synergies, risk-taking approach)	Sectoral planning (inter-sectoral competition for offshore space, low cooperation, risk-averse approach)
Marine environment (*recovery* vs *conservation / expansion*)	**Multi-use** with OWFs (different degrees depending on conflict level with protected features in the MPA)	**Only single-use** of space and an increased number of new designated marine protected areas (or expansions).
Food supply (*sustainable fisheries* vs *path dependency*)	**Sustainable transition of fishing sector leads to multi-use:** investment in aquaculture and static-gear fisheries in OWFs.	**Path dependency** of fishing sector **(trawling remains a sectoral priority)** leads to **conflict with OWFs: no-go.**
Marine transport (*slow growth* vs *sectoral expansion*)	**Slow increase of seaborne traffic** (new lines indicated in the updated MSPs) with new regulations on shipping lane width.	**High increase of seaborne traffic** (new lines indicated in the updated MSPs) with old regulations on shipping lane width.
Energy supply / demand (renewables vs *fossil fuel*)	**Renewable energy deployment prioritization** (O&G installations fully decommissioned by 2050, platforms reused).	**Increased demand (unstable international context):** gas will still provide a share of the energy mix by 2050.
National security (*conflict de-escalation* vs *unstable context*)	**Stable geo-political environment:** reduced need for offshore space (relocation of offshore areas onshore), techno-fix for risks.	**Unstable geo-political environment:** increased need for offshore space (expansion of sites), no-go for OWFs.
	Scenarios A (A0, A1, A2, A3)	Scenarios C (C0, C1, C2)

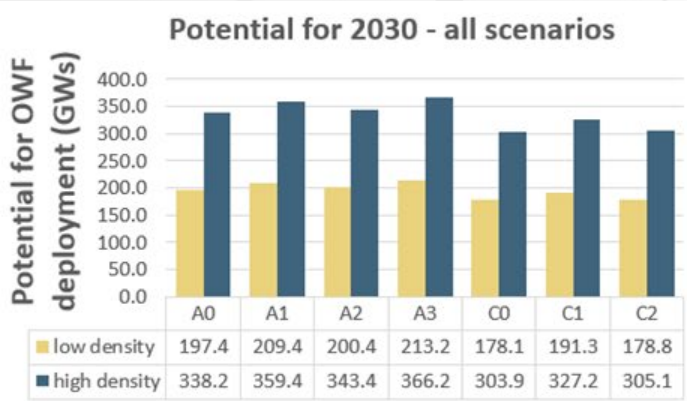
Studies

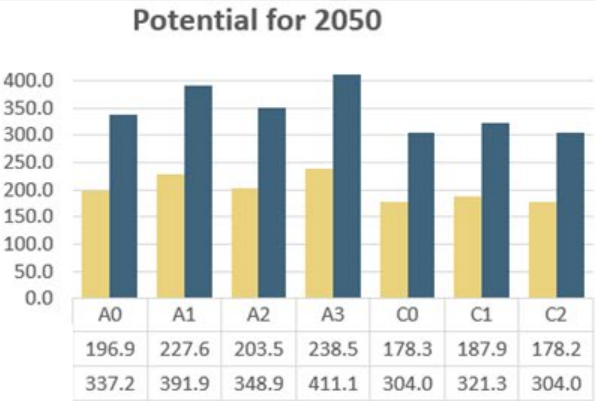
- A0: Integrale planning
    - A1: tot 50% multiuse met visserij
    - A2: tot 10% multiuse met natuurbescherming
    - A3: beide
- C0: Sectorale planning (geen multiuse)
    - C1: vervang 10% visserij
    - C2: vervang 2% natuur

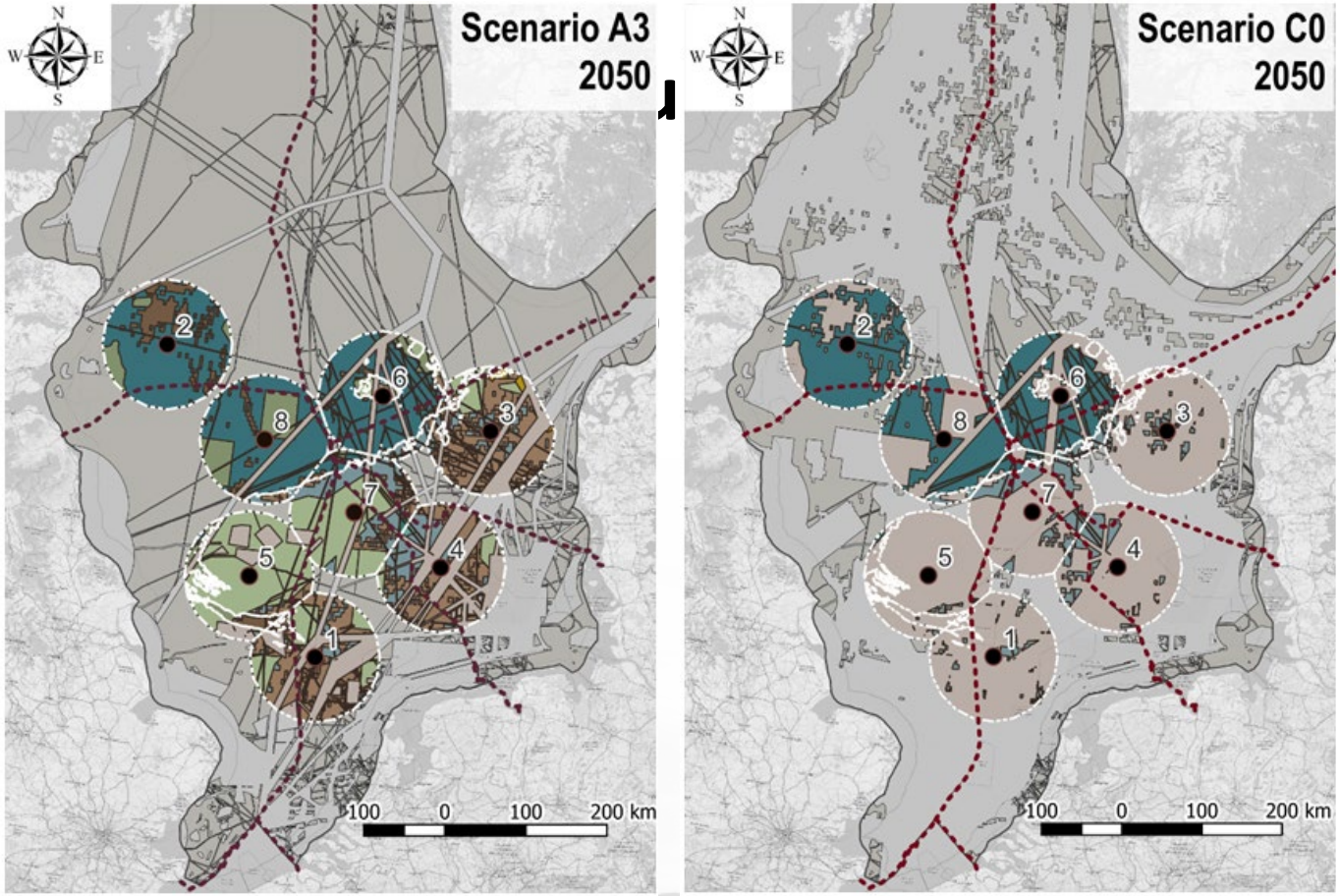
Wat is dan nog mogelijk?

Tussen de 170 en 410 GW in de hubs

Maar…







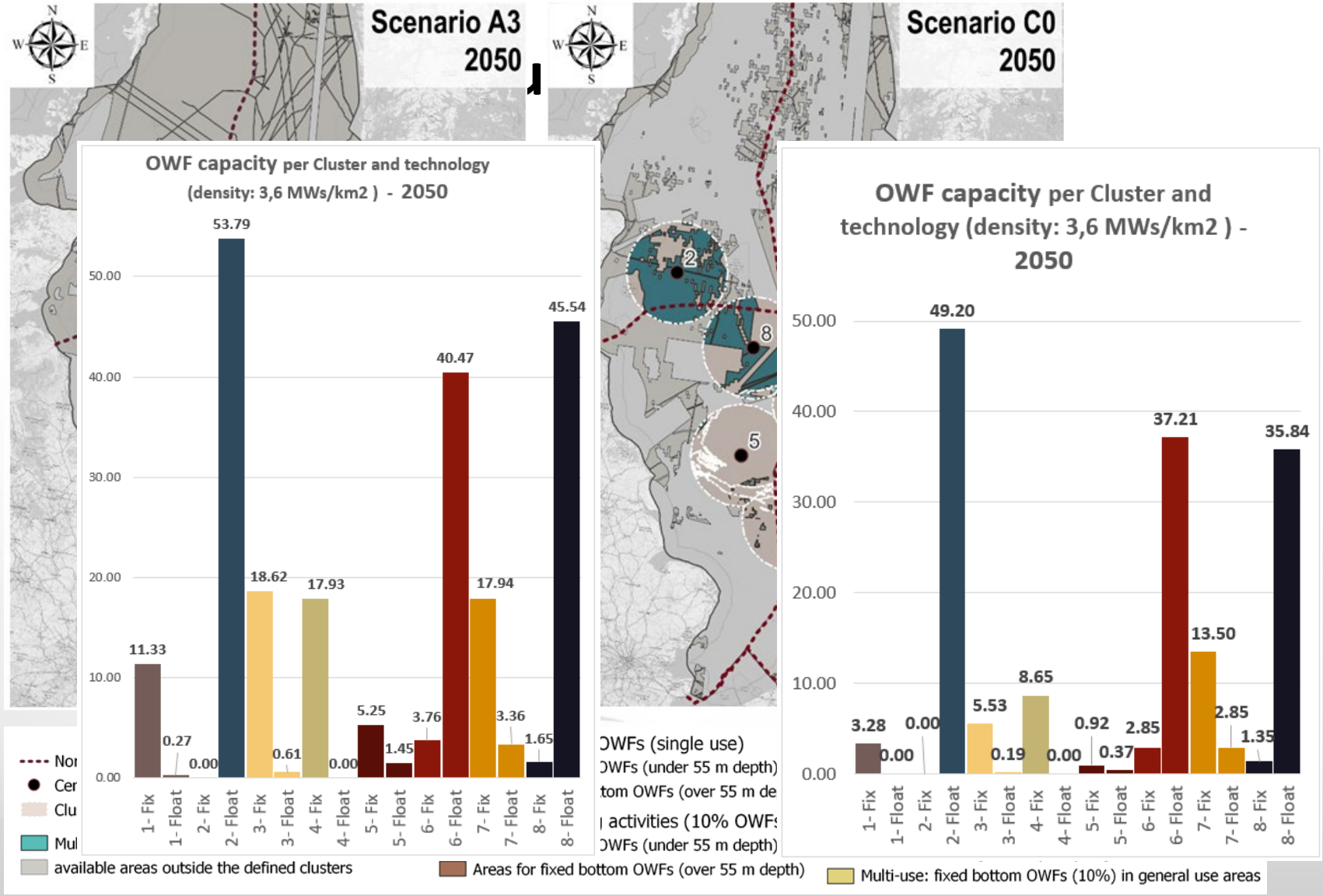
North Sea country EEZ boundary
Centroid cluster (conversion station)
Cluster area (80 km service area from centroid)
Multi-use: fixed bottom OWFs(10%) in research areas
available areas outside the defined clusters

Available space for OWFs (single use)
Areas for floating OWFs (under 55 m depth)
Areas for fixed bottom OWFs (over 55 m depth)

Predominantly fishig activities (10% OWFs)
Areas for floating OWFs (under 55 m depth)
Areas for fixed bottom OWFs (over 55 m depth)

Areas reserved for nature protection areas extension
Areas for floating OWFs (under 55 m depth)
Areas for fixed bottom OWFs (over 55 m depth)

Multi-use: floating OWFs (10%) in general use areas
Multi-use: fixed bottom OWFs (10%) in general use areas


Scenario A3
2050
Scenario C0
2050
OWF capacity per Cluster and technology
(density: 3,6 MWs/km2) - 2050
53.79
45.54
40.47
18.62
17.93
17.94
11.33
0.27
0.00
0.61
0.00
5.25
1.45
3.76
3.36
1.65
50.00
40.00
30.00
20.00
10.00
0.00
1- Fix
1- Float
2- Fix
2- Float
3- Fix
3- Float
4- Fix
4- Float
5- Fix
5- Float
6- Fix
6- Float
7- Fix
7- Float
8- Fix
8- Float
OWF capacity per Cluster and technology (density: 3,6 MWs/km2) - 2050
49.20
37.21
35.84
13.50
8.65
5.53
3.28
0.00
0.00
0.19
0.00
0.92
0.37
2.85
2.85
1.35
available areas outside the defined clusters
Areas for fixed bottom OWFs (over 55 m depth)
Multi-use: fixed bottom OWFs (10%) in general use areas

Wat is dan nog mogelijk

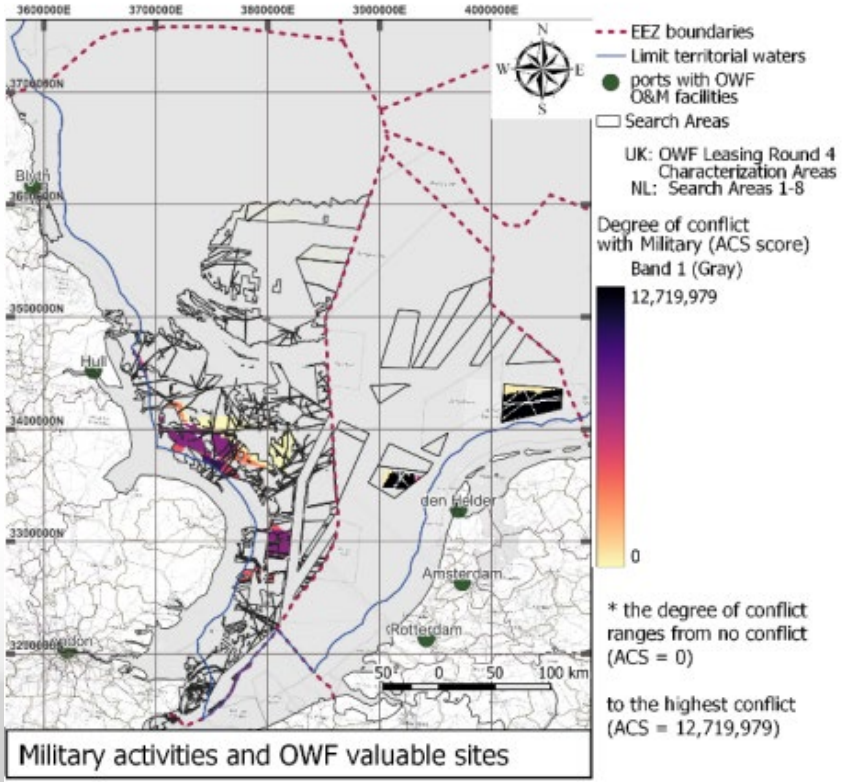
- Sommige hubs worden nauwelijks benut
- Meest is toch ‘floating’ en ver weg (NW & UK)
- Natuur en visserij spelen crucial rol in overwegen

Scenario	% decrease in system cost of each scenario compared to Scenario Co	Difference in gained GWs compared to the Scenario Co, 2050	
		low density (3.6 MW/km^2)	high density (6.4 MW/km^2)
C1 – OWF /fisheries	0.05%	9.7	17.2
C2 – OWF / nature	0.02%	0.0	0.0
A0 – base integrated	0.06%	18.6	33.1
A1 – OWF / fisheries	0.16%	49.4	87.8
A2 – OWFs/ nature	0.09%	25.2	44.9

Uitzoomen, cruciale overwegingen (1/5)

De ondiepe wateren (dus ook de NL EEZ) zijn zeer druk, 70+ GW in NL gaat niet ‘zomaar’ passen

-> meenemen van zandsuppletie en defensie is mogelijk ook cruciaal



Military activities and OWF valuable sites

Uitzoomen, cruciale overwegingen (2/5)

Cumulatieve ecologische impact is maar beperkt meegenomen in analyses, beleid en regelgeving, beperkt bekend en mogelijk zeer cruciaal

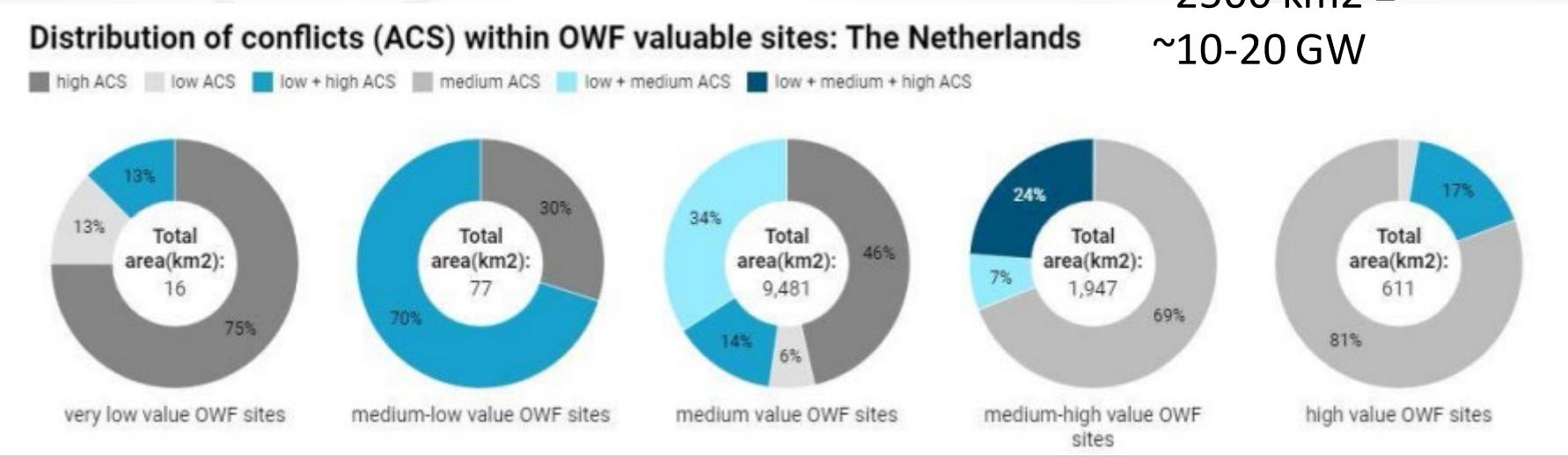
-> Dit is niet alleen een kwestie van onderzoek, maar ook van ‘voorzorgsbeginsel’

Uitzoomen, cruciale overwegingen (3/5)

Meer integrale beleidsvoering – van strategisch tot operationeel niveau – kan tientallen GWs opleveren

-> Gekeken naar OWF-Natuur:

~2500 km2 =
~10-20 GW

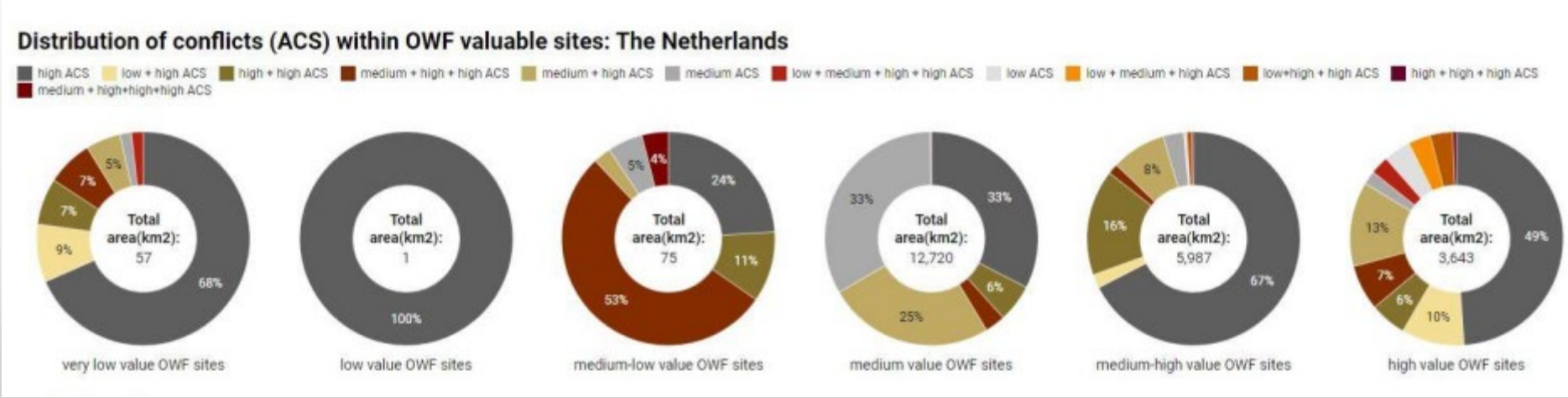


Uitzoomen, cruciale overwegingen (3/5)

Meer integrale beleidsvoering – van strategische tot operationeel niveau – kan tientallen GWs opleveren

-> Gekeken naar OWF-Visserij

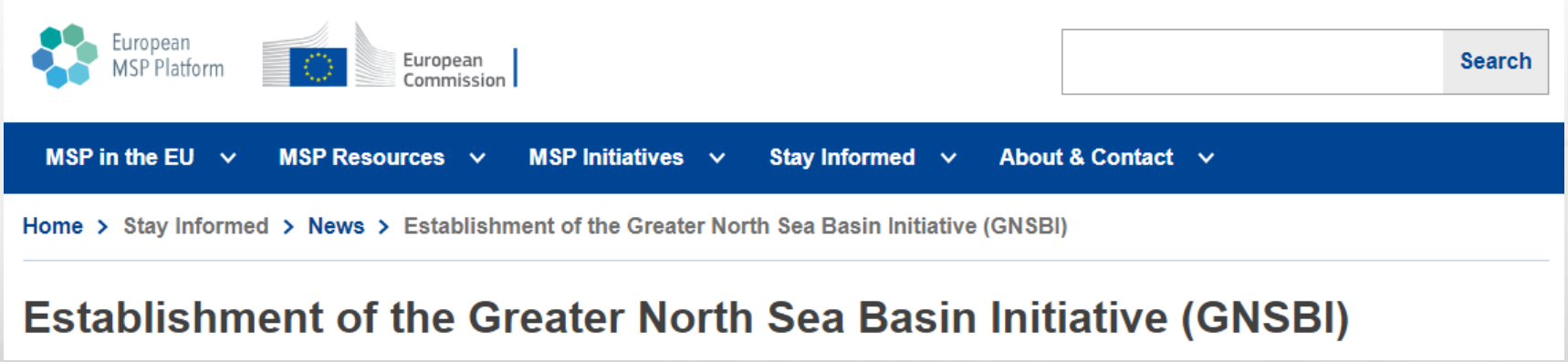
~9500 km2 =
~30-55 GW



Uitzoomen, cruciale overwegingen (4/5)

Drijvende windmolenparken in Schotland en Noorwegen lijken nodig voor 300+ GW in de Noordzee én kunnen de ruimtelijke en ecologische druk van de zuidelijke Noordzee verminderen

-> Internationale planvorming en samenwerking cruciaal



Uitzoomen, cruciale overwegingen (5/5)

De krappe ruimte maakt dat de natuur-, energie- en voedseltransitie combineren ook durf en harde keuzes vraagt

-> trade-offs beter analyseren op strategisch te kiezen

-> prioriteren in elk van deze transities is belangrijk

-> wachten met (beleid)innovatie ondermijnd kans op succes

Uitdaging

Strategische, interdisciplinaire en inclusieve besluitvorming voor het in evenwicht brengen van offshore windmolenparken met andere maatschappelijke, ecologische en economische belangen binnen de grenzen van het ecosysteem van de Noordzee

-> ECOAMARE (ECOsystem-based Adaptive MAnagement for REnewable Energy in a sustainable North Sea)

- cumulatieve impact
- trade-offs analyseren
- scenarios met stakeholders

Uw reacties en vragen?