

Maritime Synergies and Spatial Organisation



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chair SG1 Political Declaration North Sea*

Annex to the mining legislation:

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Flyland, 2001



Successive plans and implementation (1)

2005: *Management* plan for the North Sea 2015

- Who is doing what at sea?
- Opportunity maps

Evaluation 2005 - 2009

- 76 applications for wind farms, subsidy for only 3
- Conflicts around specific spots (i.e. around the 12 mile zone)
- Call from stakeholders for planning by the government and the need for a long term perspective

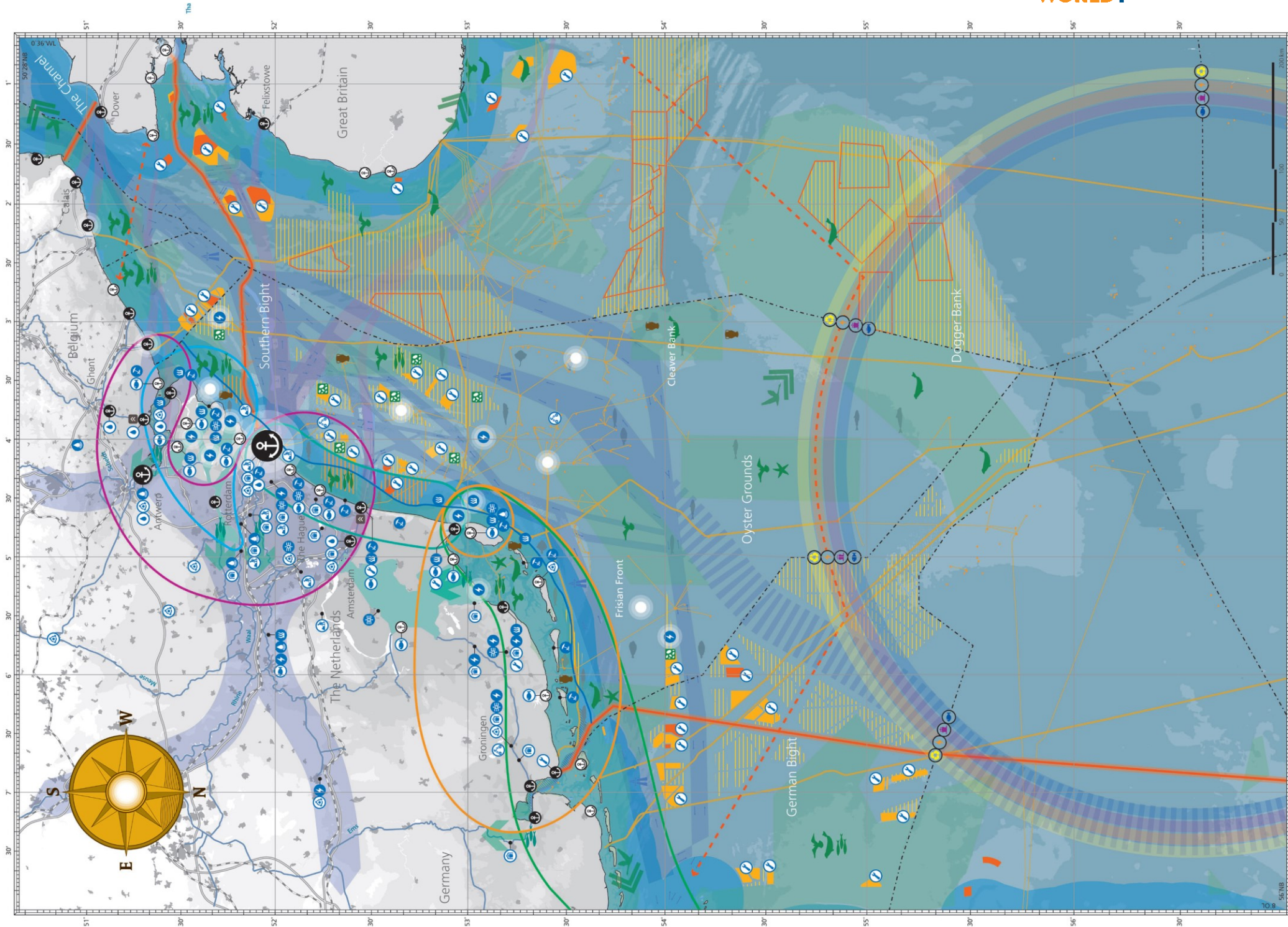
Successive plans and implementation (2)

2009: First *Policy Plan* for the North Sea 2009 – 2015

- ‘Structural vision’ which obliges Government to act accordingly
- Finding space for 6000 MW (1000 km²) and reserving sand mining areas
- Space for the other priority activities: shipping, oil & gas, defense and CCS
- Multiple use stimulated

Evaluation 2009 - 2015:

- ‘Learning by doing’
- Development planning rather than comprehensive spatial plan
- International: learning and acknowledging the differences



2016: Second Policy Plan 2016 - 2021

Long term vision 2050

Includes a *Maritime Spatial Plan which complies with 2014/89/EU*

Spatial focus on activities of national importance:

- Oil & gas, CCS, defense, shipping, wind (3450 MW or 600 km² in 2023), sand mining strategy

Integrated plan with measures for the MSFD (incl. marine litter and extra seafloor protection)

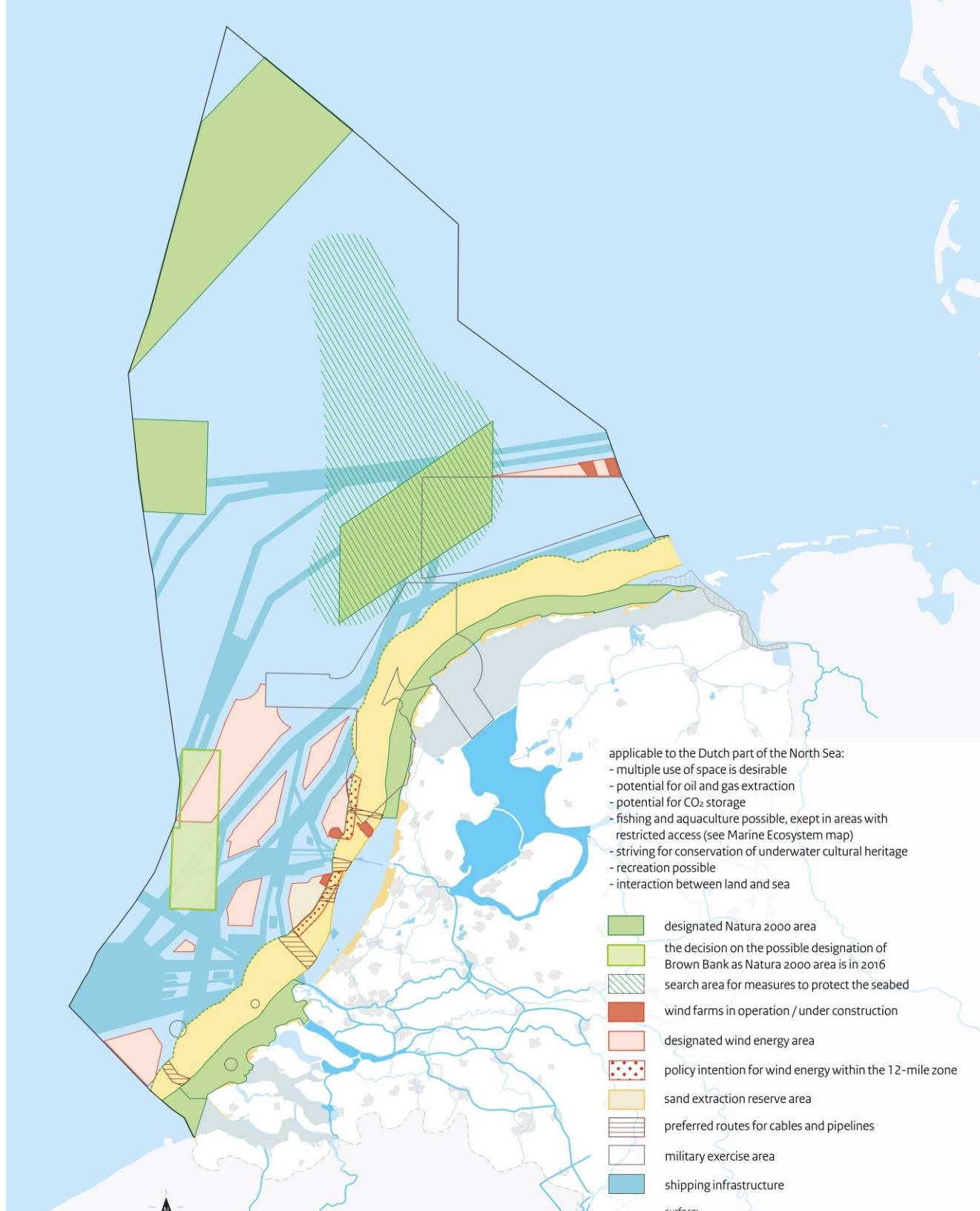
Transparent Assessment Framework for other activities

International cooperation

Extensive public participation

➤ Detailed arrangements in management plans for specific areas

Maritime Spatial Plan as part of the North Sea Policy 2016-2021



International cooperation

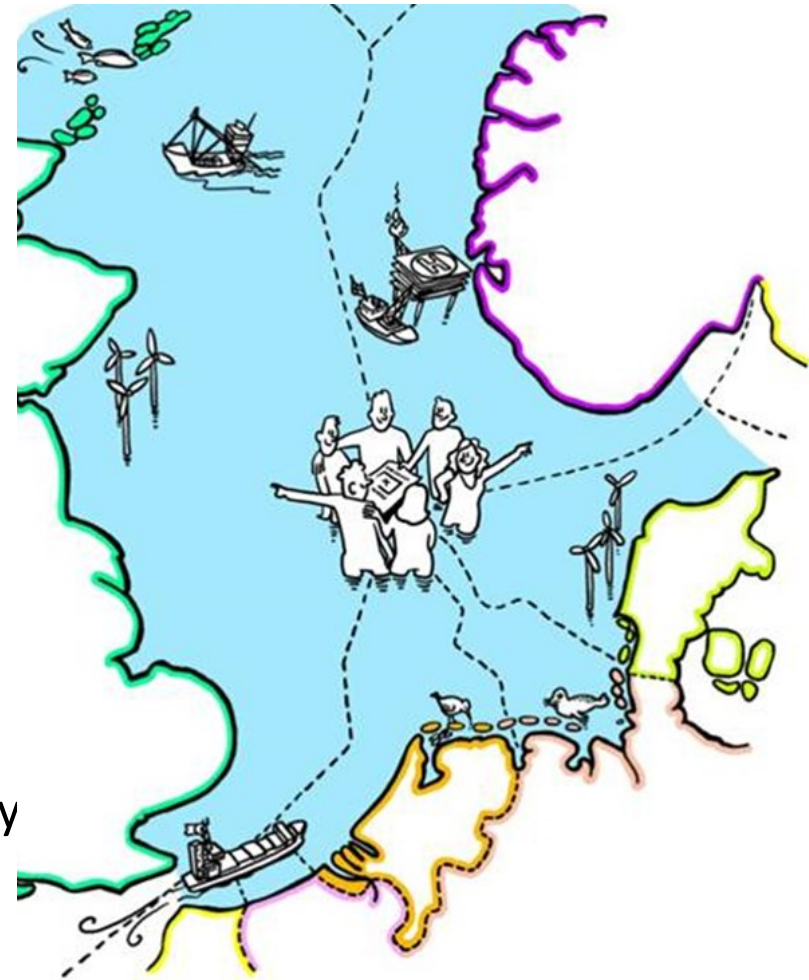
International cooperation is essential for an international water

Playing chess at different boards (UN, EC, OSPAR, bilateral)

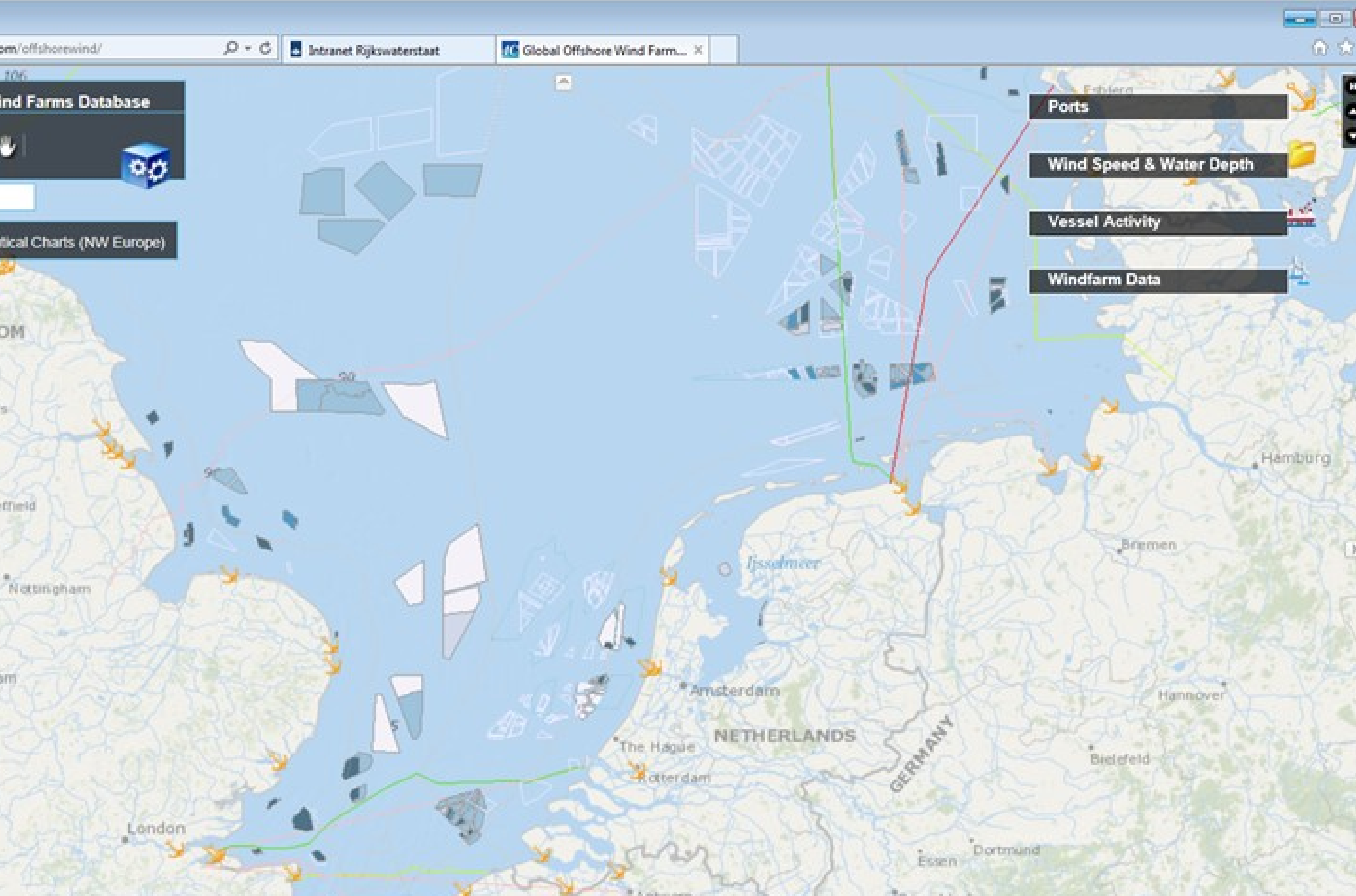
Research, management, policy

Plans Germany 2009; Norway 2013, England 2014; Belgium 2014; Scotland 2015; NL 2009, 2016

New agenda's for offshore energy for 2030 in Germany Netherlands, (Belgium)



Document1 - Microsoft Word



VISION IABR: NORTH SEA 2050?



Synergies with wind farms

(re-)use of oil and gas assets

- Electrification production
- Use of infrastructure for
 - H2 production (power to gas)
 - Transforming electricity
 - Storage/use of pipelines

Other forms of energy production (i.e. wave)

Passage trough (small vessels)

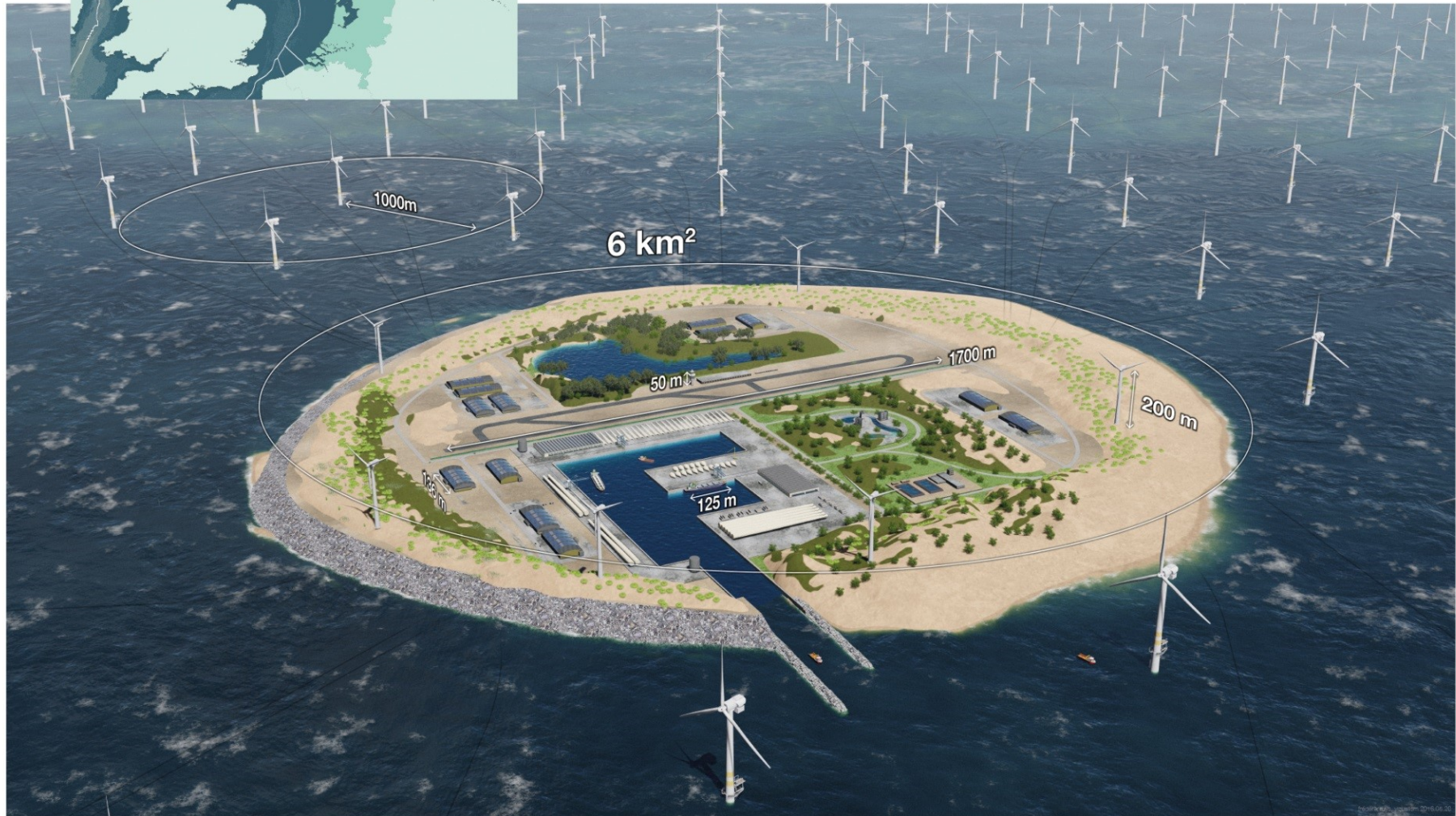
Seaweed or shell fish farming

Recreation

Possibility of work islands: during building and maintenance phase; transformation station; other functions



Dogger Island



Seaweed, the next sustainable carbon source Maritime



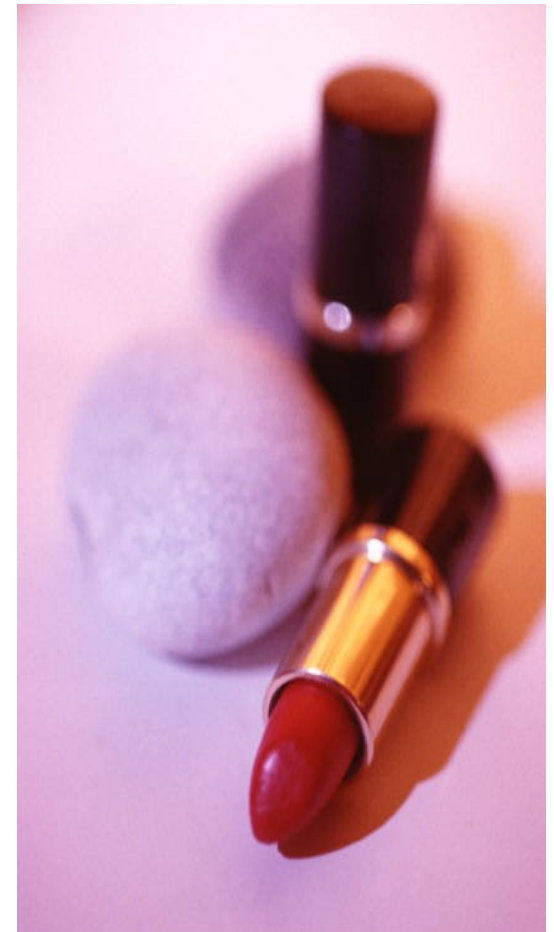
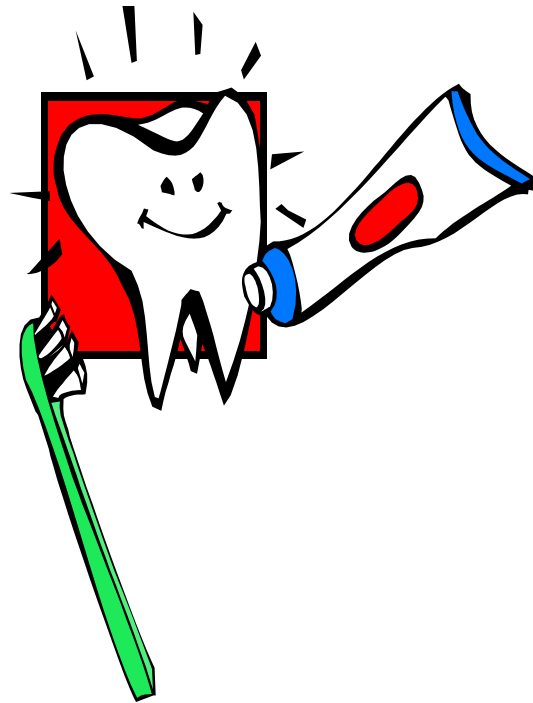
Take home message

Seaweed offers opportunities for environmentally benign, sustainable commercially viable business cases for players along the entire value chain

Have you had your seaweed today?



You probably did!



The Dutch seaweed potential

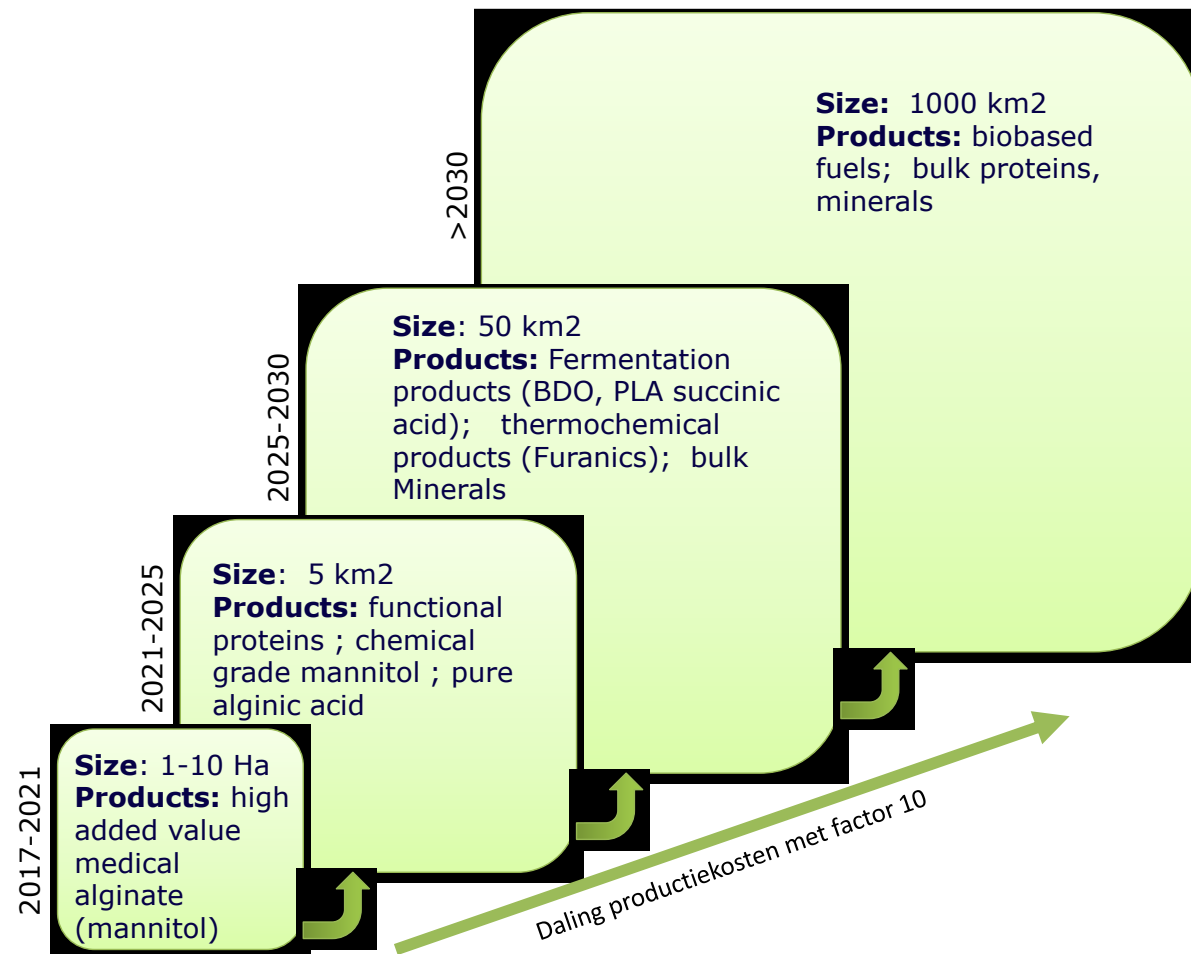
- Seaweed cultivation area 5.000 km² (<10 % of the NL area of the North Sea @ 57.000 km²)
- Integration with off-shore wind parks & (other) aquaculture operations
- Energy potential up to 350 PJ_{th} (25 Mton dry biomass per year)
- ECN-C—05-008
- Crown Estate, 15,000 km² for biogas



Seaweed is gaining traction



The seaweed development vision



The Dutch national seaweed program (applied research centers + NIOZ)



- Based on a joint successful 2015 project
- Follow-up: A national seaweed development program
- October 24th, 2016: High level meeting with relevant parties
- Fact sheet seaweed: under development (2/2017)
- Roadmap seaweed: May 2017
- Coherent, coordinated integrated value chain development
- With all the relevant industrial sectors
- Integrating with other aquaculture

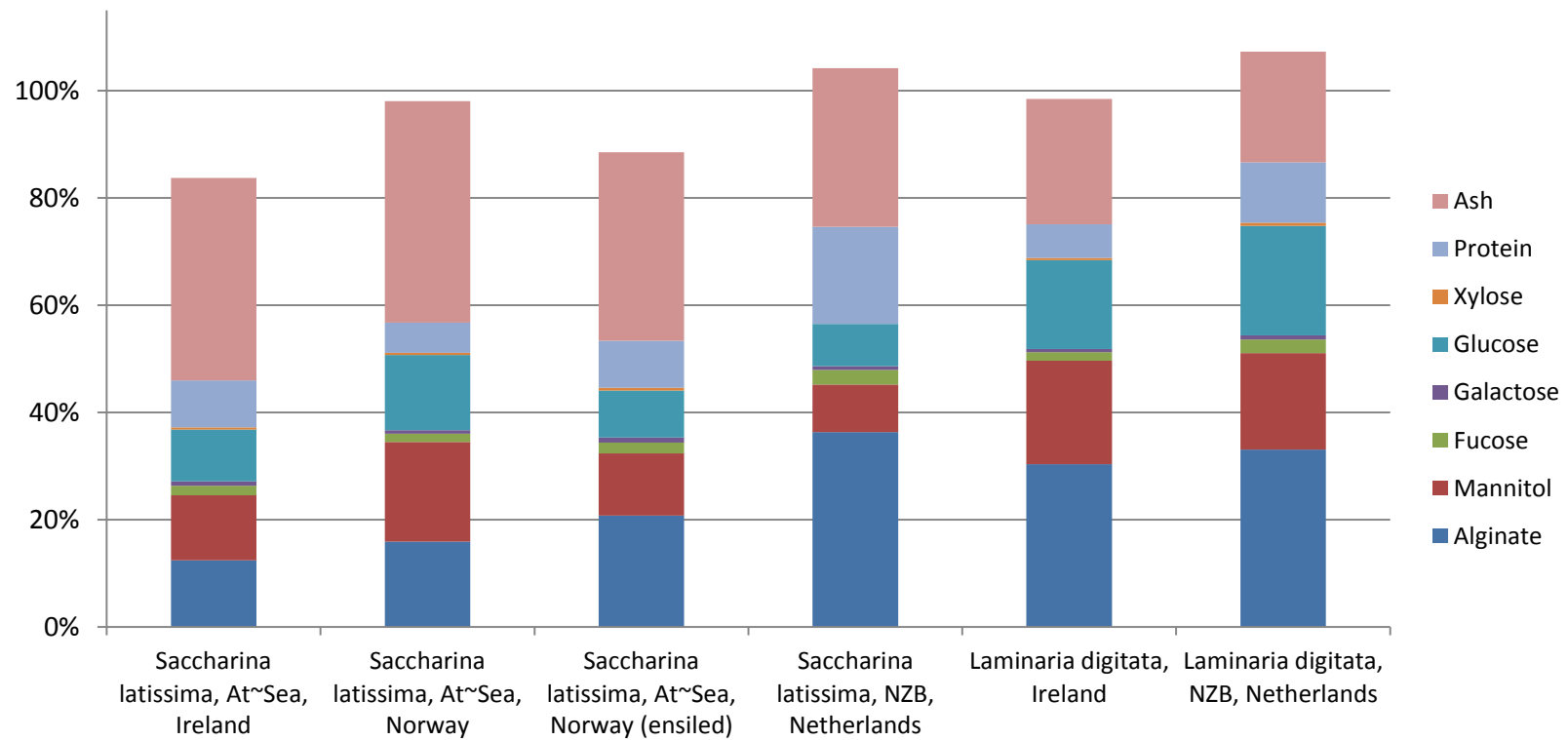
Towards industrial seaweed cultivation



Towards high value products



Location, location, location



Seaweed cultivation sites under development in the Netherlands



Challenges and barriers

- Large scale seaweed cultivation was never envisioned when drafting the current regulations
 - Regulations and treaties are being reviewed/revised, but it will take time
- Need to move from single use of the North-Sea to multi use of the North-Sea
 - I.e. use the space between wind-turbines, ~100 ha per “square”
- Need to concurrently develop the entire value chain
 - Build consortia with all industries
 - Close collaboration of the applied science institutes (TO2)
- We are building up an entire new economic sector

Thank you for your attention

Publications and further information:

<http://www.noordzeeboerderij.nl>

<http://www.ecn.nl/publications>

<http://www.macrofuels.eu>

<http://www.atsea-project.eu>

<http://www.mermaidproject.eu>

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