

We@Sea: **Cooperation in offshore wind energy development**

R&D programme

2004 – 2008

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WAB / We@Sea

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the We@Sea programme

- Initiated by major stake holders
- We@Sea is a consortium of 30 members
- Co-financed by the Dutch government € 13 million (50%)



the role of We@Sea



Independent Centre
of Know How



the We@Sea consortium

R&D Establishments

- ECN windenergie,
- TNO
- TU-Delft
- WMC

environment, nature & safety

- Bureau Waardenburg /
IMARES Texel (univ Wageningen)
- Greenpeace
- St.Noordzee
- University Twente

wind turbine manufacturers

- GE wind energy
- Vestas

offshore technology

- Ballast Nedam
- Fabricom
- Fugro Engineers BV
- GustoMSC

(Marine Structure Consultants)

- Lloyd's Register NL

project developers

- E-connection,
- E-concern (Evelop)
- Shell Wind Energy BV

wind energy technology

- Smulders Group
- Siemens

energy consultants:

- Kema Power
- Ecofys

energy sector

- Delta
- ENECO
- Nuon
- Statkraft
- TenneT

logistics and harbour development

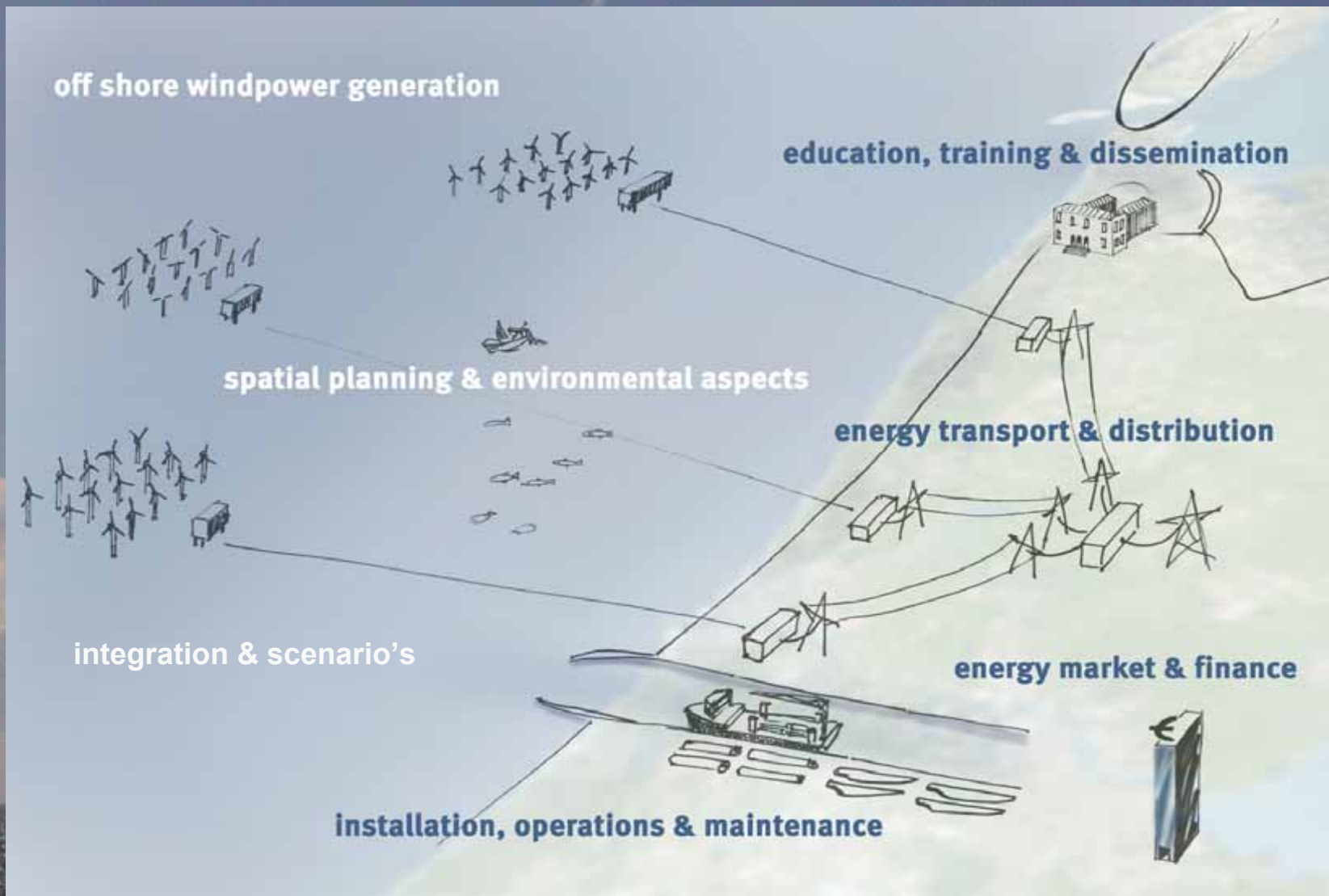
- STC

financers

- NIBC



We@Sea research areas



We@Sea $\Sigma = 26$ million €

0.	integration & scenario's	1,3
1.	offshore wind power generation	5,7
2.	spatial planning & environment	7,2
3.	energy transport & distribution	4,1
4.	energy market en financing	1,2
5.	installation, operation, maintenance & dismantling	4,3
6.	training, education, & dissemination of knowledge	0,7
7.	programme management	1,6



The aim of the We@Sea programme

To gain knowledge needed for implementation of 6000 MW wind energy at the North Sea. (= 15% of present electricity demand in NL)

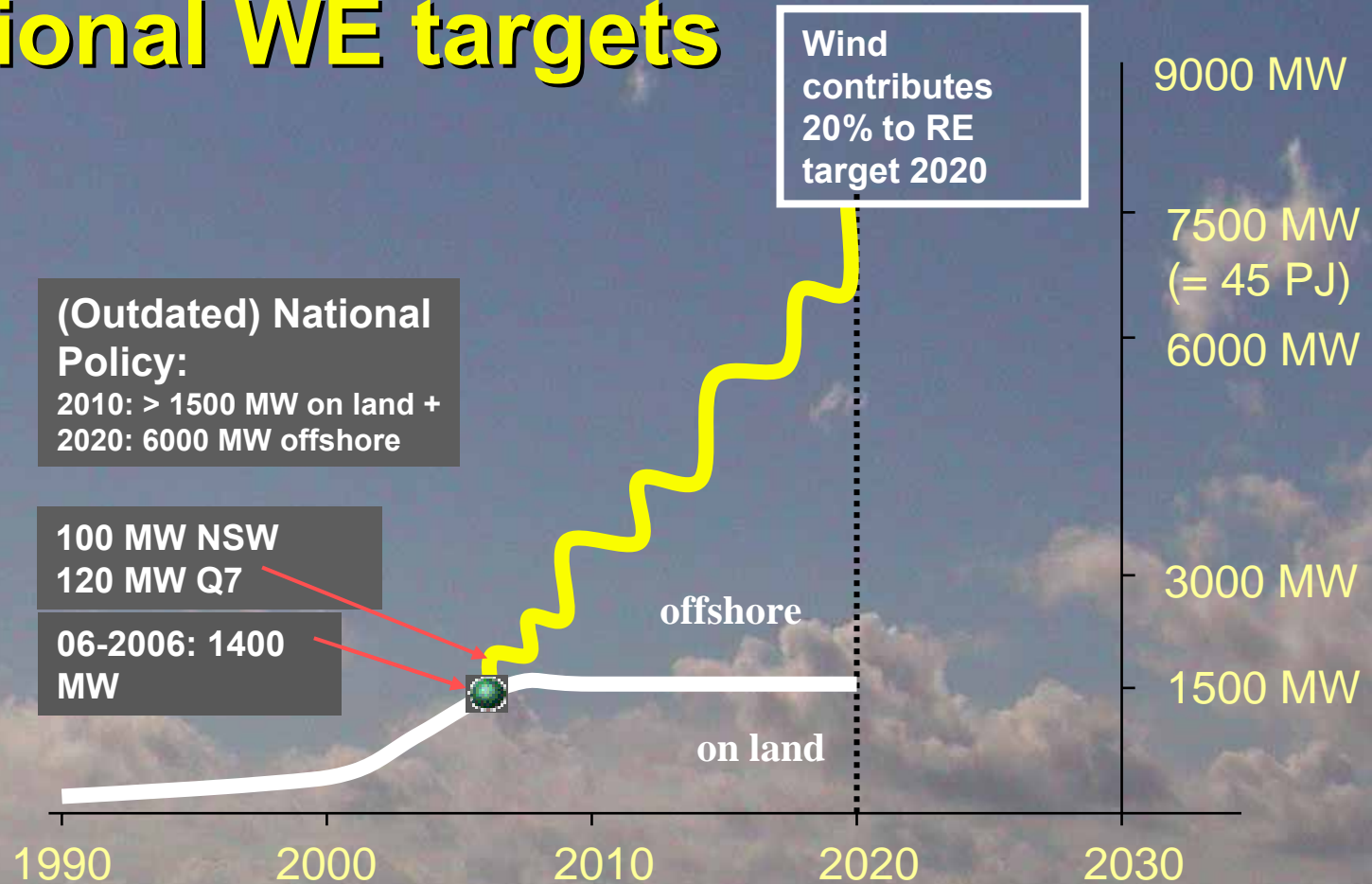


Targets

- **Reduce generation cost of offshore wind energy: installation, operation costs**
- **Increase value of offshore wind electricity**
- **contribution to improve permits and concession procedures**
- **development offshore grid**



National WE targets



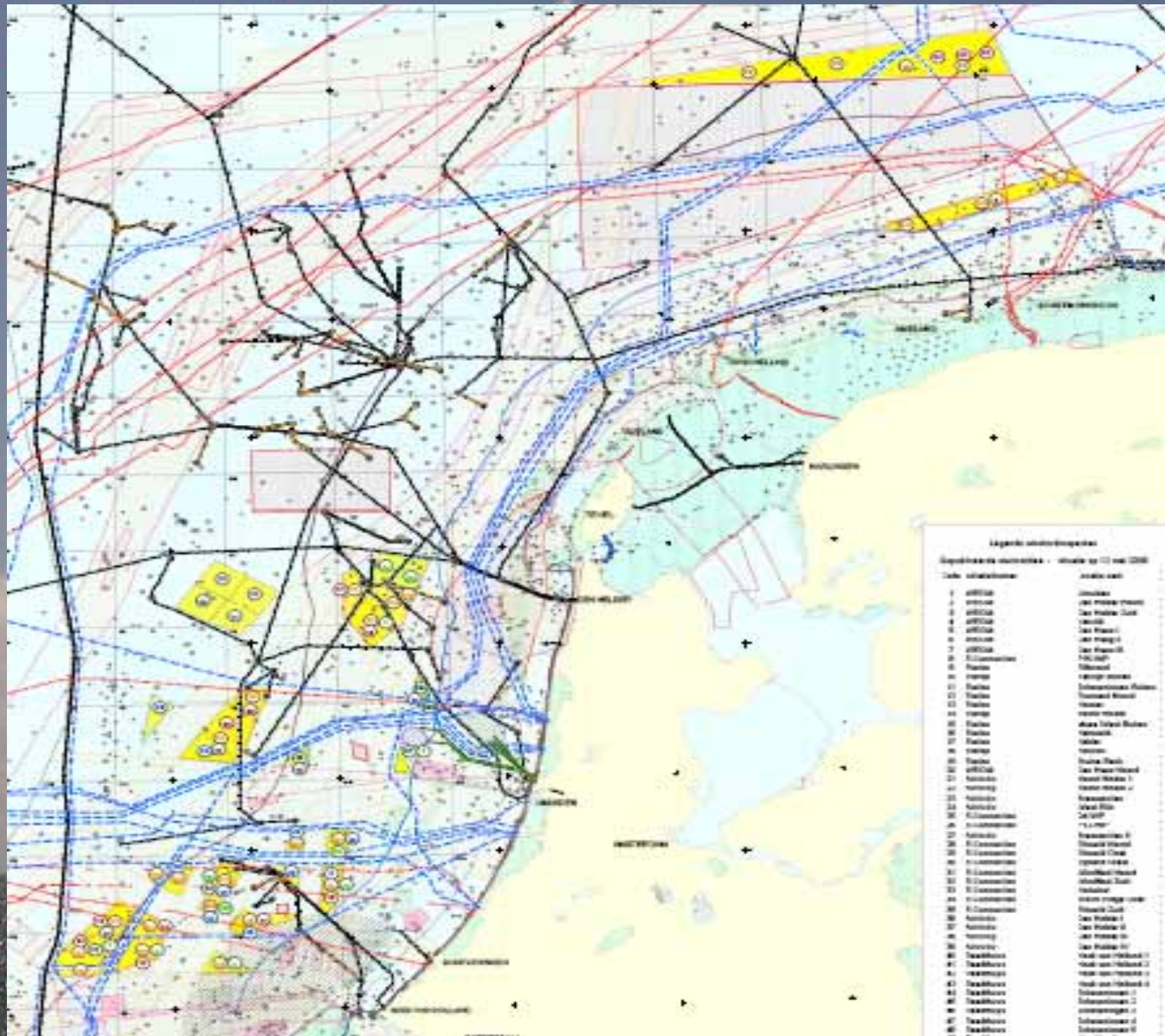
Offshore projects in NL

OWEZ 108 MW,
October 2006

Q7 120 MW,
2007



NL Offshore Wind energy



some We@Sea projects.....

1. very large rotor blades (PhD@Sea)
2. dedicated offshore wind turbine concepts (PhD@Sea)
3. design tools (structural dynamics, frequency domain analysis)
4. wind farm control strategies
5. sea floor morphology (PhD@Sea)
6. environmental impact studies
7. offshore grid architecture
8. optimised integrated foundation and installation methods
9. Offshore access technology (PhD@SEa)
10. Port development
11. O&M issues (incl. 'cost estimator')



www.we-at-sea.org