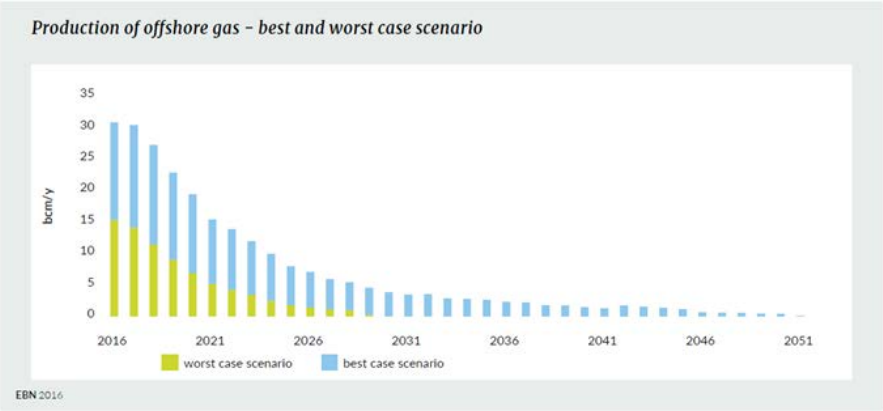
SYSTEM INTEGRATION IN THE NORTH SEA

The North Sea Energy Program | Ellen van der Veer, TNO, the Netherlands

TNO innovation for life

OFFSHORE ENERGY IN TRANSITION

Oil and Gas

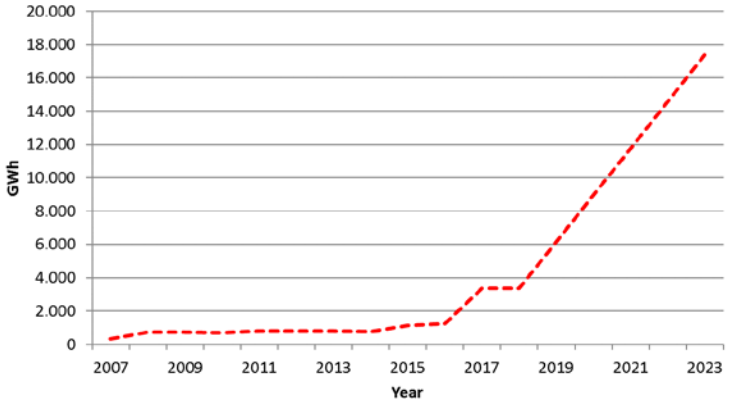


EBN 2016

Decommissioning on the North Sea is large endeavour

The current sum earmarked as a provision for the decommissioning of all Dutch wells and infrastructure is some €7 billion, most (55%) of which is for the offshore sector

Offshore wind

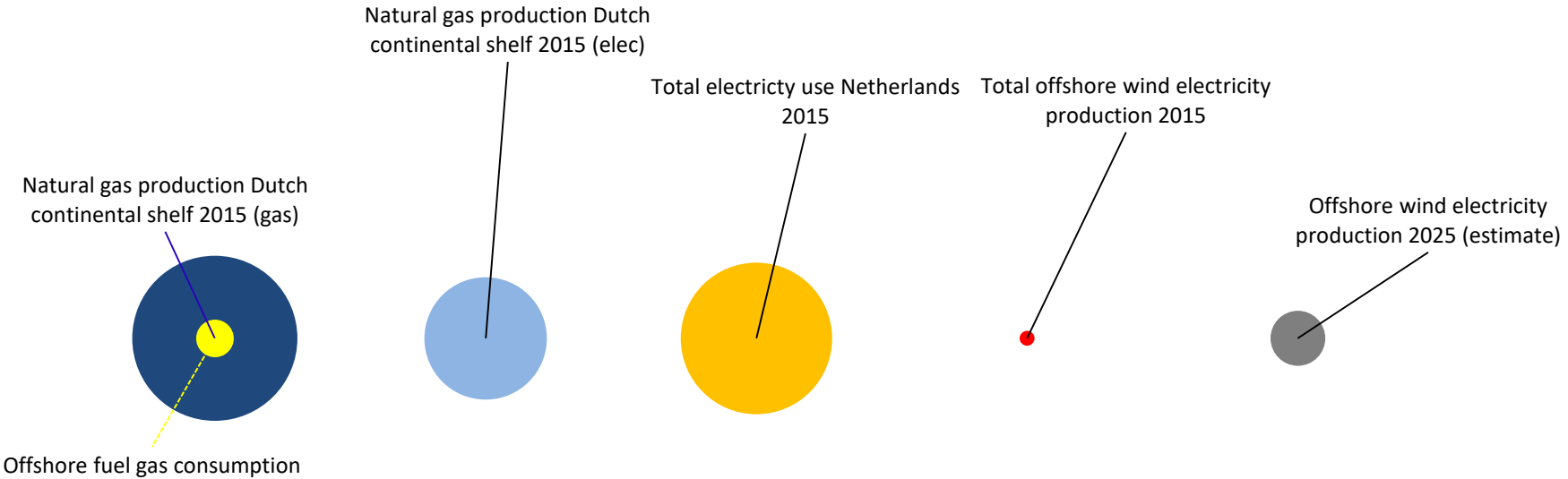


Offshore wind growth up to 2023 of ~4,5 GW (NL)

Strong offshore wind capacity growth foreseen

→ 2023: €8-11 billion investments, at least 4 billion for infrastructure
→ Large offshore grid (vision 2050): 24 Billion Euro (NL only)

OFFSHORE ENERGY IN PERSPECTIVE



TWh	140	77	118	1	18

FROM SEGREGATION TO INTEGRATION

How to balance p

How to grow c

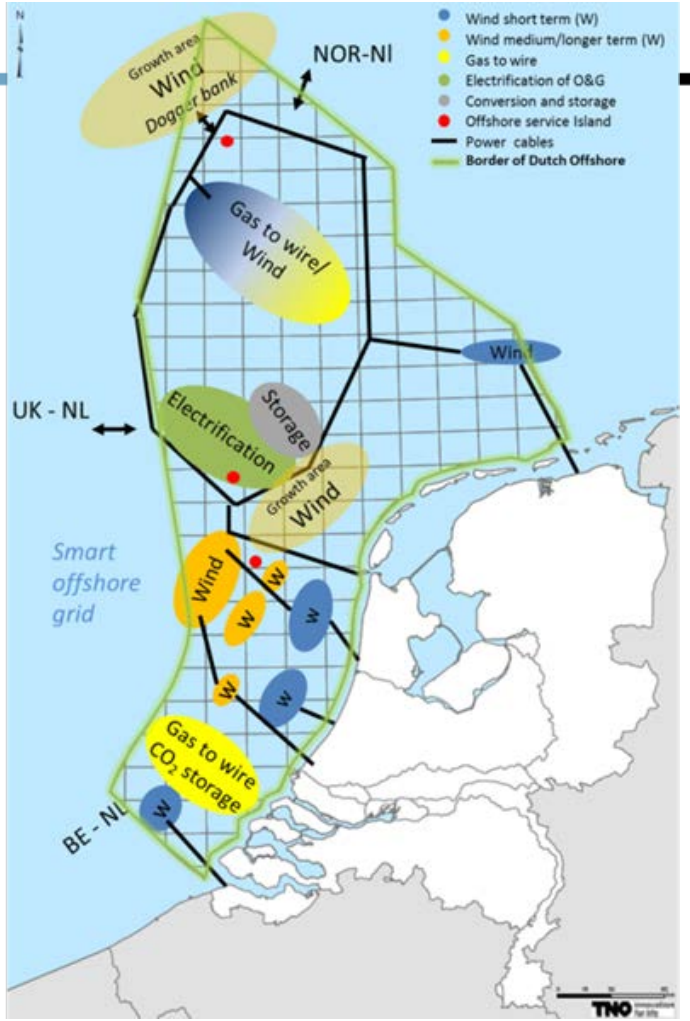
f clean power

e re-used?

SYSTEM INTEGRATION OPTIONS

Development of large-scale offshore wind can be integrated with offshore gas infrastructure along the following main options:

- Electrification of platforms
- Power2Gas
- Carbon capture & storage
- Gas2Wire
- Energy storage



THE NORTH SEA ENERGY PROGRAM

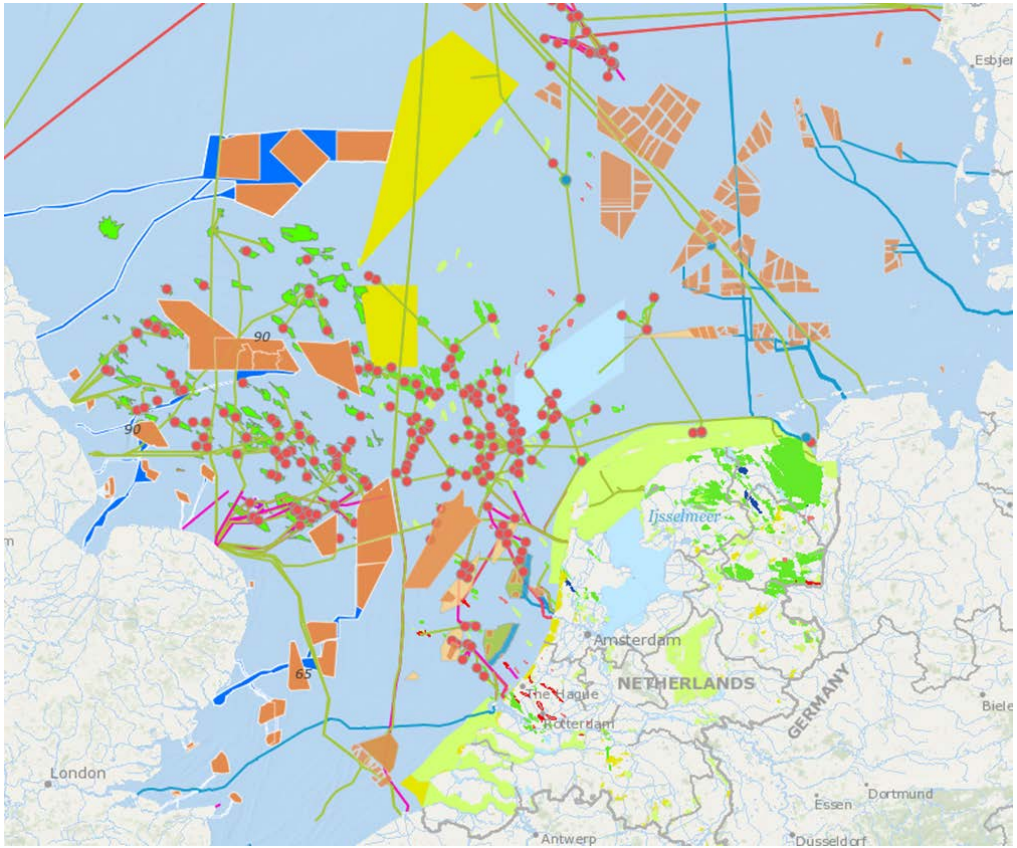
- **Research budget of US$1.2 million**
- **10 industry partners (e.g. Shell, Total), branch organizations gas & wind, 5 research institutes (TNO, ECN, EDI, EAE, Groningen University)**

Other initiatives:

- 2nd project on Pilot location selection October 2017- October 2018
- RVO-TNO initiative on internationalization of system integration
- Vision & roadmap development for System Integration of the North Sea

NORTH SEA ENERGY ATLAS

- Interactive GIS tool based on public data
- Bringing together data on offshore wind and oil and gas
- Including scenario's for medium (2030) and long (2050) term
- Cross-border tool
- Enabling policy makers and industry to identify hot spots for system integration



North Sea Energy

www.north-sea-energy.eu

Live next week!