

Offshore Wind Noord-Holland

“We are North Sea Energy Gateway, your service haven”

Workshop RVO, 24 November 2016

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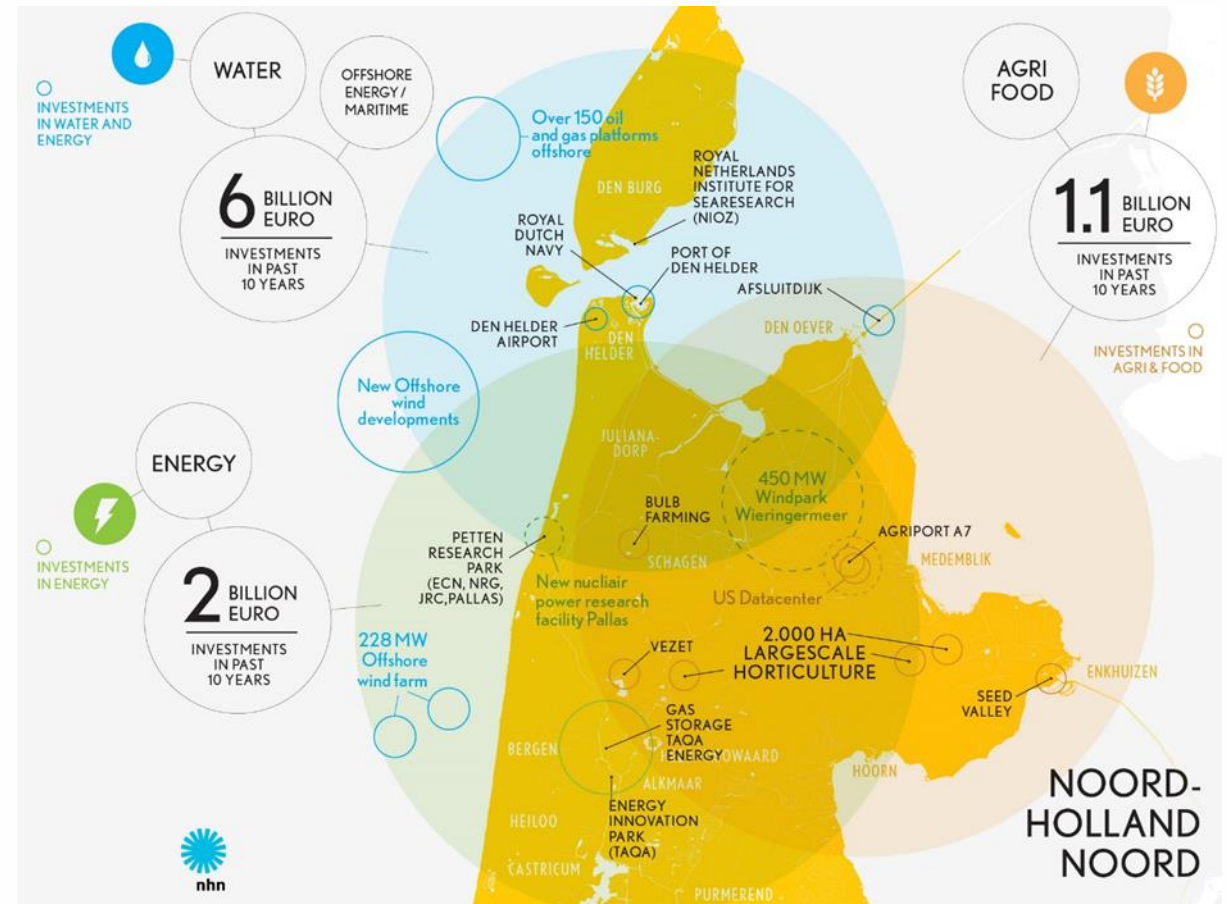


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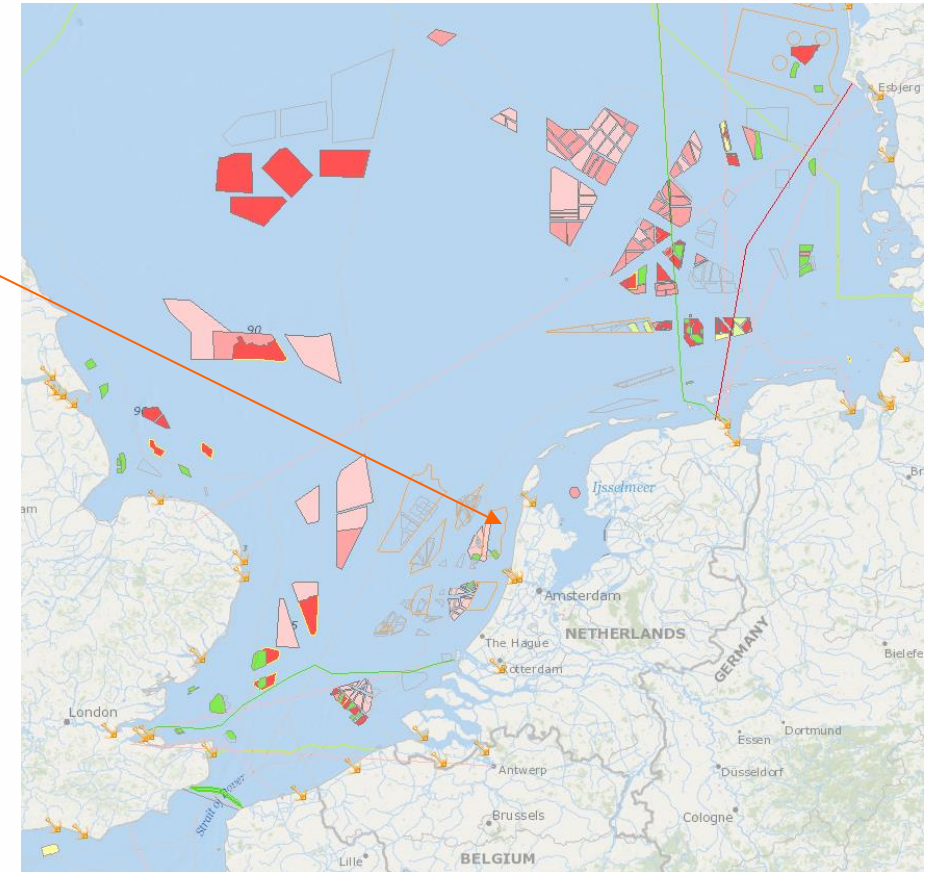
“The region harvests its energy ecosystem to meet global needs with local solutions” (FDi Magazine November 2015)

- Focus on Energy – Water – Agrifood – Leisure
- In last decade over 10 billion Euro investments
- Proactive local and regional government
- Experience with large and complex projects:
 - 150 oil and gas platforms
 - 3 offshore wind parks (357 MW)
 - Largest European gas storage (TAQA)
 - Nuclear energy facility NRG
 - NAM natural gas treatment plant Den Helder
 - 500 ha large scale horticulture Agriport
 - 37 ha hyper data center Microsoft



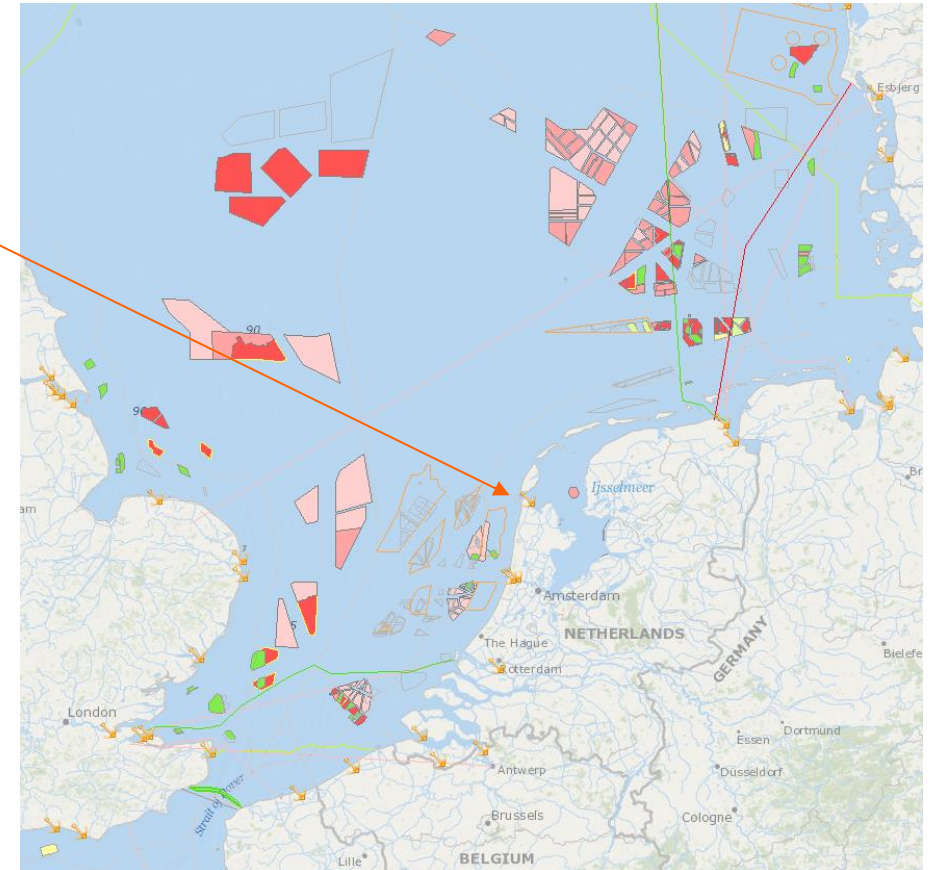
“We are North Sea Energy Gateway, your service haven”

- Noord-Holland has the most efficient supply chain for the offshore and maritime sector.
- 150 offshore oil and gas platforms are serviced from Port of Den Helder and Den Helder Airport.
- Over 30% of the Dutch gas production from Dutch continental shelf and facilitated via Den Helder.
- 357 MW offshore wind installed; 450 MW on shore wind under development
- ECN and wind energy testing facilities
- NIOZ, the national oceanographic institution
- In the past decade, over € 6 billion of investments in offshore energy and maritime industry.



Den Helder & IJmuiden

- The region is the center of the offshore energy locations in the Southern North Sea
- Den Helder offers an integrated offshore concept by combining both seaport and airport
- Based on over 40- years of experience in oil and gas logistics
- ECN, Energy research Centre of the Netherlands and wind testing facilities



- Noord-Holland offers the most efficient offshore supply chain network of the Nord Sea. This network built over a 40 years of experience.
- The network gives operators the opportunity to share capacity, facilities and services, in order to cut costs and save money. Examples:
 - Peterson, supplying several offshore installations with one ship
 - CHC helicopter pool for Centrica, DANA, Petrogas, TAQA and Total
- The Dutch Offshore Academy and Maritime Campus Netherlands raises Den Helder to a higher level in regard to education.
- Industry, research, government, education and training cooperate in the Port Association.



Offshore wind history

Installation offshore wind farms

- Offshore wind farm Egmond aan Zee (OWEZ) Nuon/Shell
- Offshore wind farm Prinses Amalia Eneco
- Offshore wind farm Luchterduinen Eneco
- Installation support OHVS Luchterduinen

Maintenance

- Offshore wind farm Egmond aan Zee (OWEZ) Nuon/Shell
- Offshore wind farm Prinses Amalia Eneco
- Offshore wind farm Luchterduinen Eneco

Installation near shore wind farm

- Westermeerwind

Organisations have over 30 years of offshore energy experience.



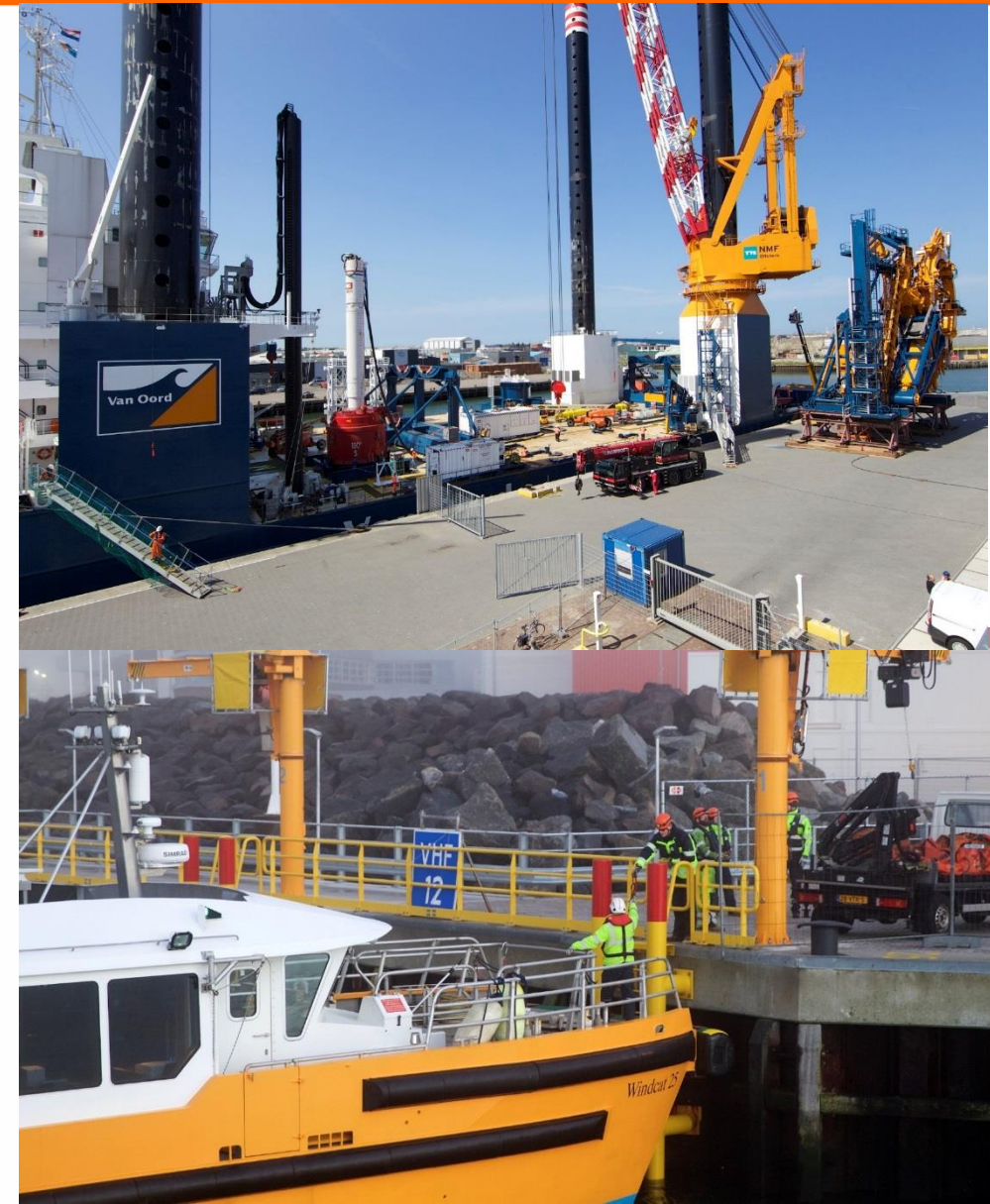
Capabilities for offshore wind

Installation support

- Space
- Quayside, infrastructure and draft
- Logistics
- Service suppliers
- Heliport Amsterdam, Schiphol Airport

Operation and Maintenance

- Boat landings
- Specialized service and suppliers
- Heliport Amsterdam, Schiphol Airport
- MHI Vestas, WindCat Workboats, Eneco, Falck Nutec



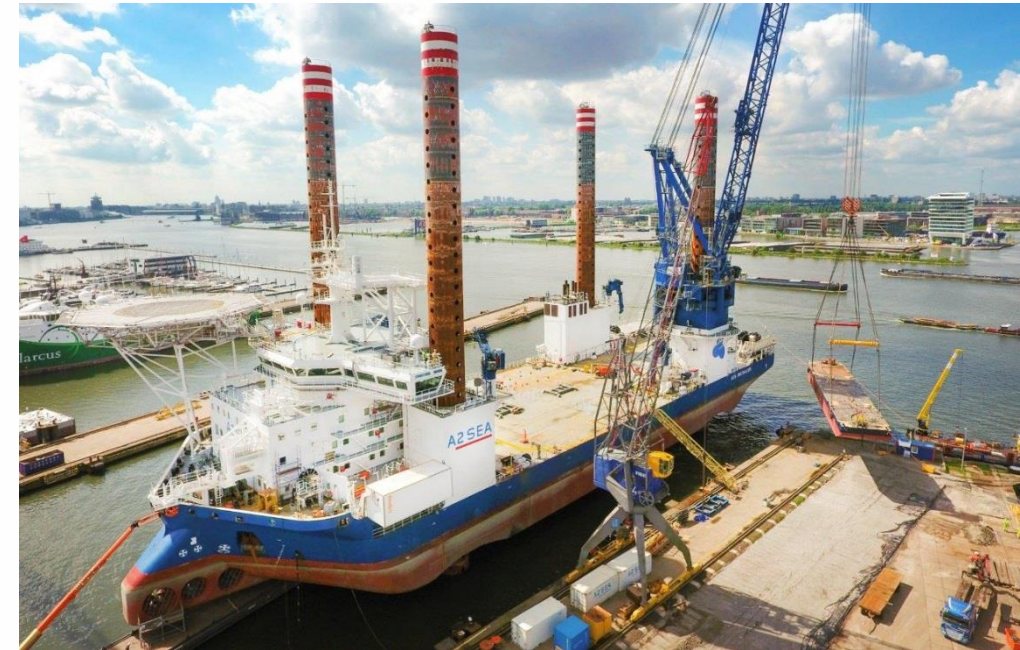
Capabilities in offshore wind

Conversion, mobilisation, repair and operations

- Ship conversion
- Project mobilisation
- Repair, maintenance
- Damen Ship repair & conversion Amsterdam & Oranjewerf, Breman Offshore, Dutch offshore Base, Wesco

Cable hub

- Ship to ship transshipment
- Ship to shore transshipment
- Strategic storage
- Wind bv, Oceanteam, Mammoet, TMA Group



Port of Den Helder

- Ideal location for offshore operations and maintenance
 - Quays – NAP +/- 3,00m:
 - Nieuwediep kade: 495m1, 11.500m2
 - Visserijkade: 200m1, 2.300m2
 - Nieuwe Diep kade: 970m1, 1.800m2
- Max vessel size and draft:
 - Maximum Length Overall (LOA): 175m1
 - Maximum water depth: +/- 10,00m NAP
 - Minimum water depth: +/- 9,00m NAP
- Quayside facilities:
 - Tap water, fueling, waste collection, stevedoring, cranes, forklifts, mooring services, security (ISPS certified)
- Hinterland connections, maximum LOA 85m1



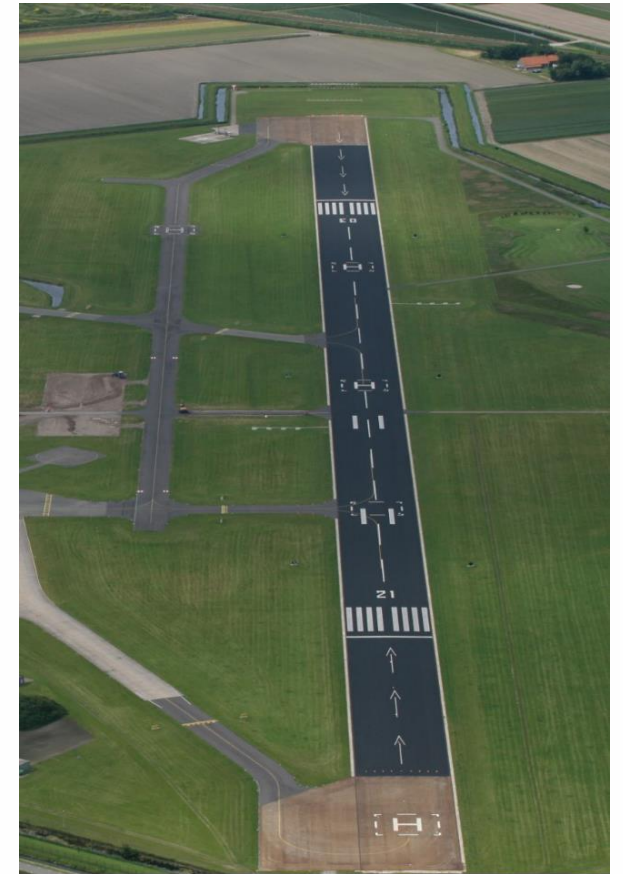
Europe's largest dedicated helicopter airport

**Den Helder
Airport**



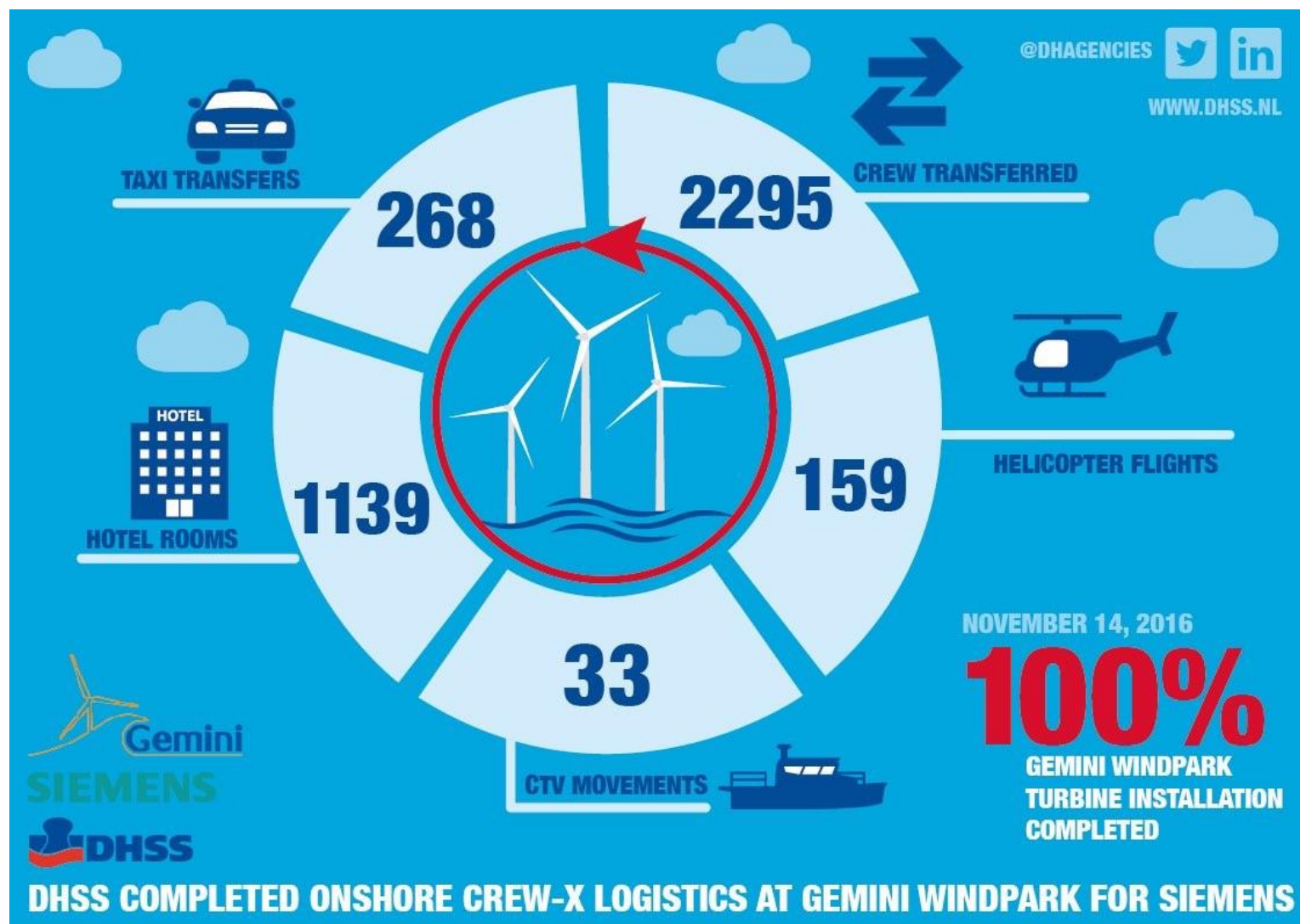
Key figures

- Well-equipped to carry out offshore helicopter flights and regular (business) charter and scheduled flights
 - 1.275m runway
 - 12 helicopter spots
 - Instrument Landing System (ILS). An ILS is an radio navigation system which enables aircraft to land if the pilots are unable to establish visual contact with the runway.
 - VOR approach system (Very High Frequency Omni-Directional; radio)
 - DME approach system (Distance Measuring Equipment)
- Over 40 years experience in offshore passenger transport
- 25-30 daily flights to approximately 125 exploration and production platforms and 2 windfarms (in construction).
- Number of passengers between 130.000 and 140.000 annually
- Inbound and outbound freight between 350.000 and 550.000 kilo annually
- Allowed number of flight movements: 27.000 annually



- Port of Den Helder and Den Helder Airport cooperate with Peterson and DHSS. The two all-in freight operators provide freight forwarding services, ensuring on-time delivery of all materials from vendors to and from vessels and other (offshore) locations.
- Freight operators are well known with the unique logistics challenges of the offshore energy industry. The full range of freight forwarding services includes:
 - Tracking inland transportation
 - Preparation of shipping and export documents
 - Freight collection
 - Warehousing
 - Booking cargo space
 - Negotiating freight charges
 - Freight (de)consolidation
 - Cargo insurance
 - Filing of insurance claims
 - Hot shot components



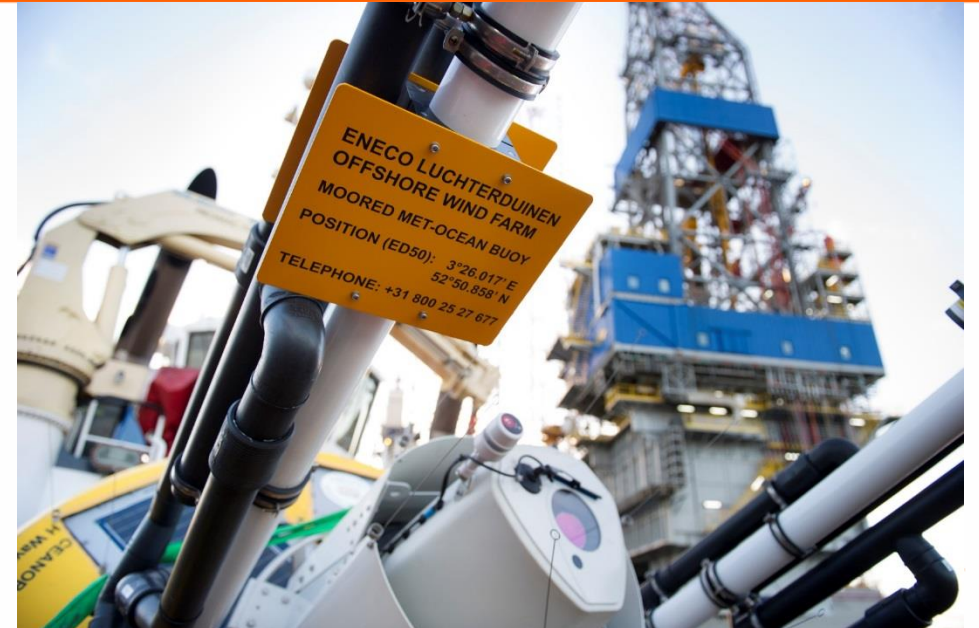


Who we are

Amsterdam IJmuiden Offshore Ports (AYOP) is a dynamic networking organization. It is a powerful promoter and catalyst, taking the offshore stronghold between the ports of IJmuiden and Amsterdam to their next level. Co-engineering the future of the offshore industry worldwide.

Connecting with over 75 companies and organizations in the North Sea Canal area to turn their shared ambition and knowledge into inspiring and smart offshore energy solutions.

Supported by local government bodies and Province of North Holland.



Feel free to contact me for any questions



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Amsterdam IJmuiden Offshore Ports,
your entrance to a wealth of suppliers, maritime,
logistics, sites, heliport, airport and seaports for
clever solutions in offshore wind logistics,
*at the shortest nautical distance of the Hollandse
Kust developments.*

Find our members on: ayop.com

This presentation has been developed by Development Agency NHN, in cooperation with Port of Den Helder NV, Den Helder Airport BV and Maritime Campus Netherlands.



For questions, comments and suggestions, contact Bjorn Borgers, bborgers@nhn.nl

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