

Dutch Offshore Wind Innovation Guide

Policy solutions, technology and innovations for global growth



Netherlands

Issue 2026

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global growth

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Reading Guide

Welcome to the Dutch Offshore Wind Innovation Guide 2026. This publication brings together the latest insights into Dutch policy, offshore wind projects, and innovation. Chapter 1 provides a clear overview of the national regulatory framework and showcases key offshore developments in the Netherlands. Chapters 2 to 9 cover various business segments of the offshore wind industry, highlighting new technologies and services that improve cost efficiency, reduce environmental impact, and support system integration. These chapters are complemented by press stories showcasing the achievements of Dutch companies. Chapter 10 includes a business directory with experienced partners ready to contribute to the global energy transition. Together, these chapters reflect the Netherlands' continued commitment to innovation, collaboration, and sustainable offshore wind development.



Dutch Offshore Wind: Innovation for the World

Offshore wind energy is a cornerstone of the renewable energy transition for many nations due to its potential for large-scale, consistent electricity generation. Offshore wind has matured and is now part of many countries plans to reach their renewable energy targets. While the current market conditions are challenging, the long-term outlook remains strong as the energy transition grows ever more important to obtain strategic autonomy, energy security and achieve climate goals amid global political instability.

In the Netherlands, the Government has taken a proactive role to achieve affordable large-scale offshore wind capacity and also secure the socioeconomic benefits this industry offers. After years of cost reductions and strong competition in zero-subsidy tenders, the 2025 1 GW Dutch offshore wind tender received no bids, mirroring similar challenges in several other European markets. Due to rising costs and less growth of demand for electricity from industry than expected, development of offshore wind energy has become more difficult in many countries. These developments underline the need for renewed support mechanisms and adaptive policies to maintain momentum in offshore wind deployment. To prevent a standstill from happening in the Netherlands, the Government recently launched its action plan to promote further electrification of industry. This includes measures to financially support the construction of new wind farms. The plan also provides solutions to further stimulate demand for offshore wind energy. The Dutch government remains focused to have 21 GW of offshore wind capacity installed, equivalent to around 75% of the current electricity demand.

We are open to sharing our experiences on the Dutch policy framework and the sector's expertise internationally. As we are sharing knowledge and are learning from each other, we can accelerate the growth of new offshore wind markets. It is therefore my pleasure to present the 2026 edition of the Dutch Offshore Wind Innovation Guide.

This annual flagship publication offers a clear overview of the Dutch regulatory framework, offshore projects and supply chain. It highlights breakthrough innovations in offshore wind technologies that improve cost efficiency, reduce environmental impact, and support system integration. You will also find press articles on recent export successes of Dutch companies and their business profiles.

I am equally proud to recommend our industry association partners: NedZero and Maritime & Offshore NL - a recent merger of Holland Home of Wind Energy (HHWE), the Association of Dutch Suppliers in the Offshore Energy Industry (IRO) and Netherlands Maritime Technology (NMT). Their members' company profiles are included in the business directory of this guide. They are eager to help solve the challenges of the global offshore energy transition.

This guide will be a valuable resource for governments developing their offshore wind sectors, as well as for international developers and businesses seeking innovative and cost-effective technologies and services. With our collaborative efforts and willingness to share experiences, offshore wind will remain a driving force of the global energy transition.



Anne Le Guellec
*Director International Enterprise Department
Ministry of Foreign Affairs of the Kingdom of the Netherlands*



Netherlands Enterprise Agency



Ministry of Foreign Affairs

1. Harnessing the wind

The Paris Climate Agreement, signed by nearly all countries, aims to limit global warming to well below 2°C and preferably to 1.5°C above pre-industrial levels. Achieving this goal requires a massive global expansion of renewable energy deployment.

Offshore wind is set to become the leading renewable energy source that can be deployed at scale, with vast untapped potential in the world's seas. It offers higher capacity and more consistent output than any other renewables. The International Energy Agency describes offshore wind as a unique “variable baseload” technology, capable of supporting the integration of decarbonised energy systems.

Governments worldwide recognise offshore wind's role in driving the energy transition, stimulating large-scale investment, creating jobs, and supporting economic development in coastal communities.

This chapter begins with an overview of offshore wind in a global context, followed by offshore wind development in the Netherlands. It outlines the Dutch approach to offshore wind, highlights successful projects, and traces the policy changes over time that aim to keep the Netherlands a global frontrunner in the sector.





1.1 Global overview

As coastal nations continue to harness their offshore wind potential, the Global Wind Energy Council (GWEC) reports that 2024 delivered 8 GW of new offshore wind capacity. While this was 26% lower than in 2023, it still marked the fourth-highest year on record, bringing global installed capacity to 83.2 GW. Despite challenges, 2024 was also a record year, with 56 GW of capacity awarded and 45 GW under construction worldwide. The sector continues to face headwinds from inflation, higher capital costs, supply chain bottlenecks and policy uncertainty in some markets. Yet governments and developers remain committed, and the medium-term outlook is strong: according to GWEC, annual global offshore wind additions are forecast to surpass 30 GW by 2030 and exceed 50 GW by 2033.

Asia-Pacific (APAC)

According to GWEC, China remained the world's offshore wind leader in 2024, adding 4 GW and bringing its total installed capacity to 41.8 GW – about half of the global fleet. While additions were lower than the previous year, China has now entered its fourth year of 'grid parity' (same or lower cost than fossil power), proving its ability to deliver large-scale projects without subsidies. Elsewhere in the region, Taiwan commissioned 933 MW, Japan 112 MW, and South Korea 100 MW, marking steady progress across Asian markets. Together, these developments highlight APAC's growing role as the global hub for offshore wind.

Europe

GWEC shows that Europe added 2.7 GW of new offshore wind capacity in 2024, spread across nine wind farms in four countries. The United Kingdom led with 1.2 GW, followed by Germany (730 MW), France (658 MW), and the Netherlands (132 MW). Although additions were lower than in 2023, Europe's total offshore wind capacity has now surpassed 36 GW, and with record auction activity in 2024 the region is well positioned for growth in the years ahead.

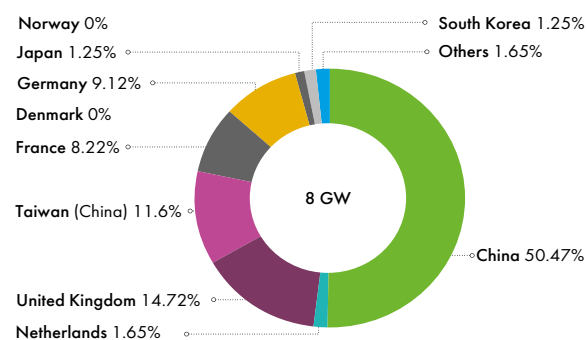
United States

In the Americas, only the United States has offshore wind energy in operation. According to GWEC, the country commissioned its first two commercial-scale projects in 2024, bringing total installed capacity to 174 MW. However, the sector faces strong headwinds: supply chain constraints, cancelled offtake agreements, and new political risks, including a temporary halt on offshore leasing and stop-work orders on projects under construction, have created deep market uncertainty.

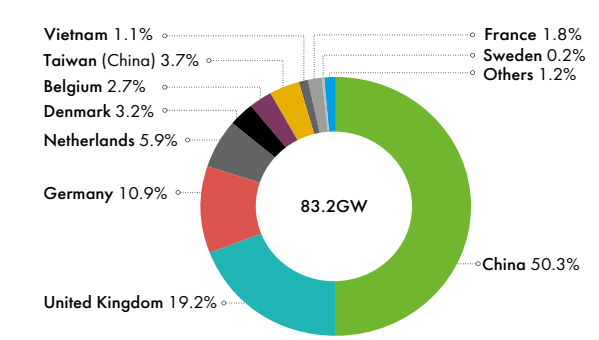
'Despite challenges, 2024 was also a record year, with 56 GW of capacity awarded and 45 GW under construction worldwide.'

Market Status 2024

New offshore wind installations by market



Total offshore wind installations by market



New offshore wind installations by region

Total offshore wind installations by region

Source: GWEC

1.2 Offshore wind development in the Netherlands

Today, the Netherlands is Europe's third-largest offshore wind market (after the United Kingdom and Germany), with 4.9 GW in operation. This position was hard won. Although the potential of offshore wind had long been recognised, until 2013 only a handful of projects were developed in the Dutch North Sea due to a passive policy framework. Developers carried full project risk without certainty of approval, facing high costs before even applying for subsidies. As a result, out of 80 initial applications, only four wind farms (together less than 1 GW) were built.

2013: Shift to a proactive approach

In 2013, the Energy Agreement for Sustainable Growth (hereinafter: Energy Agreement) marked a turning point. Signed by government, businesses, unions, environmental groups and energy companies, it set ambitious climate targets, including 16% renewables by 2023. The government also introduced a supportive framework with a one-stop shop for offshore wind: state agencies took charge of site selection, surveys, permits and tenders, while TenneT developed the offshore grid. This cut pre-bid costs and risks, improved coordination and shortened project timelines, allowing developers to focus on optimising design, construction and operation.

Main actors under the Dutch one-stop shop approach

Offshore wind governance in the Netherlands is shared between three actors:

1. The **Ministry of Climate Policy and Green Growth (KGG)** sets the multi-annual roadmap for offshore wind development and determines the tender design. Its Netherlands Enterprise Agency (RVO) prepares and issues permits, conducts site studies, coordinates tenders, and publishes them.
2. The **Ministry of Infrastructure and Water Management (I&W)**, together with KGG, allocates areas for future wind farms. Its agency Rijkswaterstaat (RWS) conducts Environmental Impact Assessments (EIAs) and prepares site decisions, including locations and permit conditions.
3. The Transmission System Operator (TSO) **TenneT** has been legally appointed to develop and operate the offshore grid, providing state-owned connections between offshore wind farms and the onshore network. Tender winners receive permits to build and operate a wind farm and to connect to this grid.

1.3 Roadmap 2023

Launched under the 2013 Energy Agreement, the first Offshore Wind Energy Roadmap (2015) targeted 3.5 GW of new capacity by 2023. It designated four project sites in three zones – Borssele, Hollandse Kust (zuid) and Hollandse Kust (noord), potentially lifting total capacity to 4.5 GW.

Tenders were completed for Borssele (Sites I & II, III & IV, and V), Hollandse Kust (zuid) (2018–2019) and Hollandse Kust (noord) V (2020). Borssele V (20 MW) is a demonstration project awarded in 2016 to the Two Towers consortium, testing innovations like slip joint foundations and eco-friendly scour protection (see chapter 8.2 for more information). Project details and tender outcomes of the other sites under the Roadmap 2023 are presented in the sections below and in the table on page 10.

2016: Borssele, sites I - II (752 MW)

The first Roadmap 2023 tender covered Borssele sites I and II, 55 km off Vlissingen. The auction followed the Stimulation of the Sustainable Energy Production (SDE++) subsidy system, a sliding feed-in premium where the government compensates the gap between the market price and the bid strike price for up to 15 years. Strong competition (38 bids) pushed prices far below expectations. Ørsted won with a record-low strike price of 7.27 €/kWh (while the ceiling was 12.4 €/kWh), making the project the world's cheapest offshore wind farm at the time. The project comprises 94 Siemens Gamesa 8 MW turbines, connected to TenneT's grid in 2020 and fully commissioned in 2021. Today, besides Ørsted, Norges Bank Investment Management holds a 50% stake.

2016: Borssele, sites III - IV (731,5 MW)

The Blauwwind consortium (Shell, Eneco, Partners Group, Mitsubishi, Van Oord) won the 2016 tender for Borssele III & IV with a record-low strike price of 5.45 €/kWh under the SDE++ scheme. The project, built with 77 Vestas 9.5 MW turbines, required only €0.3 billion in subsidy instead of the €5 billion originally budgeted, meaning support could be phased out after about 7.5 years. Commissioned in 2020, the project generates ~3 TWh annually, powering 825,000 households (2.3% of Dutch demand). Current shareholders include Shell, Eneco, INPEX, Luxcara, Swiss Life, Nuveen and Octopus Energy.

New auction type: comparative assessment

Strong interest and competition in the Borssele tenders drove strike prices down so quickly that the remaining Roadmap 2023 zones, Hollandse Kust (zuid) and (noord), were expected to be subsidy-free. A new legal framework was therefore introduced, using a comparative assessment instead of strike price. In this system, zero-subsidy bids are evaluated on qualitative criteria, such as how revenue, construction and operational risks are identified and mitigated. The permit is awarded to the bid with the highest overall score.

Project details and tender outcomes of sites under the Roadmap 2023 & Roadmap 21 GW

Year of tender	Project / Site (Capacity)	Developer / Consortium	Tender Model	Turbines	Commissioning	Key Notes
2016	Borssele sites I & II (752 MW)	Ørsted (later co-owned by Norges Bank Investment Management)	SDE++ auction	94 × Siemens Gamesa 8 MW	2021	World's cheapest offshore wind farm at award.
2016	Borssele sites III - IV (731,5 MW)	Blauwwind (originally Shell, Eneco, Partners Group, Mitsubishi, Van Oord); Today, Blauwwind includes Shell, Eneco, INPEX, Luxcara, Swiss Life, Nuveen, Octopus.	SDE++ auction	77 × Vestas 9.5 MW	2020	At the time, the strike price was surprisingly low at 5.45 €/kWh, reducing the subsidy need from €5 billion to just €0.3 billion.
2018/ 2019	Hollandse Kust Zuid sites I-IV (1.5 GW)	Vattenfall (later co-owned by BASF and Allianz)	Comparative assessment	139 × Siemens Gamesa 11 MW	2023	First subsidy-free offshore wind farm, world's largest at commissioning, pioneering monopiles without transition pieces.
2020	Hollandse Kust Noord Site V (759 MW)	CrossWind (Shell & Eneco)	Comparative assessment	69 × Siemens Gamesa 11 MW	2023	Subsidy-free, focus on system integration and flexibility (0,5 MWp solar farm, Baseload Power Hub, links to Hydrogen Holland I).
2022	Hollandse Kust West, site VI (760 MW)	Ecowende, a joint venture of currently Shell, Eneco and Japanese energy utility Chubu	Comparative assessment with financial bid	52 x 15 MW Vestas	Expected in 2026	Subsidy-free, €50m concession fee. Focus on nature-inclusive design.
2022	Hollandse Kust West, site VII (760 MW)	Oranje Wind Power II, including RWE, later co-owned by TotalEnergies.	Comparative assessment with financial bid	53 X 15.0 MW Vestas	Expected in 2028	Subsidy-free, €50m concession fee. Focus on system integration.
2024	IJmuiden Ver, site Alpha (2 GW)	Noordzeker, a consortium of SSE Renewables, Dutch pension fund ABP and its asset manager AGP	Comparative assessment with financial bid	To be determined	Expected in 2029	Subsidy-free, €1m annual concession fee for 40 years. Focus on nature-inclusive design.
2024	IJmuiden Ver, site Beta (2 GW)	Zeevonk, a joint venture of Vattenfall and Copenhagen Infrastructure Partners (CIP)	Comparative assessment with financial bid	To be determined	Expected in 2029	Subsidy-free, €20m annual concession fee for 40 years. Focus on system integration and reducing disturbances to harbour porpoises.
2025	Nederwiek 1-A (1GW)	n/a	n/a	n/a	n/a	Tender received no applications. See description on page 14.

2018/2019: Hollandse Kust Zuid (2 x 760MW)

Vattenfall won both 2018 and 2019 tenders for Hollandse Kust Zuid, located 18–35 km off the Dutch coast. As the world's first subsidy-free offshore wind farm, it marked a turning point in tendering. With 139 Siemens Gamesa 11 MW turbines, it became the largest offshore wind farm worldwide when commissioned in 2023, producing enough power for 1.5 million households. The project pioneered monopile foundations without transition pieces, cutting costs and installation time. Long-term PPAs were signed with Air Liquide (115 MW). The project is now co-owned by Vattenfall, BASF and Allianz.

2020: Hollandse Kust Noord (759 MW)

The CrossWind consortium (Shell 80%, Eneco 20%) won the final Roadmap 2023 tender in 2020. Located 18.5 km off Egmond aan Zee, Hollandse Kust Noord comprises 69 Siemens Gamesa 11 MW turbines on transition piece-less monopiles, commissioned in December 2023. With 3.3 TWh annual output, it supplies ~2.8% of Dutch electricity demand. The project is also a testbed for innovation: a 0.5 MW offshore solar park (2025) integrated within the wind farm, a Baseload Power Hub combining battery storage and green hydrogen for dispatchable power, and links to Shell's 200 MW Hydrogen Holland I plant in Rotterdam, set to become Europe's largest renewable hydrogen facility.

1.4 Evaluation Roadmap 2023

Scaling up capacity

Looking back at Roadmap 2023, it is clear that the 2013 Energy Agreement was a game changer for offshore wind in the Netherlands. Before 2013, only a few projects reached successful commissioning, with less than 1 GW installed. With a new supportive policy and legal framework, around 3.7 GW was successfully tendered between 2016 and 2020, bringing total capacity to around 4.7 GW by the end of 2023.

Driving down costs

Costs also fell much faster than expected: the 2013 target of €100/MWh by 2020 (a 40% reduction from 2010) was already surpassed in 2016 with the Borssele I & II tender. Subsidy-free bids followed at Hollandse Kust Zuid and Hollandse Kust Noord (with grid connection publicly funded). By 2018, the Netherlands Court of Audit found offshore costs had dropped over 70% compared to 2013 benchmarks. This progress shows the importance of a strong public-private framework, with the government guiding site planning, zoning, capacity limits, investigations and grid connections. By setting clear conditions, the Dutch government reduced project risk, financing costs and ultimately societal costs.

Blueprint for other countries

The introduction of non-price criteria in the Dutch (Roadmap 2023) tenders has served as a blueprint for other markets. Incorporating system integration and ecological innovation into bid concepts also drives developers to consider how future offshore wind farms can be shaped in other markets.

1.5 Roadmap 21 GW

Encouraged by the first Roadmap's success, the Government set a higher 2030 offshore wind target in 2018 of 11.5 GW, adding Hollandse Kust (west) (1.4 GW) and IJmuiden Ver Alpha and Beta (4 GW). Following increased EU climate ambitions and the REPowerEU call, the target was expanded to 21 GW, equal to about 75% of today's electricity consumption. The Roadmap 21 GW (illustrated on page 13.) also includes new zones such as IJmuiden Ver Gamma (2 GW), Nederwiek I–III (6 GW), Hollandse Kust (west) VIII (700 MW), and Doordewind I–II (2 GW). Project details and tender outcomes under the Roadmap 21 GW are presented in the sections below and the table on page 10.

New auction type: comparative assessment with financial bid

As under the Roadmap 2023, tenders are awarded through a comparative assessment. Standard criteria include assurance of construction and operation, contribution to the national energy mix, circularity and International Responsible Business Conduct (IRBC), with site-specific priorities such as ecology enhancement and system integration. New elements are the option to include a financial bid for the right to build, with revenues returning to society to support the energy transition, and the requirement that costs of site studies and environmental assessments are borne by the permit holder, separate from grid integration and the financial bid.

2022: Hollandse Kust West, site VI (760 MW)

Ecowende, a joint venture of Shell (60%), Eneco (10%) and Japan's Chubu (30%), won the 2022 tender for Hollandse Kust West site VI, located over 50 km off the Dutch coast. The 760 MW project will be subsidy-free, with Ecowende paying a financial offer of €50 million plus site study and EIA costs, bringing the government's return to €63.5 million. It will feature 52 Vestas 15 MW turbines and is designed as the Netherlands' first "nature-inclusive" offshore wind farm. Turbines will be widely spaced to allow bird migration, piling methods will minimise underwater noise, and reef structures will stimulate marine life. Due online in 2026, it will generate enough electricity for one million households, about 3% of Dutch demand.

PPA's included

In December 2023, Eneco signed a 15-year PPA with Dutch supermarket chain Albert Heijn, covering half of its power demand from 2027 through the 760 MW Ecowende offshore wind farm. In February 2024, Google secured a CPPA with Shell and Eneco for about 478 MW from Hollandse Kust Noord and Hollandse Kust West VI, raising its Dutch operations to over 90% carbon-free energy. By July 2024, food and agro companies Plukon and De Heus also committed to offtake from Ecowende. Finally, in September 2024, chemical group LyondellBasell signed a 15-year deal for 3% of Ecowende's output.

2022: Hollandse Kust West, site VII (760 MW)

Oranje Wind Power II, a project company of Germany's RWE, won the permit for the 760 MW Hollandse Kust West site VII. Alongside a €50 million bid, RWE scored highest on non-price criteria with plans for system integration, including a 600 MW onshore electrolyser to convert surplus power into green hydrogen. The project also features floating solar panels with integrated storage (developed with Dutch partner SolarDuck) and a 35 MW/41 MWh battery system at RWE's Eemshaven biomass plant, virtually linked to other Dutch assets to balance offshore wind output. Since July 2024, TotalEnergies has owned a 50% stake in the project.

Largest tender capacity

After the Hollandse Kust West auctions, the next sites tendered were in the IJmuiden Ver Wind Farm Zone, 62 km off the Dutch coast. To accelerate rollout, meet climate targets and create economies of scale, the government launched a combined tender in early 2024 for the 2 GW Alpha and 2 GW Beta sites. This was the largest offshore wind tender ever in the Netherlands. TenneT will build three 2 GW DC grid connections, the first of their kind in the country. The third 2 GW site, Gamma, is scheduled for tender at a later stage.

2024: IJmuiden Ver, site Alpha (2 GW)

Noordzeker, a consortium of SSE Renewables, Dutch pension fund ABP and its asset manager AGP, won the permit for IJmuiden Ver Alpha. To meet site-specific requirements, the consortium proposed nature-positive measures such as bird protection solutions and artificial reefs, with over three-quarters of turbines designed as habitats for mussels and marine life. The project will also serve as a "living laboratory" for ecological innovation. As part of its financial bid, Noordzeker will pay €1 million annually for 40 years and cover around €20 million in site studies and EIAs. Commissioning is planned for 2029, with output sufficient to power two million Dutch households.

2024: IJmuiden Ver, site Beta (2 GW)

Zeevonk, a joint venture of Vattenfall and Copenhagen Infrastructure Partners (CIP), won the permit for IJmuiden Ver Beta. In 2025, the permit was amended to reflect challenging market conditions. The 2 GW project will now be built in two phases due to delays with the Delta Rhine Corridor (pipeline network linking Rotterdam and Germany to transport hydrogen, CO₂, and other gases for industrial decarbonisation): the first 1 GW is scheduled for 2029 and the second for 2032. The plan includes an electrolyser of at least 500 MW at Maasvlakte to produce green hydrogen, helping to ease grid pressure, and a floating solar farm that will start with 6 MW in 2028 and could be scaled up to 50 MW if feasible. Zeevonk's payment to the government is set

at €400 million, spread over the operating years, while the consortium will cover site studies and EIAs (around €20 million). The revised plan keeps the project viable, with capacity to power two million Dutch households.

Adapting to market conditions

In 2025, the Dutch government scaled back its offshore wind plans due to weak bid competition and rising costs. The short-term target of 21 GW is postponed to 2032, while the long-term goal of 72 GW by 2050 remains unchanged. The 2025 tender offered only 1 GW (Nederwiek I-A), with two other 1 GW sites (IJmuiden Ver Gamma-A and Gamma-B) postponed. The current tender model is maintained but allows deferred payments.

To safeguard rollout, the government launched the Offshore Wind Action Plan, allocating nearly €1 billion to support 2 GW of new projects in 2026 (supply stimulation) and extending industrial cost compensation to 2028 (demand stimulation). From 2027, the introduction of Contract for Difference (CfD) is under consideration. A CfD guarantees renewable producers a fixed price by compensating when market prices are lower and reclaiming when higher. The Action Plan also outlines the development of a guarantee fund to support the conclusion of long-term power contracts and explores whether wind farm developers can be given more time for completion.

Overall, the Dutch government remains flexible and supportive, adapting to market conditions while staying committed to the long-term expansion of offshore wind.

1.6 Latest tender

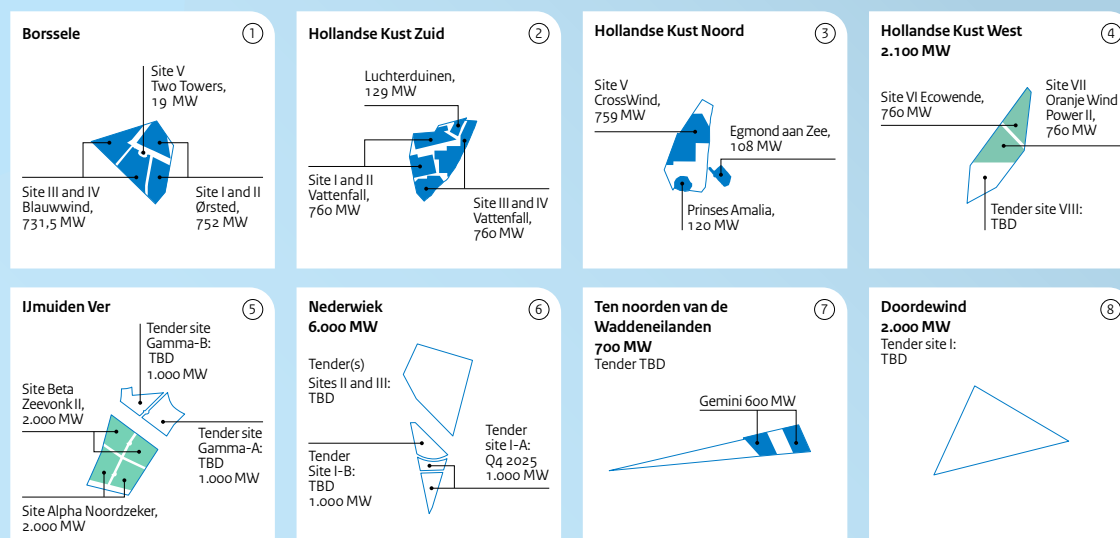
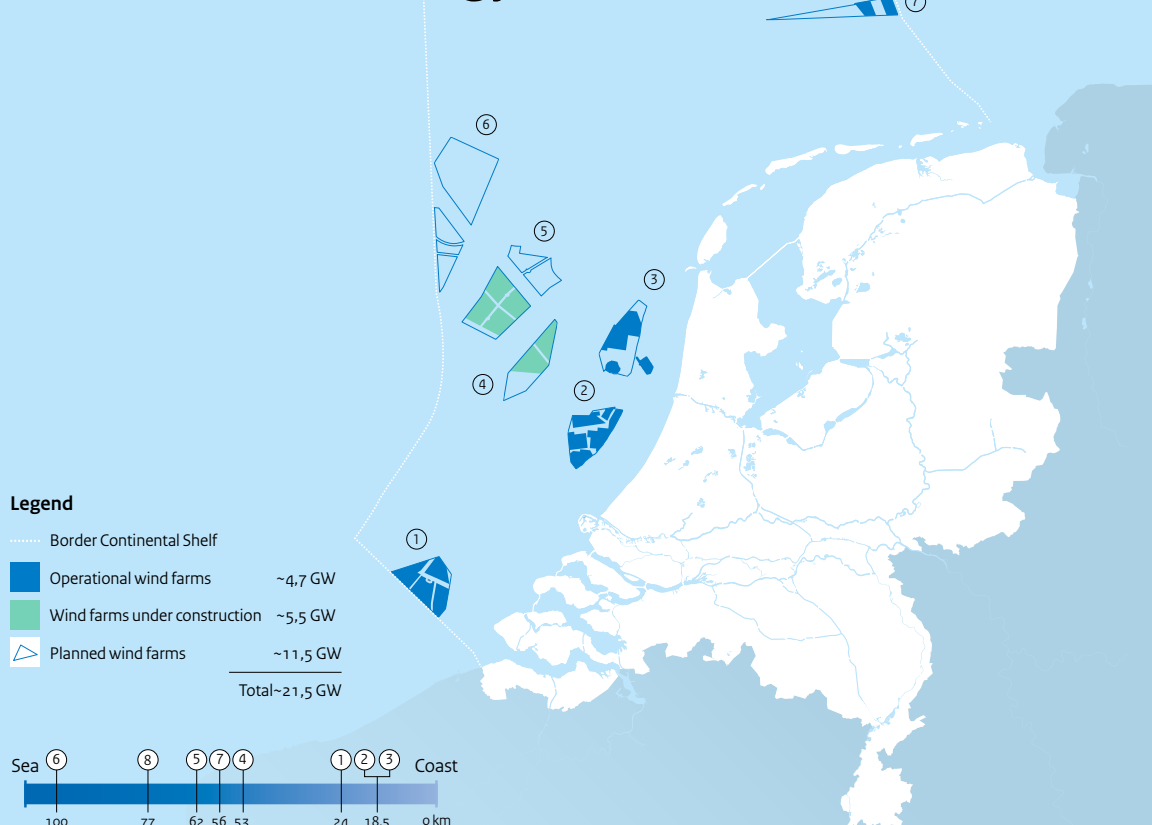
2025: Nederwiek, site I-A

In October 2025, the Dutch government closed the tender for Nederwiek I-A, a 1 GW offshore wind farm about 100 km off the coast near Texel, but no developers submitted bids. It was the first time since the Netherlands began large-scale offshore wind deployment that a tender drew no interest. According to outgoing Minister Sophie Hermans, rising construction costs, high financing rates, and lagging industrial demand for green power have made zero-subsidy projects unviable. The government will launch a new subsidy-based tender in 2026 as part of its Offshore Wind Energy Action Plan, while commissioning, originally planned for 2030, will be delayed.

'Overall, the Dutch government remains flexible and supportive, adapting to market conditions while staying committed to the long-term expansion of offshore wind.'



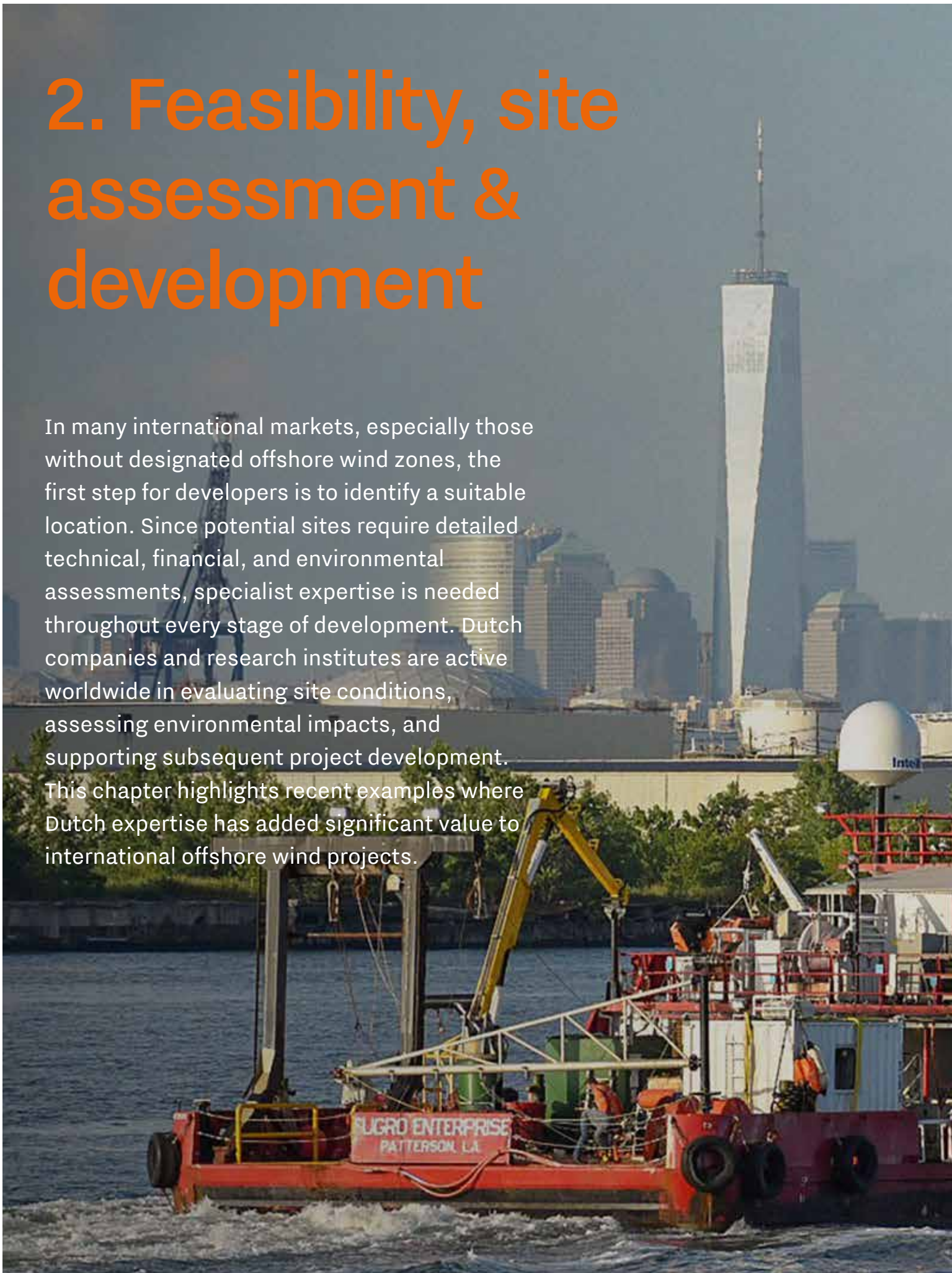
Roadmap Offshore Wind Energy



October 2025

2. Feasibility, site assessment & development

In many international markets, especially those without designated offshore wind zones, the first step for developers is to identify a suitable location. Since potential sites require detailed technical, financial, and environmental assessments, specialist expertise is needed throughout every stage of development. Dutch companies and research institutes are active worldwide in evaluating site conditions, assessing environmental impacts, and supporting subsequent project development. This chapter highlights recent examples where Dutch expertise has added significant value to international offshore wind projects.





2.1 Development and project management

While many developers design the initial offshore wind concept in-house during the pre-Front End Engineering Design (pre-FEED) stage, they often rely on specialist partners for legal, financial, engineering, and logistical support.

Dutch consultants are widely recognised for their expertise in early-stage project development and management. Combining strong technical and environmental know-how with practical, solution-driven approaches, they help developers navigate permitting, stakeholder engagement, and risk management with confidence.

From feasibility studies and site selection to tender support and Operations and Maintenance (O&M) planning, Netherlands-based firms play a key role in de-risking projects and guiding them smoothly from concept to construction worldwide.

In the news 2024

Yooshin, Pondera Performing Consultancy Work for Korean 600 MW Offshore Wind Project

News item summarized from: OffshoreWIND.biz

Wando Geumil Offshore Wind, developer of the 600 MW wind farm in South Korea and majority-owned by KOEN (Korea South-East Power Company), has appointed Yooshin Engineering Corporation to provide O&M strategy consultancy.

Launched late last year, the project includes defining O&M services, required technologies, manpower planning, benchmarking, and EPC-to-O&M handover strategies. Dutch firm Pondera, along with DWT and OutSmart, will carry out the work, supported by GRS on local vessel acquisition. The consortium will also develop training programs to secure skilled technical staff.

Located in Wando-Gun, South Jeolla Province, the wind farm will feature 40 Vestas V236-15.0 MW turbines, with deliveries expected in Q4 2025 and commercial operation targeted for Q3 2026.

In the news 2025

ELWIND Taps Dutch Company for Grid Connection and Cable Route Study

News item summarized from: OffshoreWIND.biz

Haskoning, together with Latvian subcontractor Enviroprojekts, will assess potential grid connection points and cable routing options for the ELWIND offshore wind project in Estonia and Latvia. The study will evaluate transmission network capacity, identify suitable substation locations, and analyse restrictions such as maritime plans, Natura 2000 areas, and military zones. Findings will guide the next design phases and the Environmental Impact Assessment (EIA). The ELWIND project aims to build 700–1,000 MW of offshore wind capacity and strengthen electricity connections between the two countries.

'Dutch consultants are widely recognised for their expertise in early-stage project development and management.'

2.2 Environmental impact assessments

Developing an offshore wind farm involves navigating several key environmental and social considerations. These aspects are closely reviewed by the public and regulatory authorities and may be subject to consultation or legal challenge. Typical environmental topics include potential effects on birds, bats, fish, and marine mammals, particularly noise during construction, as well as visual impacts, decommissioning responsibilities, and potential influences on tourism, fisheries, and maritime activities.

To support the Environmental Impact Assessment (EIA), developers carry out detailed environmental surveys early in the project. These studies examine the presence and behavior of species such as benthic organisms, birds, and marine mammals. The insights gained guide the development of effective mitigation measures and ensure that the project meets all environmental and regulatory standards.

2.3 Site investigations

For offshore wind projects, geotechnical and geophysical surveys are important components of site investigations. They assess seabed conditions, map seabed topography, and detect obstacles such as unexploded ordnance, supporting foundation design, turbine installation, and safe cable routing. These surveys are typically carried out during site selection and pre-construction phases, with additional studies post-consent to refine turbine positions, cable routes, and foundation designs.

Other important assessments include environmental surveys (wildlife and habitat), metocean studies (wind, wave, and current data), and marine archaeology surveys, ensuring safe, efficient, and environmentally compliant project development. Investigations cover the wind farm area, cable routes, and onshore substation sites, with contracts tailored to include data collection and/or analysis.

In the news 2025

Fugro Bags Geotechnical Survey Contract for 700 MW Offshore Wind Farm in Taiwan

News item summarized from: [OffshoreWIND.biz](#)

Dutch company Fugro has secured a geotechnical site investigation contract for the 700 MW Youde offshore wind farm off Taiwan's west coast, owned by Shinfox Energy. Fugro will provide integrated geotechnical services using its Taiwan-flagged vessel Pacific Hornbill, equipped with advanced drilling and testing systems. The fieldwork began and is expected to finish by Q4 2025. The project is part of Taiwan's Round 3.2 offshore wind selection. Fugro IOVTEC emphasized its commitment to supporting Taiwan's energy transition and strengthening local offshore wind capabilities through long-term partnerships and high-quality service delivery.



Source: Fugro



In the news 2025

'World's First' Fully Remote Ecology Survey Done at 759 MW Dutch Offshore Wind Farm

News item summarized from: [OffshoreWIND.biz](#)

Dutch firm Fugro and partners in the BeWild project have completed the world's first fully remote ecological survey at CrossWind's 759 MW Hollandse Kust Noord wind farm. Using Fugro's Blue Essence uncrewed vessel and Blue Volta eROV, operated remotely from Aberdeen, the team combined computer vision and environmental DNA sampling to monitor marine life efficiently and with minimal disruption. Supported by the Dutch RVO's MOOI programme, the project integrates ecological monitoring with remote asset inspection, enhancing safety and sustainability. Located 18.5 kilometres off Egmond aan Zee, the wind farm comprises 69 Siemens Gamesa turbines producing 3.3 TWh annually.

In the news 2025

Geophysical Survey Underway at Inch Cape Offshore Wind Farm Site

Information summarized from: [OffshoreWIND.biz](#)

Geophysical and static fishing gear surveys are underway at the Inch Cape offshore wind farm and its export cable corridor in Scotland from 19 February to the end of April 2025. Conducted by Dutch company N-Sea on behalf of Inch Cape Offshore Limited (a joint venture of ESB and Red Rock Renewables), the surveys assess seafloor conditions, locate boulders, and detect unexploded ordnance ahead of turbine and cable installation. The 1,080 MW wind farm, 15 km off the Angus coast, will feature 72 Vestas V236-15.0 MW turbines, a single offshore substation, and two 85 km AC export cables connecting to Cockenzie onshore.

3. Construction & Engineering

The Netherlands has built a strong international reputation for excellence in offshore wind construction and engineering. Dutch companies and research institutions are at the forefront of developing and supplying advanced technologies that enable the production of larger and more efficient wind turbines. Even though the country does not host major turbine manufacturers, its expertise in designing, improving, and delivering critical components, such as rotor blades, drive trains, and support structures, plays a vital role in advancing global offshore wind capabilities.



3.1 Turbine component supply, engineering

Wind turbine manufacturers can best be seen as system integrators, bringing together a wide range of technologies and components into one cohesive, high-performing system. They are responsible for the overall design of the turbine, including key elements such as the nacelle, rotor, and tower, ensuring that all parts work together efficiently and reliably. Once the components are produced—either in-house or sourced from specialized suppliers—they are assembled, often at or near the offshore installation site. This integrated approach allows manufacturers to combine expertise from across the supply chain, optimizing performance, quality, and cost-effectiveness in every turbine.



3.2 Turbine foundation supply

Turbine foundations form the backbone of any offshore wind farm, anchoring each structure securely to the seabed and ensuring stability in harsh marine conditions. The choice of foundation type depends on factors such as water depth, seabed composition, and the forces generated by waves, tides, and the turbine itself. Innovative Dutch engineering has contributed to the development of advanced foundation designs that enable safe and efficient installation even in deeper and more challenging waters.

Monopiles

Most offshore wind farms to date have been built on steel monopile foundations, which remain the most widely used solution worldwide. Monopiles are favored for their simplicity, featuring a standardized design suitable for serial production without the need for complex 3D cutting or welding, and for their adaptability to different seabed and site conditions.

The typical design consists of a cylindrical monopile driven into the seabed, with a cylindrical transition piece fitted over it and secured using grout. The transition piece provides a leveled interface for the turbine tower and includes access platforms and attachments that would not withstand piling forces if welded directly to the monopile. As turbine sizes grow and projects move into deeper waters, “XL” monopiles weighing over 2,000 tonnes are now being used till depths of 60 to 70 meters.

In the news 2025

Sif Officially Opens Monopile Mega-Factory, New Facility Already Rolled Out 30 Empire Wind 1 Foundations

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

Dutch offshore wind foundation manufacturer Sif has officially opened its expanded monopile production facility at Maasvlakte 2, Rotterdam, inaugurated by Dutch Minister for Climate Policy and Green Growth Sophie Hermans. The €328 million expansion was completed on time and within budget after a 16-month construction period.

It adds 60,000 m² to Sif's existing site, transforming it into a fully robotised production line capable of manufacturing up to 200 monopiles per year with diameters of up to 11 metres and lengths of 120 metres. The project also created nearly 200 new jobs.

The factory's first project, Empire Wind 1 in the United States, has already seen over 30 monopiles produced. Upcoming projects include the Ecowende wind farm in the Netherlands, Bałtyk 2 & 3 in Poland, and OranjeWind in the Netherlands, underscoring Sif's growing role in the global offshore wind supply chain.



Source: Sif Group

'Innovative Dutch engineering has contributed to the development of advanced foundation designs that enable safe and efficient installation even in deeper and more challenging waters.'

3.3 Sealing, corrosion protection

Foundations for wind turbines and offshore substations operate in tough environments. Constant exposure to waves, saltwater, and humidity can cause corrosion and structural fatigue over time. To maintain long-term stability and safety, these structures rely on advanced steel protection systems, such as specialized coatings and cathodic protection, and strong bolted connections. When seals or protective layers fail, seawater can infiltrate critical joints, leading to corrosion and structural damage that are both costly and difficult to repair in remote offshore conditions. Effective protection and maintenance are therefore essential to ensure reliability and extend the lifespan of these vital assets.

In the news 2025

Bluestream Offshore to Take Care of Bałtyk 2 & Bałtyk 3 Monopile Foundations

News item summarized from: OffshoreWIND.biz

Bluestream Offshore, part of OEG Renewables, has been awarded an EPCI contract by Equinor and Polenergia for corrosion protection of 100 monopile foundations at the Bałtyk 2 and 3 offshore wind farms in Poland. In partnership with Dutch company CORROSION, Bluestream will deliver an Impressed Current Cathodic Protection (ICCP) system using their jointly developed ICCP-Subsea Assembly Method (SAM), which allows remote installation of anodes even in rough seas. This marks CORROSION's third project using ICCP-SAM technology. The Bałtyk 2 and 3 wind farms, featuring Siemens Gamesa SG 14-236 DD turbines, are expected to deliver first power in 2027.

3.4 Subsea cables

Subsea cables transport electricity from offshore wind turbines to the onshore grid. Within a wind farm, array cables typically connect individual turbines to an offshore substation (especially further offshore), from which power is transmitted to an onshore substation via high-voltage (HV) export cables.

Array cables

Array cable technology is well established and has long been used in both the power and oil and gas industries. While early offshore wind farms typically used 33 kV medium-voltage (MV) array cables, 66 kV systems have now become the standard, with 132 kV designs beginning to emerge for next-generation projects.

Export cables

Export cables, which carry power from the offshore substation to shore, operate at much higher voltages, typically between 132 kV and 245 kV. Their installation takes place early in the construction phase and often involves long lead times, making export cables one of the first major (Tier 1) contracts to be awarded.

Export cables can use either high-voltage alternating current (HVAC) or high-voltage direct current (HVDC) transmission. While most existing projects use HVAC systems, the growing distance of wind farms from shore is driving a shift toward HVDC technology, which allows for more efficient long-distance power transmission.

In the news 2025

Luxcara Taps TKF for Waterkant Inter-Array Cables

News item summarized from: OffshoreWIND.biz

Luxcara has awarded the Dutch firm Twentsche Kabelfabriek (TKF) a contract to supply 130 kilometres of 66 kV inter-array aluminium core cables and accessories for the Waterkant offshore wind farm in the German North Sea. TKF will handle engineering, manufacturing, testing, and delivery from its carbon-neutral facility in Eemshaven, the Netherlands. Located 90 kilometres off Borkum on site N-6.7 in the German EEZ, Waterkant will comprise 16 Mingyang 18.5 MW turbines. The project, secured in the 2023 offshore wind auction, marks another key step for Luxcara in advancing sustainable offshore wind infrastructure.

3.5 Substation platforms

Modern commercial-scale offshore wind farms typically feature at least one offshore substation, which collects and converts the power generated by the turbines before transmitting it to shore. Depending on the project's distance from land and capacity, high-voltage alternating current (HVAC) systems are commonly used for sites closer to shore, while high-voltage direct current (HVDC) technology is increasingly applied to far-offshore projects to reduce transmission losses over long distances.

Offshore substations are mounted on large steel platforms (topsides), supported by either monopile or jacket foundations. A typical HVAC platform can weigh up to 10,000 tonnes and may include a helipad and emergency accommodation, while HVDC platforms can exceed 15,000 tonnes. Their construction resembles shipbuilding or offshore oil and gas platform fabrication, requiring advanced engineering and precision manufacturing.

In the news 2025

ScottishPower, HSM Offshore Energy Sign East Anglia Two Substation Contract

News item summarized from: [OffshoreWIND.biz](#)

ScottishPower Renewables, part of Iberdrola, has awarded Dutch company HSM Offshore Energy an EPCIC (Engineering, Procurement, Construction, Installation, and Commissioning) contract for the offshore substation and jacket foundation of the 960 MW East Anglia TWO offshore wind farm in the UK. HSM will deliver a 5,100-tonne high-voltage substation topside and a 3,700-tonne steel jacket foundation for the project, located off the coast of Suffolk. Early engineering began in summer 2024, with construction scheduled to start in late 2025 and installation in 2027. The wind farm will feature 64 Siemens Gamesa SG 14-236 DD turbines mounted on monopiles supplied by the Dutch firm Sif, with Cadeler responsible for turbine and foundation installation. The £4 billion project highlights strong European collaboration in driving the UK's offshore wind and renewable energy ambitions.

In the news 2025

Construction Starts on HVAC Infrastructure for Belgian Offshore Energy Hub

News item summarized from: [OffshoreWIND.biz](#)

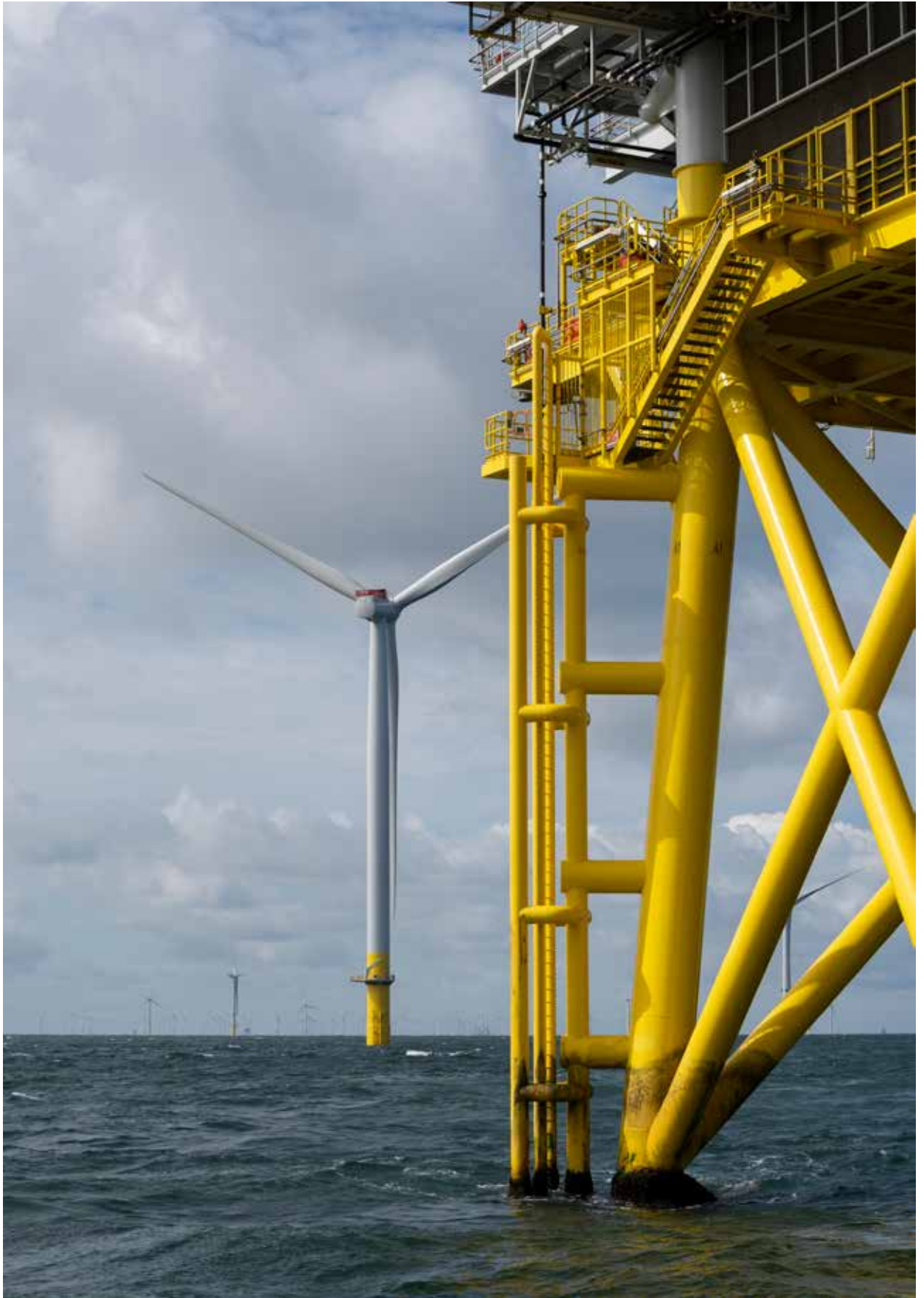
Construction of the HVAC infrastructure for Belgium's Princess Elisabeth Island has officially started with a first steel cut at HSM Offshore Energy's yard in Schiedam, the Netherlands. The HVAC modules, which will house transformers and gas-insulated switchgear, are being built by the Belgian-Dutch consortium HSI Pemac, comprising Dutch firms HSM Offshore Energy and Iv, together with Belgium's Smulders. Awarded by Elia, Belgium's national transmission system operator, the EPCIC contract covers engineering, procurement, construction, installation, and commissioning. Prefabrication is taking place at Smulders' Belgian facilities and HSM's Schiedam yard, with final assembly in Schiedam and Vlissingen. Located 45 kilometres off the Belgian coast, the artificial island will connect 2.1 GW of offshore wind energy to Belgium's mainland grid.

In the news 2024

More than 25 Pct of Offshore Wind Platforms in EU Designed by Dutch Engineering Company

News item summarized from: [OffshoreWIND.biz](#)

Dutch engineering company Iv has designed more than a quarter of all offshore wind platforms installed in the European Union, according to a WindEurope report. Of the EU's 19 GW of installed offshore wind capacity by the end of 2023, Iv contributed designs for around 5 GW. The company's work includes platforms for the Borssele Alpha and Beta projects in the Netherlands and Germany's DolWin1 and HelWin2 grid connections. Iv is also designing TenneT's IJmuiden Ver Beta and Gamma platforms—each with 2 GW capacity—and one for the new Nederwiek wind area. Beyond the Netherlands, Iv is active on Ostwind 3, Gennaker East and West (Germany), Denmark's Thor project, the UK's Sofia platform, and Belgium's Princess Elisabeth Energy Island.



4. Transport & Installation

A large offshore wind turbine is being installed on a blue sea. A massive blue crane is positioned on a barge, lifting the turbine's nacelle and rotor assembly. The turbine's tower is already partially submerged in the water. In the background, another wind turbine is visible, and the sky is overcast. The scene captures a critical moment in the construction of an offshore wind farm.

The Netherlands has a large and internationally renowned offshore services sector. Traditional Dutch offshore oil and gas contractors and dredging companies have evolved into global leaders in the installation of offshore turbines and foundations. With their strong market position and extensive track record, they offer both transport and installation or full Balance of Plant packages, depending on developer preferences. Through various partnerships and consortia, these companies focus on faster development, higher efficiency, and environmentally friendly installation methods for turbines and foundations.



4.1 Turbine and foundation installation

Turbine installation is carried out by main contractors using jack-up vessels that transport components from port to site. Most recent projects use purpose-built offshore wind installation vessels. Installation, typically performed by the turbine OEM with vessels contracted by the developer, takes around two to three days per turbine including transit, weather delays, and mobilisation, and may form part of a full Balance of Plant contract.

Foundation installation uses either vessels that both transport and install structures or stay onsite while feeder vessels deliver foundations. Jack-ups are commonly used for monopiles and smaller jackets, while floating heavy-lift vessels are deployed for large jackets and substations. Vessel selection depends mainly on crane capacity for monopiles and deck space for jackets. Installation of a monopile (applicable to Dutch offshore wind farms) on site typically takes about 12-24 hours.

The Netherlands' expertise in these activities originates from its offshore oil and gas sector, now evolved into a specialised offshore wind industry with advanced, purpose-built vessels and capabilities.

In the news 2025

All Suction Bucket Foundations Stand at Greater Changhua 2b Offshore Taiwan

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

Ørsted has completed installation of all 24 suction bucket jacket (SBJ) foundations at the 337 MW Greater Changhua 2b offshore wind farm in Taiwan, using Heerema Marine Contractors' Dutch heavy-lift vessel Aegir. The work began in early April and finished ahead of schedule in just over a month. The SBJ design requires no piling, anchoring the structure to the seabed through suction. Offshore construction of the 920 MW Greater Changhua 2b and 4 projects began in February 2025, with installation at site 4 now underway. The foundations are supplied by PTSC and HSG Sungdong, while Mammoet-Giant Taiwan, a joint venture including Dutch company Mammoet, manages marshalling and lifting operations. The projects will feature Siemens Gamesa 14-236 DD turbines.



Source: Ørsted



Source: RWE

'The Netherlands' expertise in these activities originates from its offshore oil and gas sector, now evolved into a specialised offshore wind industry with advanced, purpose-built vessels and capabilities.'

In the news 2025

Van Oord Installs All Monopiles at RWE's 1.4 GW Sofia Offshore Wind Project

News item summarized from: OffshoreWIND.biz

All 100 monopile foundations have been installed at RWE's 1.4 GW Sofia offshore wind farm, 195 kilometres off the UK's northeast coast. The 14-month campaign was executed by Dutch marine contractor Van Oord under an EPCI contract for foundations and array cables. Van Oord's upgraded jack-up vessel Aeolus installed the monopiles, using a single extended design to reduce steel use. A bubble curtain noise abatement system, operated by Hydrotechnik Offshore, was deployed for 34 foundations—the first in the UK. Installation operated from the Port of Tyne. The monopiles will support Siemens Gamesa SG 14-222 DD turbines, half with recyclable blades.

In the news 2025

Five Turbines In Place at Poland's First Offshore Wind Farm

News item summarized from: OffshoreWIND.biz

Five of the 76 planned Vestas V236-15 MW turbines have been installed at Baltic Power, Poland's first offshore wind farm, developed by Orlen and Northland Power. The installation of monopiles and transition pieces is nearly halfway complete, led by Dutch firm Van Oord's Svanen and suppliers Steelwind Nordenham and Smulders. Upcoming phases include laying subsea cables and installing offshore substations this autumn, with steel structures built in Gdynia and Gdańsk.

Key components were produced across Szczecin, Bydgoszcz, the Tri-City area, Żary, and Niemodlin. Orlen's Łeba O&M base, opened in May, now supports offshore operations and will maintain the wind farm over its 30-year life. Onshore infrastructure in Choczewo, including the grid substation, is also under construction. The 1.2 GW project is set for commissioning in 2026, marking a major step in Orlen's PLN 380 billion energy transition programme and paving the way for future offshore projects totalling 5.5 GW.

4.2 Substation installation

Offshore substations are installed on platforms that house the electrical systems needed to collect and export power to shore. These structures are similar in design and installation to offshore oil and gas platforms. Most topsides are installed in a single lift using a heavy-lift vessel or sheerleg crane from a transport barge.

Substation foundations are typically jackets or monopiles and are often installed alongside turbine foundations using the same vessels and equipment. Dutch contractors are key players in substation transport and installation, offering an integrated and efficient approach.

In the news 2025

Installation of Offshore Substation About to Start at Dogger Bank C Site

News item summarized from: OffshoreWIND.biz

Installation of the offshore substation jacket foundation and topside for Dogger Bank C, the third phase of the world's largest offshore wind farm, located off the United Kingdom, will soon begin. Dutch contractor Heerema Marine Contractors will deploy its semi-submersible crane vessel Sleipnir to install the structures between 8 and 25 May. The 1.2 GW platform, engineered and built by Navantia Seanergies for Aibel, follows earlier phases Dogger Bank A and B. Heerema's contract, signed in 2022, covers installation of the jacket, piles, and topside. The 3.6 GW Dogger Bank Wind Farm is jointly owned by SSE Renewables, Equinor, and Vårgrønn.

In the news 2025

Mammoet to Assist Heerema with Topsides Installation for Tennet 2 GW Programme

News item summarized from: OffshoreWIND.biz

Mammoet has signed a support agreement for TenneT's 2 GW offshore grid programme, working alongside fellow Dutch contractor Heerema Marine Contractors on the offshore installation of two large topsides. Under the agreement, Mammoet will prepare the topsides for floatover operations by skidding them from Heerema's fabrication yard onto the new H731 barge using hydraulic skid shoes. The company will then deploy its mega jack system to raise the units to floatover height, allowing a support frame to be positioned underneath for final installation on the jacket foundations. TenneT's 2 GW programme will deliver 14 HVDC offshore grid connections, six in Germany and eight in the Netherlands, linking North Sea wind farms to the onshore grid by 2032.

'Dutch contractors are key players in substation transport and installation, offering an integrated and efficient approach.'



Source: Heerema



Source: Boskalis

4.3 Cable laying

Cable installation is carried out either as a single lay-and-burial operation using a plough, or in two stages, first surface laying, followed by burial with a jetting tool or a remotely operated vehicle (ROV). Array cable installation is more complex due to the large number of pull-ins required at each foundation. Nearshore sections are often handled by shallow-draft barges, while large offshore projects typically employ dynamically positioned cable-laying vessels.

Export cables are usually installed in long continuous sections, requiring larger vessels with high-capacity carousels for cable storage. Modern practice increasingly favours simultaneous lay-and-bury techniques to reduce installation time and seabed disturbance. Success in the cable-laying market depends as much on technical expertise, precision engineering, and proven track record as on vessel capability.

In the news 2025

Boskalis Wins ‘Large’ Baltica 2 Cabling Contracts

News item summarized from: [OffshoreWIND.biz](https://www.offshorewind.biz)

Seabed preparation for the 1.5 GW Baltica 2 offshore wind farm in Poland has advanced with the arrival of Dutch company Boskalis' vessel BOKA Falcon. Equipped with the T-Rex and Megalodon ploughs, the vessel will remove large boulders and excavate trenches along planned cable routes. These works will prepare the seabed for laying 300 km of export and 170 km of inter-array cables in 2026. Boskalis, contracted in 2023, is responsible for seabed levelling, pre-trenching, and boulder removal. The Baltica 2 project, developed by PGE and Ørsted, will feature 107 Siemens Gamesa 14 MW-222 turbines installed from the Port of Gdańsk.

4.4 Installation tools

This section covers secondary activities supporting the main (Tier 1) installation contracts. Typical equipment used includes:

- Cranes for loading components at the quayside;
- Sea fastenings, grillages and racks for securing components in transit;
- Foundation piling tools such as templates, hammers, noise mitigation equipment and handling frames;
- Cable-laying equipment including carousels, tensioners, grapnels, trenching and burial systems, and cable retrieval tools;
- Turbine installation tools such as yokes, lifting frames and specialised cranes.

In the news 2025

SMST Equipment for Deutsche Offshore's C-CSOV Fleet

News item summarized from: OffshoreWIND.biz

Dutch offshore equipment specialist SMST will supply mission equipment for four construction-commissioning service operation vessels (C-CSOVs) ordered by Deutsche Offshore, a joint venture between Schoeller Holdings and Deutsche Offshore Schifffahrt. SMST will deliver its Telescopic Access Bridge (TAB-L2) gangway system and a 50-tonne Offshore Knuckle Boom Crane (KBC-L) with 3D motion compensation. The TAB-L2 offers exceptional height flexibility and automatic landing, while the crane enables both heavy construction lifts and 3D-compensated operations. These dual-purpose systems enhance the vessels' efficiency and safety. The C-CSOVs are being built by CSSC Huangpu Wenchong Shipbuilding in China, with deliveries starting in 2027.



Source: SMST

Equipment such as cranes and cable-handling equipment may be bought by the installation contractor and permanently installed on the vessel or rented from a supplier. There are some elements of installation equipment that are designed and manufactured based on the needs of the specific projects. Examples include sea fastening equipment, blade racks and pile-handling tools.

In the news 2025

Dong Fang Offshore Orders Cable-Lay System at Huisman

News item summarized from: OffshoreWIND.biz

Dutch firm Huisman has signed a contract with Dong Fang Offshore (DFO) to deliver a modular cable-lay system for DFO's fleet, including construction service operation vessels (CSOVs) under construction at Vard in Norway. This marks Huisman's first cable-lay system, leveraging its strong background in deepwater pipelay technology.

Developed with ESD, the system features high flexibility and rapid mobilisation, allowing use across inter-array and export cable installation as well as cable repair operations. It will be supplied as a single, integrated spread with quick connection interfaces, cutting mobilisation costs and reducing commissioning time.

The agreement follows a Letter of Intent signed in late 2023 when DFO ordered a 3,000-tonne cable basket. DFO has ordered four vessels from Vard, three CSOVs and one offshore construction vessel.



Source: Huisman



Source: CSBC-DEME Wind Engineering (CDWE)



Source: Cape Holland

In the news 2024

TWD, Seatools Outfit Green Jade for Hai Long Piling Work

News item summarized from: OffshoreWIND.biz

Offshore construction has commenced at Taiwan's 1 GW Hai Long offshore wind farm with the vessel Green Jade installing the first jacket foundation pin piles. Dutch engineering companies TWD (Temporary Works Design) and Seatools are supporting vessel owner CSBC-DEME Wind Engineering (CDWE) with specialised design and equipment. TWD designed most of the pin pile installation tools, including the industry's largest self-levelling pre-piling template, as well as bespoke sea fastenings and hammer supports. Seatools provided the template's advanced metrology and control system, covering all mechanical, electrical, hydraulic, and software components. Through detailed simulations and virtual testing, Seatools ensured precise pile placement, reduced commissioning time, and enhanced reliability. trengthening.

In the news 2024

DEME Takes CAPE Holland Equipment to US for Monopile Installation Offshore Virginia

News item summarized from: OffshoreWIND.biz

Dutch foundation equipment specialist CAPE Holland, part of Venterra Group, has signed a contract with DEME to supply foundation installation tools for the 2.6 GW Coastal Virginia Offshore Wind (CVOW) project in the United States. The company has delivered its CAPE VLT-640 Quad spread and a separate VLT-640 unit to be used on DEME's DP3 vessel Orion, which will install 176 monopiles from May. The Vibro Lifting Tools will drive the 8.5-metre-diameter, 1,500-tonne monopiles through the upper seabed layers before final penetration with an impact hammer. CAPE Holland's equipment will also install jacket pin piles for three offshore substations, offering a quieter, safer, and more efficient installation method.

4.5 Vessel design, ship building, deck equipment

Installation vessels

Offshore wind installation relies on a diverse fleet of highly specialised vessels designed for the efficient and safe transport, lifting, and installation of turbines, foundations, and cables. As introduced earlier, the two principal vessel types are jack-up installation vessels, which provide a stable working platform by elevating above sea level, and floating heavy-lift vessels, used for deep-water or large-scale foundation and substation installation.

Cable-laying operations are carried out by dedicated cable installation vessels, which may perform a combined lay-and-burial process using a plough or a separate surface lay followed by burial using jetting tools or ROVs.

In the news 2025

Van Oord Christens Mega Jack-Up | ‘Boreas Is World’s Largest, Most Sustainable Offshore Wind Installation Vessel’

News item summarized from: [OffshoreWIND.biz](https://www.offshorewind.biz)

Van Oord christened its new offshore wind installation vessel Boreas on 18 June in Rotterdam. Built at Yantai CIMC Raffles and delivered in January 2025, Boreas is described as the world's largest and most sustainable jack-up vessel. It will debut on RWE and NBIM's Nordseecluster project in Germany, installing 104 monopiles and the offshore substation foundation. The 175-metre vessel can install 20 MW turbines and features dual-fuel methanol engines, reducing CO₂ emissions by over 78 per cent. CEO Govert van Oord called Boreas the company's largest investment and key to its net-zero ambitions. Van Oord's climate targets were recently approved by the Science Based Targets initiative (SBTi).



Source: Van Oord

Support vessels

Support services during installation include cable route surveys and clearance, crew transfer and guard vessels, diving and ROV operations, grouting, and a range of marine logistics activities. Crew Transfer Vessels (CTVs) and Service Operation Vessels (SOVs) equipped with motion-compensated gangways (walk-to-work systems) provide safe personnel transfer and offshore accommodation. Additional services cover vessel mobilisation and modification, certification, weather forecasting, and operational planning. Many of these specialist activities are delivered by small and medium-sized enterprises, which form a vital part of the offshore wind installation and O&M supply chain.

In the news 2024

Acta Marine's New CSOV for French Offshore Wind Market

News item summarized from: OffshoreWIND.biz

Acta Marine will deliver its new construction service operations vessel (CSOV) Acta Pegasus under the French flag, reflecting the company's growing activities in France. Built at Tersan Shipyard in Turkey, the Ulstein SX216-designed vessel can run on (e-)methanol, measures 89.9 metres in length, and accommodates 135 people. Equipped with a walk-to-work gangway, 3D-motion compensated crane, and daughter craft, Acta Pegasus will support offshore wind projects in France. Acta Marine plans to recruit and train French maritime professionals to operate the vessel, strengthening local expertise and ensuring high safety and efficiency standards.



Source: Acta Marine

In the news 2025

Dutch Marine Services Company Orders Hybrid Multi-Purpose Vessel to Support Subsea, Renewables Markets

News item summarized from: OffshoreWIND.biz

Dutch companies Van Wijngaarden Marine Services and Kooiman Marine Group have signed a Letter of Intent for the design and construction of a 47-metre DP2 multi-purpose vessel (MPV) with hybrid diesel-electric propulsion. The vessel will support subsea and offshore renewable energy projects and feature two deck cranes, a tow and anchor-handling winch, and energy-efficient systems meeting IMO Tier III and ULEV standards. Optimised for low fuel consumption, the MPV reflects Van Wijngaarden's commitment to sustainability and innovation. The company operates a fleet of 19 vessels, including the Waalstroom, currently active at Belgium's Princess Elisabeth energy island project.

In the news 2025

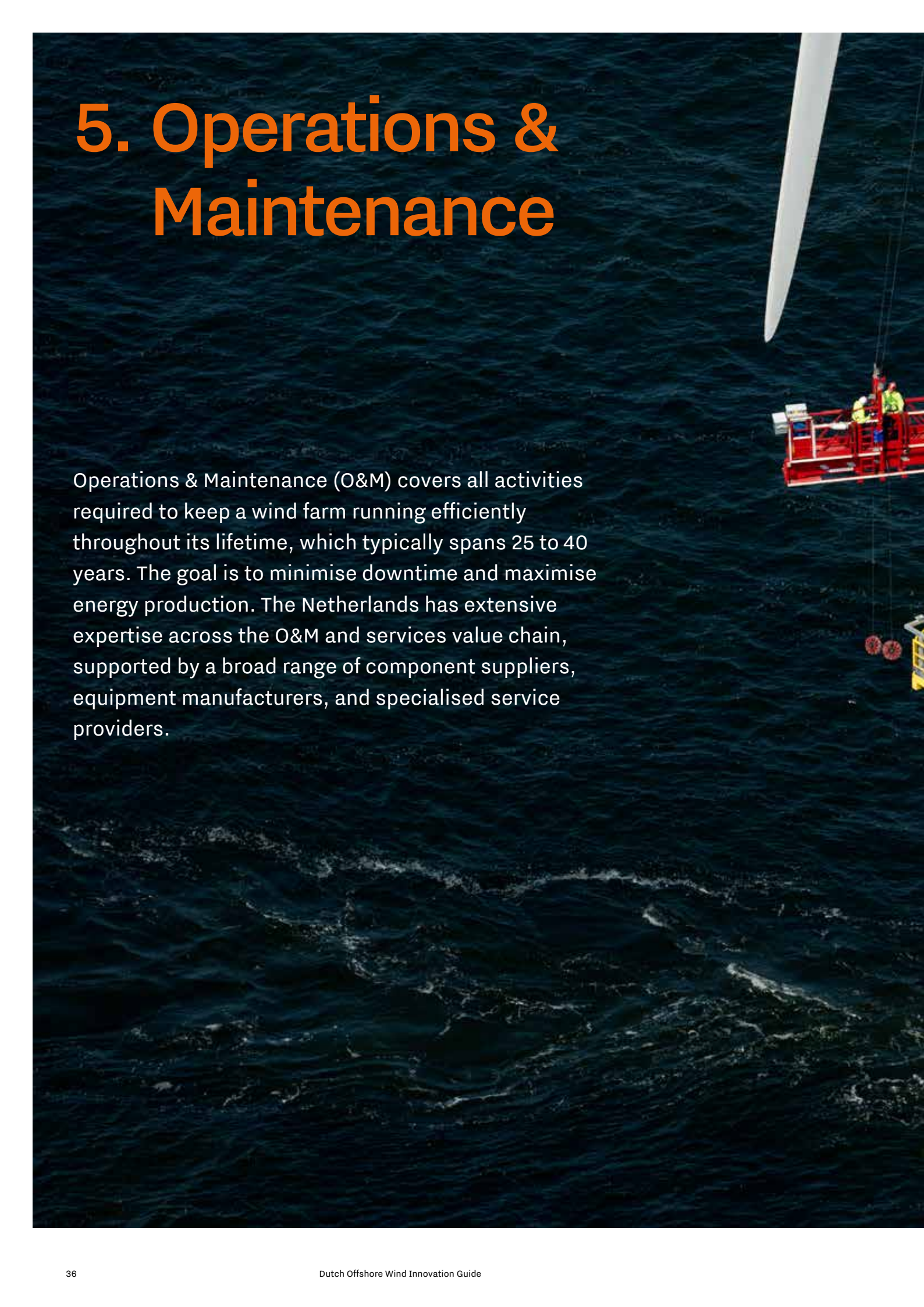
First Hybrid CSOV from Windcat's Elevation Series Launched

News item summarized from: OffshoreWIND.biz

Windcat has launched the Windcat Rotterdam, the first of six hybrid-powered Commissioning Service Operation Vessels (CSOVs) in its Elevation Series, developed with Damen Shipyards Group and CMB.TECH and built at Ha Long Shipyard in Vietnam. The 89-metre vessel can stay offshore for up to 30 days and accommodate 120 people. It features a hybrid-battery propulsion system, closed bus switchboard, and four azimuth thrusters, enabling precise manoeuvrability and cutting CO₂ emissions by 30%.

The Elevation Series advances fuel efficiency and emission control in offshore operations. The vessels will also use CMB.TECH's dual-fuel hydrogen technology, allowing auxiliary gensets to run on hydrogen once certified. The hydrogen genset, storage, and fuel system are ready for integration, marking a step toward greater maritime sustainability.

5. Operations & Maintenance

An aerial photograph of an offshore wind farm. A large white turbine blade is visible in the upper right corner. Below it, a red maintenance platform with two workers in high-visibility gear is positioned on the dark, choppy ocean surface. The platform is connected to the turbine by a cable. In the lower right, another yellow platform is partially visible. The water is dark blue with white foam from the waves.

Operations & Maintenance (O&M) covers all activities required to keep a wind farm running efficiently throughout its lifetime, which typically spans 25 to 40 years. The goal is to minimise downtime and maximise energy production. The Netherlands has extensive expertise across the O&M and services value chain, supported by a broad range of component suppliers, equipment manufacturers, and specialised service providers.





5.1 Operations

The day-to-day operation of a wind farm is managed from an onshore base. Key activities include workflow management, data collection, and performance analysis. This enables operators to respond efficiently to equipment failures and, where possible, to identify and address potential issues before they occur. Effective logistics management, covering vessels, helicopters, personnel, specialist tools, and spare parts, is also a crucial part of operations.

For O&M, operators typically use the nearest port that meets their technical requirements to minimise travel time and optimise weather windows. Ports play a growing role in O&M efficiency, with many undergoing upgrades to support larger vessels, component handling, and hybrid charging infrastructure.

Crew Transfer Vessels

Crew Transfer Vessels (CTVs) transport technicians and spare parts from the onshore base to offshore wind farms located close to the port. Some wind farms supplement CTVs with helicopter support to transport technicians when tasks require limited tools or spares, or when sea conditions restrict vessel access. Spare parts are usually stored in onshore warehouses. Hybrid and fully electric CTVs are becoming increasingly common as the industry moves toward lower emissions and cost-efficient operation.

Service Operation Vessels

Service Operation Vessels (SOVs) are now the baseline solution for wind farms located farther offshore. Designed to remain at sea for extended periods, SOVs serve as floating O&M bases, accommodating 60 to 120 technicians,

workshops, and storage for spare parts and consumables. Modern SOVs are equipped with motion-compensated gangways, cranes, and daughter craft for safe personnel and equipment transfer, as well as hybrid or battery-electric propulsion systems that improve efficiency and reduce emissions.

The distinction between CTVs and SOVs is gradually blurring, with new vessel type, such as “mini-SOVs” and hybrid support ships, emerging for sites at intermediate distances.

In the news 2025

Vattenfall Secures Eemshaven O&M Site for New German Offshore Wind Farms

News item summarized from: [OffshoreWIND.biz](https://www.offshorewind.biz)

Vattenfall has signed a contract with EMS Maritime Offshore (EMO) to build and lease a new operations and maintenance (O&M) base in Eemshaven, the Netherlands, for its Nordlicht offshore wind farms in Germany. The base benefits from existing port infrastructure, supporting SOVs and CTVs, and Eemshaven's proximity to the German EEZ. Construction will start later this year, with completion set for October 2026, after which Vattenfall will lease the facility long-term. EMO will also handle SOV port calls. Nordlicht 1 (980 MW) construction begins in 2026, with full commissioning expected in 2028.

5.2 Maintenance and inspection

This includes services for planned and unplanned visits to wind turbines and their foundations for inspection and maintenance, typically performed by in-house technicians using dedicated equipment.

Turbine maintenance typically involves one or two scheduled visits per year, during which technicians inspect key components, check lubrication, replace filters, test instruments, inspect electrical systems, and perform safety checks. Increasingly, condition-based monitoring and predictive analytics help optimise these visits, reducing downtime and costs.

Regular inspection and maintenance of turbine and substation foundations are essential, as corrosion, coating damage, or faulty seals can lead to costly repairs. Increasingly, drones, ROVs, and advanced camera systems support these inspections, reducing the need for manual access.

Digitalisation, predictive maintenance, and integrated logistics are transforming offshore wind O&M, improving monitoring, extending asset lifetimes, and reducing downtime and costs. The industry also benefits from decades of oil and gas expertise in safe offshore operations, with the North Sea remaining a leading hub for inspection and repair activities.

'The Netherlands has extensive expertise across the O&M and services value chain, supported by a broad range of component suppliers, equipment manufacturers, and specialised service providers.'

In the news 2025

AI-Powered Cargo Drones Tested at Vattenfall's German Offshore Wind Farms

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

Dutch offshore service provider Ampelmann, the Dutch TNO research institute, and Vattenfall have tested AI-powered cargo drones at Vattenfall's DanTysk and Sandbank offshore wind farms in the German North Sea. The drones transport materials from service vessels to turbines, enhancing safety, cutting downtime, and reducing emissions. The trials form part of the Dutch AIRTuB-ROMI project, which develops automated systems for turbine blade inspection and repair. Using onboard AI, drones can detect damage, perform ultrasonic scans, and support early fault detection, helping improve efficiency, enable autonomous operations, and ease technician shortages in offshore wind.



Source: Ampelmann

5.3 Repairs

Repair activities address both unexpected failures and the planned replacement of components nearing the end of their service life. Major turbine repairs, such as replacing blades, gearboxes, or generators, require large installation or service vessels capable of heavy-lift operations. Smaller corrective tasks, including sensor replacements or minor hydraulic and electrical fixes, are typically performed by on-site technicians using crew transfer or service operation vessels. In addition, repair services also cover electrical infrastructure.

Depending on the scope of work, specialised equipment such as remotely operated vehicles (ROVs), cranes, and support vessels is often contracted through third-party service providers. Timely and well-coordinated repair operations are essential to minimise downtime and ensure continuous energy production.

In the news 2025

N-Sea Lands Another Cable Repair Contract for 576 MW Gwynt y Môr Offshore Wind Farm

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

N-Sea Group has secured a contract to repair one of the four export cables connecting the 576 MW Gwynt y Môr offshore wind farm in the UK to the National Grid. The Dutch company will replace a five-kilometre section of 132 kV cable from the onshore transition joint bay toward the offshore platform.

The scope includes cable pull-in through an HDD duct, dredging, jointing, testing, and burial, supported by N-Sea's survey, UXO, and data centre divisions, which will design and document the new cable route. Work is scheduled to begin this summer, using N-Sea's dedicated repair vessel CURO, suited to the site's high tidal range and shallow waters.

Located 13 kilometres off North Wales, Gwynt y Môr comprises 160 Siemens 3.6 MW turbines and has operated since 2013. The project's transmission assets are owned by GYM OFTO.

5.4 Port development & logistics

A well-developed port infrastructure is essential to support the manufacturing, assembly, and installation activities required for offshore wind farms. Ports may function as integrated manufacturing and installation hubs or operate as dedicated facilities.

Most Dutch ports are publicly owned, allowing investment decisions to consider not only direct port revenues but also broader regional and economic benefits. This contrasts with countries such as the United Kingdom, where many ports are privately operated and investment decisions are driven primarily by commercial returns rather than public or regional interests.

All major Dutch ports have proactively developed master plans that incorporate offshore wind infrastructure to facilitate the installation of large-scale wind farms in the Dutch section of the North Sea. As domestic production of complete wind turbine components remains limited, most Dutch ports primarily serve as installation ports, where main components are stored, pre-assembled, and loaded onto installation vessels.

Ports in the northern part of the Netherlands

In the north of the Netherlands, the Port of Eemshaven plays a leading role in turbine assembly and shipping activities. Over the years, it has supported numerous offshore wind projects, including Alpha Ventus, Bard Offshore I, Borkum Riffgat, Borkum Riffgrund I, Trianel Windpark Borkum, Global Tech I, Gemini, Gode Wind I & II, Veja Mate, Race Bank (UK), Nordsee One, Borkum Riffgrund II, Merkur Offshore, Hohe See, Albatros, Trianel Windpark Borkum II, Hornsea Two, and Kaskasi. Currently, Eemshaven is serving as the base port for three offshore wind projects: Hollandse Kust Noord, Gode Wind III, and Borkum Riffgrund III.

Ports in the western part of the Netherlands

In the western Netherlands, key O&M hubs are located in IJmuiden, which supports the Hollandse Kust Zuid and Hollandse Kust West wind farms, and in Vlissingen, which plays a central role in servicing the Borssele projects and functions as a marshalling yard for storage, assembly, and installation activities. A notable exception is the Port of Rotterdam, where Sif has established advanced facilities for the manufacturing of monopile foundations, positioning the port as a vital link in the Dutch offshore wind supply chain. Additionally, the Port of Amsterdam contributed to the early stages of offshore wind development, providing support for pioneering projects such as Princess Amalia, Egmond aan Zee, and Luchterduinen.



In the news 2025

Multi-Million Financing Secured to Upgrade Buss Terminal Eemshaven Infrastructure

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

Buss Terminal Eemshaven is undergoing a multi-million-euro upgrade to reinforce the quay and improve the seabed at the Julianahaven area. Funded by Groningen Seaports, Rabobank, Groninger Groeifonds, NV NOM, and a CINEA grant, the project will boost quay capacity from 6–20 to 40 tonnes/m² and allow two vessels to be handled simultaneously. This makes Eemshaven one of the first North Sea ports with such heavy-duty capability. Since 2011, Buss Terminal has supported nearly 20 major offshore wind farms, and the upgrade will enable it to handle larger components and multiple projects at once.

For more information on the specifics of Dutch ports involved in offshore wind, please see:

- Port of Amsterdam: www.portofamsterdam.nl
- Port of Den Helder: www.portofdenhelder.eu
- Groningen Seaports: www.groningen-seaports.com
- Port of Harlingen: www.portofharlingen.nl/en
- Port of Rotterdam: www.portofrotterdam.com/offshore
- North Sea Port: www.northseaport.com
- Port of IJmuiden (Zeehaven IJmuiden): www.zeehaven.nl/en

6. Offshore wind innovators



The main driver of growth in the offshore wind industry is the continuous decline in the Levelised Cost of Energy (LCOE), fuelled by innovations in offshore-specific turbine design, installation methods and the development of a dedicated supply chain. These cost reductions have encouraged strong government policy and financial support aimed at accelerating the decarbonisation of electricity production. In turn, these efforts have spurred further innovation, not only to cut costs but also to minimise the environmental impact of offshore wind farms during installation and operation. Although the sector has recently faced headwinds from inflation, supply chain pressures, and higher financing costs, the long-term outlook remains strongly positive as governments and industry recalibrate policies and investment to sustain growth.



6.1 Dutch R&D actors

The Netherlands maintains a strong focus on innovation in the offshore wind industry, supported by leading knowledge institutes and collaborative organisations that drive research, development, and policy advice. Together, these actors foster cooperation across the sector, stimulate technological advancement, and strengthen the country's role in offshore wind innovation.

Some of the main R&D actors are listed below.

Topsector Energy/ Energy Innovation NL

The Dutch government promotes energy transition innovation through tax incentives, innovation credits, and (EU) grants. It also collaborates with the private sector, universities, and research centres within the so-called Top Sector Alliances for Knowledge and Innovation (TKIs). These partnerships help strengthen sectors such as energy and support the development and introduction of innovative products and services to national and international markets.

TKI Offshore Energy

The Wind at Sea programme plays an important role in advancing Dutch offshore wind innovation. TKI Offshore Energy, in collaboration with RVO, supports and facilitates research, development, and demonstration projects aimed at accelerating progress in the sector. Its goal is to ensure that offshore wind energy makes a major contribution to the Dutch energy transition.

Technical University of Delft (TUD)

TU Delft conducts research on new materials and structural concepts for offshore wind turbines, applying advanced insights in wind loads, fluid mechanics, and control engineering. The university focuses on developing solutions that reduce loads on support structures, improve turbine and wind farm reliability, and optimise the entire energy supply chain, from wind generation to grid integration across the European power network.

Dutch innovation actors build on this knowledge to develop practical applications, including turbine components, rotor blades, and 'balance of plant' elements such as foundations, substations, and cables.

GROW

GROW is a joint research programme in offshore wind that initiates and accelerates innovation through collaborative research. The consortium brings together around 20 leading business and academic partners that work closely to reduce the cost of offshore wind and enhance its value within both the energy system and the wider ecosystem. In addition, GROW promotes the visibility of its projects and partners by showcasing the innovative strength of the Dutch offshore wind sector, for example through the SIMOX project.

TNO

Formerly known as ECN Wind Energy, TNO's Wind Energy Department has been active in the field of wind energy for more than 40 years. It is the flagship of Dutch Research & Development on Renewable Energy and is one of the global leading knowledge institutes in the field of wind energy. The Wind Energy Department focuses on research/B2B collaboration in:

- wind turbine and foundation design, both bottom fixed and floating;
- wind farm design/wind turbine and wind farm control;
- energy system integration of large scale (wind) generated energy; power to X;
- installation and operations/maintenance strategy/ approach.

In the news 2025

New Research Project Aims to Create More Accurate Wake Modelling for Offshore Wind

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

EuroWindWakes is a three-year research project launched in late 2024 by partners from Germany, the Netherlands, and Denmark to improve modelling of offshore wind wake effects in the North Sea. Funded by BMWK, EUDP, and the Dutch RVO under the Clean Energy Transition Partnership, the consortium includes RWE, BP, EnBW, TotalEnergies, research institutes Fraunhofer IWES, TU Delft (NL), and DTU, and consultancies Pondera Consult (NL), EMD International, and DHI. The project aims to reduce wake forecast inaccuracies from 20–30% to 10%, enabling improved maritime spatial planning, energy yield prediction, and investment reliability for offshore wind.



In the news 2025

12 Hours of Rough Weather Cause 30 Pct of Blade Damage per Year, Research Shows

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

Dutch research institute TNO, together with Dutch partners Eneco and Whiffle, and international partners Shell and Equinor, found that about 30% of annual wind turbine blade erosion occurs within just 12 hours of extreme wind and rain. The PROWESS project measured North Sea precipitation and wind, revealing that offshore erosion happens twice as fast as onshore and that blade coatings in the northeastern North Sea last around 20% shorter than in the southwest. Using advanced sensors and Whiffle's weather modelling, TNO created an erosion atlas predicting when and where blade damage occurs. These insights enable wind farm operators to adjust turbine speeds proactively, helping prevent severe erosion and lower maintenance costs across future North Sea wind projects.

6.2 Low cost piling innovations

Traditionally, transition pieces (TPs) have been part of monopile foundations. As the offshore wind industry continues to evolve, ongoing improvements in installation procedures, techniques, and technology have led to the development of TP-less solutions. These eliminate the bolted or grouted connection used in conventional transition pieces, enabling faster installation and potential cost reductions, for example, through shorter inspection times during the O&M phase. However, the adoption of TP-less designs depends on project-specific factors such as turbine size, vessel availability, and supply chain readiness.

6.3 Low noise piling innovations

Foundation installation methods continue to receive strong R&D focus. Traditional installation relies on hydraulic impact hammers, which generate underwater noise that can harm marine life. Innovations now include “gentle driving”, bubble-curtain techniques and even jetting methods, which aim to reduce noise while maintaining, or improving, installation speed. Adoption depends on specific factors such as seabed conditions, pile size, vessel availability and cost-benefit trade-offs.

In the news 2025

DEME to Use IQIP’s IQ6 Hydrohammer to Drive Nordlicht Monopiles Into Seabed

News item summarized from: OffshoreWIND.biz

Dutch company IQIP will supply its Hydrohammer IQ6 with PULSE noise-mitigation technology for DEME’s installation of 112 monopiles and transition pieces at Vattenfall’s Nordlicht 1 and 2 wind farms in the German North Sea. PULSE uses a dual-piston system and fluid chamber to reduce underwater noise and works with other mitigation systems. EEW SPC will make the monopiles, and CS Wind Offshore will supply the transition pieces from 2025–2027. Located 85 km north of Borkum, the 1.6 GW Nordlicht cluster reached FID in March 2025, with Vestas providing 68 V236-15 MW turbines.

In the news 2024

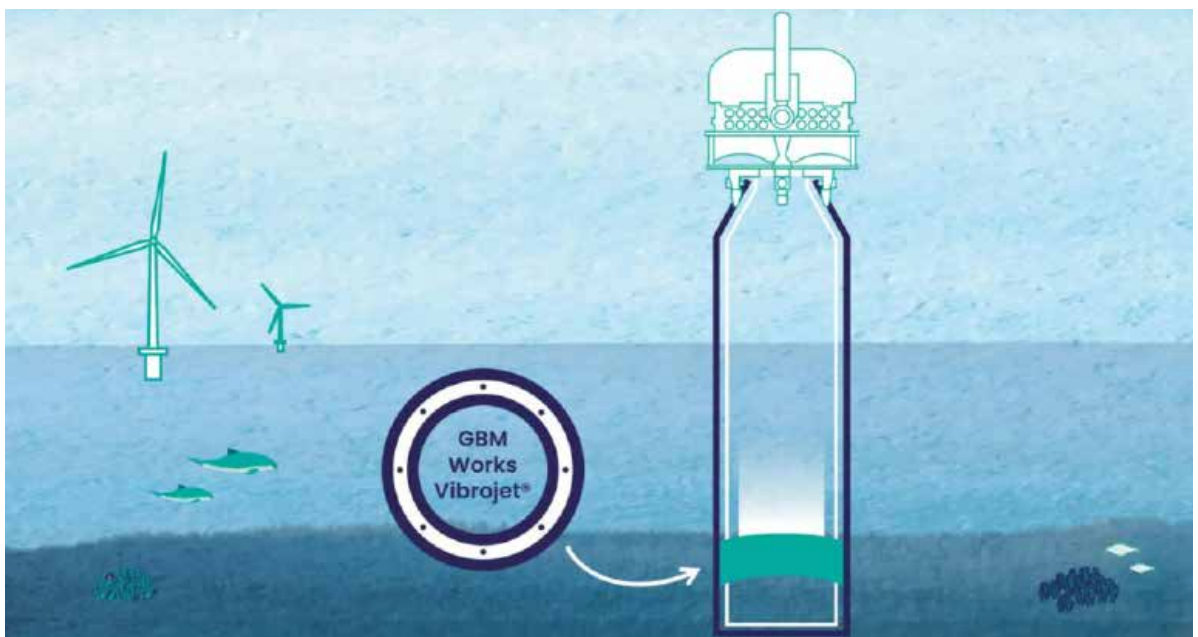
Ecowende to Install Three Monopiles at Dutch Offshore Wind Farm in ‘Silent Mode’

News item summarized from: OffshoreWIND.biz

Ecowende, a joint venture between Shell and Eneco, has signed a contract with Dutch company GBM Works to deploy its Vibrojet noise reduction technology for installing three monopiles at the Hollandse Kust West (HKW) Site VI offshore wind farm in the Netherlands. The Vibrojet combines vibrations and jetting technology inside the monopile, making installation quieter, faster, and capable of greater depths compared to traditional impact hammers.

For GBM Works, a TU Delft spin-off, this marks the first commercial application of Vibrojet, following years of testing under the SIMPLE projects. The current SIMPLE III programme, supported by Ecowende, will further develop and test the technology offshore, measuring its noise and sustainability performance.

Under the contract, GBM will handle engineering, manufacturing, and offshore support for the installation, working with partners Van Oord, Sif, and Ramboll. The 760 MW HKW VI wind farm aims to be built in harmony with nature, minimising environmental impact.



Source: GBM Works

6.4 Balance of Plant innovations

Building on a strong legacy in maritime oil and gas operations, Dutch companies have developed extensive expertise in the global transport and installation of offshore wind farms. This experience has led to several innovations in 'Balance of Plant' components, including turbines, foundations, substations, and cables.



Source: Huisman

In the news 2025

Ulstein Design, Huisman Crane for Penta-Ocean's New Offshore Wind Installation Vessel

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

Penta-Ocean Construction has awarded Dutch firm Huisman a contract to supply a 5,000-tonne tub-mounted crane and monopile handling system for its new heavy lift vessel (HLV), designed by Ulstein. Built specifically for the Japanese offshore wind market, the vessel is described as the world's first fully integrated heavy lift vessel.

Part of a JPY 79 billion (EUR 488 million) investment announced in December 2024, the HLV and a new cable laying vessel will support Japan's growing offshore wind sector. The HLV, of Ulstein's HX118 design, features the U-STERN, enabling longitudinal monopile storage and upending along the vessel's centreline for safer, more fuel-efficient installation.

Developed collaboratively by Huisman, Ulstein, and Penta-Ocean, the integrated system includes a dual-hoist, active heave-compensated crane and a motion-compensated pile gripper, optimised for 15–20 MW turbine foundations. These innovations aim to improve efficiency, safety, and vessel stability while reducing environmental impact during offshore construction.

7. Floating Wind Innovators

Advances in wind turbine technology, bottom-fixed foundations, installation methods, access systems, and grid integration have enabled offshore wind farms to move into deeper waters and farther from shore, reaching areas with stronger and more consistent wind resources. However, turbines anchored to the seabed with monopile or jacket foundations remain limited to water depths of around 60–70 metres. This restriction poses challenges for major markets, such as Japan, where shallow sites are scarce. Expanding offshore wind into deeper waters requires floating foundations, a game-changing technology that opens access to high-resource areas far offshore. Full-scale prototypes have already been deployed, using three main floating concepts: spar buoy, semi-submersible, and tension-leg platforms.





7.1 Floating wind turbine innovations

Although floating wind technology is still in its early commercial phase, several full-scale projects are now underway and some OEMs have launched dedicated development programmes. This growing momentum continues to create opportunities for innovative Dutch SMEs, which are advancing cost-effective solutions, from integrated floating wind turbine systems to novel floating foundation designs, helping accelerate the global scale-up of floating offshore wind.

In the news 2025

IX Renewables, Taiwanese Cement Company Partner on Rui Li 1 Floating Wind Project

News item summarized from: OffshoreWIND.biz

Dutch firm IX Renewables and Asia Cement Corporation (ACC) have signed a cooperation agreement for the 180 MW Rui Li 1 floating offshore wind project off Hsinchu County, Taiwan. Developed with Japan's GF Corporation, Hexicon, and SNOW, the project will feature twelve 15 MW turbines generating about 833 GWh annually, enough to power 205,000 households. Having passed its Environmental Impact Assessment in 2024, Rui Li 1 marks a key step toward Taiwan's 21 GW offshore wind goal by 2035, combining local industry strength with international expertise to advance floating wind technology and support the nation's net-zero ambitions.



Source: IX Renewables

In the news 2023

Mitsui O.S.K. Lines Invests in Dutch Floating Offshore Wind Turbine Tech

News item summarized from: OffshoreWIND.biz

Mitsui O.S.K. Lines (MOL) will acquire a minority stake in Dutch floating wind developer TouchWind, deepening their collaboration on innovative offshore wind technology. TouchWind is developing a floating wind turbine featuring a tilting, angled one-piece rotor, designed to improve efficiency and stability. A 6-metre prototype was installed in May at Fieldlab Green Economy Westvoorne in the Netherlands, where it will undergo testing for installation, mooring, anchoring, and ecological impact.

MOL's investment will enable expanded field testing and new research into positive wake effects, accelerating development and reducing time to market. The partnership builds on a 2023 memorandum of understanding between the two companies to jointly advance floating wind technology. Both partners see strong potential in TouchWind's design to support future large-scale, sustainable offshore wind deployment.



Source: TouchWind

7.2 Floating wind foundation innovations

While floating foundations are well-established in the oil and gas sector, platform designs for offshore wind require adaptation to accommodate different dynamic characteristics and distinct loading patterns. Similar advancements have already been made for fixed-bottom foundations, including monopiles, jackets, and gravity-based designs.

Currently, floating wind farms still have a higher levelised cost of energy (LCOE) than fixed-bottom projects, as floating foundations must be assembled quayside in ports and coastal areas. This demands major supply chain investments in manufacturing facilities and supporting infrastructure. Nevertheless, confidence is growing that floating wind can achieve commercial competitiveness by the mid-2030s, supported by its ability to draw on proven oil and gas technologies such as semi-submersibles, tension-leg platforms (TLPs), and spar buoys. Additional advantages include lower installation costs and the potential to standardise designs within and across wind farms.

In the news 2024

ABS, FibreMax Enter Collaboration on Floating Wind Mooring Tech

News item summarized from: [OffshoreWIND.biz](#)

Dutch synthetic mooring specialist FibreMax has signed an agreement with the American Bureau of Shipping (ABS) to collaborate on stiffness-driven mooring tendons for floating offshore wind. ABS will qualify FibreMax's fibre and rope testing methods and assess their accuracy in predicting stiffness parameters, while FibreMax will contribute expertise based on its Parallel Wound Technology (PWT). The partnership aims to develop parameters for future stiffness-driven floating wind designs. Earlier in 2024, FibreMax also signed an MoU with RWE to advance synthetic mooring technology, focusing on cost reduction, ultra-deep-water applications, and opportunities for local production.

In the news 2025

JB Energy, FibreMax Sign Floating Offshore Wind MoU

News item summarized from: [OffshoreWIND.biz](#)

Japanese company Japan Blue Energy (JB Energy) has signed an MoU with Dutch firm FibreMax to collaborate on synthetic mooring line solutions for JB Energy's Raijin Float floating wind platform. The Raijin Float is a semi-submersible, precast concrete design featuring a modular system for scalable, efficient manufacturing and deployment. FibreMax's automated production method enables local, scalable mooring line fabrication near installation ports, enhancing efficiency and reducing costs. The partnership aims to optimise mooring systems for JB Energy's projects, including Brazil's planned floating offshore wind pilot featuring a Raijin Float platform and an 18 MW Mingyang Smart Energy turbine.



Source:FibreMax

8. Offshore Wind - Ecology Innovators

To ensure the sustainability of ocean-based renewable energy, it is essential to maximise benefits while minimising potential negative impacts on marine ecosystems. Such impacts can include habitat loss or disturbance caused by underwater noise and electromagnetic fields from subsea cables, which may affect aquatic species. However, Dutch experience shows that offshore wind can also enhance biodiversity, for example, through the creation of artificial reefs and fish aggregation structures, as demonstrated at one of TenneT's cable crossings (pictured here).



8.1 Introduction

The Netherlands is a frontrunner in combining offshore wind development with environmental protection. The Dutch government actively encourages innovation by requiring developers to integrate measures that protect birds, bats, marine mammals, and underwater ecosystems into their auction bids. Through this approach, the Netherlands aims to set new ecological standards for building and operating offshore wind farms.

This chapter presents the ecology-focused and nature-inclusive innovations proposed by project developers awarded permits in recent Dutch offshore wind tenders, illustrating how ecological enhancement is becoming a defining element of offshore wind development.

8.2 Borssele, site V

In 2018, the Borssele Wind Farm Site V was awarded to the Two Towers consortium, comprising Van Oord (now Octopus Energy Generation), Investri Offshore, and Green Giraffe. Designated as a small-scale demonstration site for offshore wind innovations, the 19 MW project is located within Borssele Wind Farm III and features two Vestas 9.5 MW turbines.

Among its key ecological innovations, the seabed around the turbine foundations is fitted with eco-friendly scour protection designed to enhance both stability and marine life. Oysters have been successfully placed on the protective rock layer, improving erosion resistance while promoting biodiversity and creating new habitats for aquatic species.

In the news 2021

Dutch Offshore Wind Innovation Site Fully Commissioned

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

The 19 MW Borssele V wind farm in the Dutch North Sea has been fully commissioned, marking a milestone for the Two Towers consortium. Located within site III of the Borssele Wind Farm Zone, it features two Vestas 9.5 MW turbines and several innovations, including a submerged Slip Joint, Thermally Sprayed Aluminium (TSA) coating, ICCP optimisation, and oval cable entry holes.

The seabed is fitted with eco-friendly scour protection, where oysters will be placed to enhance biodiversity and marine habitats. Developed by Van Oord, Investri Offshore, and Green Giraffe, the project aims to reduce costs and environmental impact of offshore wind. Van Oord, acting as Balance of Plant contractor, completed construction on time and within budget using its vessels Aeolus, Dig-It, and Nexus. Energy is supplied directly to consumers through Vandebron.



8.3 Hollandse Kust Zuid

In 2018 and 2019, Sweden's Vattenfall won the tenders to build and operate the Hollandse Kust (zuid) I–IV wind farms, located 18 to 35 kilometres off the Dutch coast between The Hague and Zandvoort. The combined 1.5 GW project (commissioned in 2023) includes a series of innovation programmes focused on circularity and biodiversity within the offshore wind industry.

Circularity innovations

At the Hollandse Kust (zuid) offshore wind farm in the Netherlands, three of the 139 Siemens Gamesa 11 MW turbines are equipped with RecyclableBlades. Conventional blades are made from resin fused with fiberglass and carbon fibre to form a strong composite structure. However, separating these materials requires high temperatures, high pressure, and special treatments, an energy-intensive and costly process that also reduces material quality. Siemens Gamesa's RecyclableBlades use a new type of resin that can be dissolved in a heated, mildly acidic solution, allowing the different materials to be recovered and reused without loss of quality.

Ecology innovations

All 139 turbine monopile foundations at the Hollandse Kust (zuid) wind farm feature elliptical openings, approximately 30 centimetres by 1 metre, positioned above the seabed and just below the water surface. These openings act as water replenishment holes, allowing water to circulate freely within the hollow foundations. This not only maintains water quality but also creates pathways for marine life such as fish, anemones, crabs, and shrimps to enter, providing potential shelter and feeding grounds. It marks the first time that turbine structures themselves have been designed with nature-inclusive features.

In addition, boulders and rocks of varying sizes were used to construct the scour protection, with artificial rock reefs added at several sites to attract a greater diversity of fish, crabs, and other crustaceans.

Finally, to reduce the impact of construction noise on marine mammals, the project employed a double bubble screen during pile driving to effectively dampen underwater noise and protect species such as harbour porpoises.



In the news 2022

Wind Turbines Offshore Netherlands Open to Sea Life

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

Vattenfall and De Rijke Noordzee are studying how water replenishment holes in turbine foundations affect marine life at the 1.5 GW Hollandse Kust Zuid wind farm, the world's first subsidy-free offshore project and soon the largest operational. Each of the 140 monopile foundations includes elliptical openings that refresh internal water and may provide shelter for fish, crabs, and anemones. Supported by NIOZ and Wageningen Marine Research, the study measures oxygen, temperature, and biodiversity inside the foundations to assess ecological benefits. If results meet expectations, the approach could enhance underwater biodiversity while generating clean energy.

8.4 Hollandse Kust West, site VI

In 2022, Ecowende, a joint venture between Shell and Eneco (now including Chubu), won the permit to construct and operate the 756 MW Hollandse Kust (west) VI offshore wind farm, located more than 50 kilometres off the Dutch coast near IJmuiden. As part of its winning bid in the government's innovation tender to reduce ecological impact, Ecowende committed to building a nature-inclusive wind farm designed to operate in harmony with the marine environment, with minimal impact on birds, bats, and marine mammals. Commissioning is planned for 2026.

Ecology innovations

Specific measures include increasing the clearance height of the rotor blades (lowest tip height), creating a wide corridor to the nearby Natura 2000 area by spacing the turbines further apart, and introducing a system that can temporarily stop the turbines in response to bird flight activity. Through these measures, Ecowende aims to significantly reduce the risk of bird and bat collisions.

The project also features several innovative techniques to help the underwater ecosystem recover and thrive. Biodegradable reef structures are being built using fruit trees sourced from Dutch orchards, providing shelter and breeding grounds for fish. In addition, Ecowende will apply various forms of eco-friendly scour protection and expand the oyster-larvae network to support the spread of native flat oysters across the wind farm area.

In the news 2025

Vestas Red Turbine Blades to Be Tested for Bird Safety at Hollandse Kust West VI Wind Farm

News item summarized from: OffshoreWIND.biz

Ecowende, a joint venture of Shell, Eneco, and Chubu, will test whether red turbine blades help reduce bird collisions at the 760 MW Hollandse Kust West VI offshore wind farm. Vestas will install one red blade on each of seven turbines to study its visibility effect, with research led by Waardenburg Ecology, DHI, and Robin Radar. The trial complements broader ecological measures such as adaptive curtailment, bird corridors, and nature-enhancing features like tree reefs and oyster hubs. Located 53 kilometres off IJmuiden, the project aims to be the world's first offshore wind farm designed in harmony with nature.

8.5 IJmuiden Ver, site Alpha

In 2024, Noordzeker, a consortium of SSE Renewables, ABP (via its asset manager APG), won the development permit for the IJmuiden Ver Alpha offshore wind farm site. The project, with a capacity of approximately 2 GW and located about 62 km off the Dutch coast near IJmuiden, responded to the tender's ecosystem innovation challenge by proposing a nature-inclusive wind farm that will enhance biodiversity.



Source: Ecowende



Noordzeker's proposal includes a range of nature-enhancing measures, such as a bird protection system and the creation of artificial reefs to support marine life. The turbine and wind farm designs are optimised to reduce collision risks for birds and minimise disturbance to marine mammals during both construction and operation.

A key feature of the winning bid is the concept of a “living laboratory”, in which around 75 per cent of the turbines will be equipped with artificial reefs designed to attract mussels and other marine organisms, turning the wind farm into a dynamic habitat that supports research and long-term ecosystem restoration.

In the news 2025

Van Oord, Ecowende to Install Tree Reefs and Oyster Hubs at Dutch Offshore Wind Farm

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

Van Oord and Ecowende, a joint venture of Shell, Eneco, and Chubu, will install Tree Reefs and Oyster Hubs at the 760 MW Hollandse Kust West VI offshore wind farm to enhance marine biodiversity. Developed by NIOZ and Van Oord Ocean Health, the Tree Reefs—made from around 1,000 recycled fruit trees—will provide habitats for marine life and biodegrade naturally over time. The Oyster Hubs, containing adult oysters, will promote larval spread and reef formation. Both will be installed between 2026 and 2027. Located 53 kilometres off IJmuiden, Van Oord will also handle the wind farm's foundations, cables, and turbines.

In the news 2025

‘World’s First’ Fully Remote Ecology Survey Done at 759 MW Dutch Offshore Wind Farm

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

Fugro and partners in the BeWild project have completed the world's first fully remote ecology survey at CrossWind's Hollandse Kust Noord offshore wind farm in the Netherlands. Using computer vision and environmental DNA (eDNA) sampling, the team deployed the Blue Volta eROV from Fugro's Blue Essence uncrewed surface vessel, both operated remotely from Aberdeen.

This method allows more efficient, low-impact ecological monitoring, supporting the sustainable development of offshore wind. The survey is the first of four R&D assessments at CrossWind, a Shell–Eneco joint venture, funded by the Dutch Enterprise Agency (RVO) under the MOOI programme. Combining remote inspections with ecological monitoring also improves safety and resource efficiency. The 759 MW wind farm, located 18.5 km off Egmond aan Zee, began operations in December 2023, producing 3.3 TWh annually.

9. Offshore Wind - System Integration Innovators

An aerial photograph of an offshore wind farm. In the foreground, a platform with a green helipad and yellow markings is visible. Below it, a service vessel or supply ship is connected to the platform by a cable. The ocean is dark blue with white-capped waves. In the distance, several wind turbines are visible on the horizon under a clear sky.

A key element of the future energy system is the integration of offshore wind with energy storage and power conversion technologies. Combining generation and storage allows electricity from offshore wind to be used flexibly, to supply the grid, store excess energy, or produce green hydrogen and heat for industry. This integrated approach enhances grid stability, reduces curtailment, and supports large-scale electrification.

The Dutch coastal zones with high wind potential also offer ideal conditions for combining offshore wind and solar. Offshore solar complements wind power by balancing production throughout the year and enabling efficient use of sea space.

Across Northwestern Europe, hybrid pilot projects are paving the way for a flexible and resilient offshore energy network.



9.1 Introduction

The Netherlands is pioneering the integration of offshore wind with complementary technologies such as green hydrogen production, battery storage, and offshore solar energy. Through its innovative tender system, the Dutch government encourages developers to combine these system innovations within their offshore wind projects, driving efficiency, sustainability, and optimal use of sea space.

It is set to become the first nation to produce green hydrogen directly from offshore wind at scale, with a 700 MW wind farm north of the Wadden Islands dedicated to on-site electrolysis of 500 MW expected after 2030. At the same time, developers are exploring offshore solar co-location within wind farm areas to further enhance energy output and system flexibility.

This chapter explores how these technologies, green hydrogen, battery storage, and offshore solar, are being integrated into Dutch offshore wind projects, showcasing innovations emerging from recent system integration tenders.

9.2 Hollandse Kust Noord

In 2020, the CrossWind consortium, a partnership between Shell (80%) and Eneco (20%), won the tender to develop and operate the 760 MW Hollandse Kust (Noord) offshore wind farm, located 18.5 kilometres off the Dutch coast near Egmond aan Zee.

Floating solar

As part of its winning bid in the system-integration innovation challenge, the CrossWind consortium proposed a floating solar installation (0.5 MW) within the Hollandse Kust (Noord) offshore wind farm. The offshore solar farm will be the first in the world to be connected, installed, and operated within a wind farm in high wave conditions.

Dutch start-up Oceans of Energy secured the contract to install and operate this pioneering solar asset. Instead of conventional heavy offshore structures, the floating solar farm uses a 'high-wave' design, a lightweight, wave-riding technology developed for harsh marine environments. Its innovative pontoon system combines rigid and flexible elements, allowing the platform to move safely with the waves.

In the news 2025

Offshore Solar Farm Ready for Tow Out to Hollandse Kust Noord Wind Project

News item summarized from: [OffshoreWIND.biz](https://offshorewind.biz)

Dutch company Oceans of Energy has completed assembly of the world's first offshore solar farm integrated within a wind farm, ready for deployment at Hollandse Kust Noord in the North Sea, operated by CrossWind (Shell and Eneco). The platform, named Nymphaea Aurora, consists of prefabricated floating solar units designed for offshore conditions and was assembled in just three days at the Port of Amsterdam. The project demonstrates the potential of hybrid offshore wind-solar systems to boost renewable energy generation using shared infrastructure. The Dutch government and industry partners see it as a key step toward large-scale, sustainable offshore energy production.



Source: Oceans of Energy

By May 2025, the anchoring system had been successfully deployed, and the floating units were assembled in the Port of Amsterdam and prepared for tow-out in summer 2025.

The project has faced technical challenges that caused damage to the installation. An investigation is currently underway to determine the causes and effects of these incidents, providing valuable insights into system behaviour under offshore conditions.

Baseload Power Hub

As part of its winning bid in the subsidy-free innovation challenge, the CrossWind consortium also proposed developing an integrated fuel cell system to convert excess wind energy into green hydrogen using a 2.5 MW electrolyser. The hydrogen will be stored and later converted back into electricity via a containerized fuel cell system, supported by battery storage for short-term power balancing.

This Baseload Power Hub is designed to address the variable nature of renewable energy generation by storing excess power and supplying it when wind output is low or demand is high. It will become the world's first offshore integration of battery storage and round-trip hydrogen within a single offshore wind farm.

Onshore electrolysis: Holland Hydrogen 1

In 2022, Shell announced the construction of Holland Hydrogen 1 in the Port of Rotterdam, a 200 MW electrolysis plant powered by the 760 MW Hollandse Kust (Noord) offshore wind farm via guarantees of origin. The facility, covering about two hectares (roughly three football fields), is scheduled to start commissioning in late 2026, with ramp-up into 2027.

In the news 2025

2.5 MW Electrolyser Delivered for Energy Hub at Hollandse Kust Noord Offshore Wind Farm

News item summarized from: OffshoreWIND.biz

Elogen, part of the GTT group, has delivered a 2.5 MW proton exchange membrane (PEM) electrolyser for CrossWind's Baseload Power Hub at the Hollandse Kust Noord offshore wind farm. Built by Rosetti Marino and assembled by its subsidiary Fores Engineering, the system was completed in 30 months, including six months of design and 24 months of EPCC work. After successful site acceptance tests in August 2025, the electrolyser was installed onshore in Eemshaven, where it will convert surplus wind power into green hydrogen and back to electricity. The platform will later be transferred to DOT as an innovation hub involving TNO, Groningen Seaports, and Dutch universities.



Source:Crosswind

9.3 Hollandse Kust West, site VII

In 2022, Oranje Wind Power II, a project company of Germany-based RWE (now co-owned by TotalEnergies), won the permit to build and operate the 760 MW Hollandse Kust (west) VII offshore wind farm, located over 50 kilometres off the Dutch coast near IJmuiden.

Hydrogen

As part of its winning bid in the system-integration innovation challenge, RWE proposed converting surplus offshore-wind electricity into green hydrogen via up to 600 MW of electrolyser capacity, together with floating solar (see next section), battery storage and electric-boiler heat supply. The associated offshore wind farm is scheduled for full commissioning in early 2028.

Floating solar

As part of its winning bid in the system integration innovation challenge, RWE proposed integrating a 5 MW floating offshore solar system with energy storage into the wind farm.

RWE selected Dutch-Norwegian start-up SolarDuck as its exclusive partner to deliver the solar installation. The innovative and scalable design is built to withstand harsh offshore conditions such as high waves, strong winds, and a corrosive marine environment.

SolarDuck's system is based on interconnected triangular floating platforms supported by cylindrical floaters that keep the structure above the water surface, allowing it to move flexibly with the waves. Multiple units can be linked together to form large, megawatt-scale solar arrays. The design keeps electrical components dry and stable, allows for safe maintenance, and is engineered to withstand harsh offshore conditions while adjusting to follow the sun for optimal energy production.

SolarDuck's triangular platform has received the world's first offshore solar certificate from Bureau Veritas. When completed in 2028, it will be the largest hybrid offshore solar power plant in operation.

In the news 2025

Air Liquide Takes Final Investment Decision on Electrolyser That Will Link to Dutch Offshore Wind Farm

News item summarized from: OffshoreWIND.biz

Air Liquide has made a final investment decision to build ELYgator, a €500 million, 200 MW electrolyser at Maasvlakte in the Port of Rotterdam, powered by electricity from the OranjeWind offshore wind farm developed by RWE and TotalEnergies. Scheduled for operation in 2027, ELYgator will produce 23,000 tonnes of green hydrogen annually, with 130 MW dedicated to supplying 15,000 tonnes per year to TotalEnergies' platform in Antwerp. The companies also plan a joint venture to build and operate a 250 MW electrolyser near the Zeeland refinery, also powered by OranjeWind.



In the news 2025

RWE Commissions First of Two Battery Energy Storage Systems as Part of OranjeWind Project

News item summarized from: OffshoreWIND.biz

RWE has commissioned one of the Netherlands' largest battery energy storage systems (35 MW/41 MWh) at its Eemshaven power station, connected to the grid in February 2025. The system, comprising 110 lithium-iron-phosphate battery racks and 26 km of cabling, will help balance supply and demand in the Dutch grid. A second unit at Moerdijk (7.5 MW/11 MWh) is being commissioned, featuring ultra-fast synthetic inertia technology to enhance grid stability. Both systems support OranjeWind, RWE and TotalEnergies' offshore wind project at the Hollandse Kust West VII site, which will feature 53 Vestas V236-15 MW turbines located 53 kilometres off the coast of IJmuiden.

9.4 IJmuiden Ver, site Beta

In 2024, Zeevonk, a joint venture between Vattenfall and Copenhagen Infrastructure Partners (CIP), won the development permit for the 2 GW IJmuiden Ver Beta offshore wind project. In 2025, the permit was amended to reflect challenging market conditions, and the project will now be built in two phases due to delays with the Delta Rhine Corridor. The first 1 GW is scheduled for completion in 2029, followed by the second 1 GW in 2032.

Hydrogen

The project will include a 500 MW electrolyser at the Maasvlakte in the Port of Rotterdam, planned for completion around 2033. Powered directly by the offshore wind farm, the electrolyser will produce green hydrogen to help decarbonise industry and transport.

Located near the wind farm's onshore connection point, it can use electricity without first entering the national grid, reducing grid congestion and improving overall system efficiency.

Floating solar

As part of the site's innovation challenge on energy-system integration, the consortium also plans to install a floating solar farm of up to 50 MWp within the project area, starting with a 6 MW pilot in 2028.



Source:RWE

9.5 Innovation in offshore electrolysis

PosHYdon

Since mid-2024, PosHYdon has become the Netherlands' first operational offshore project producing green hydrogen from offshore wind. Located about 13 km off the coast of Scheveningen, the Q13a-A gas platform operated by Neptune Energy hosts the hydrogen plant. Powered by green electricity from the Luchterduinen wind farm, the system converts seawater into demineralized water and then into hydrogen via electrolysis. The green hydrogen is blended with natural gas and transported to shore through existing pipelines. The 1 MW offshore electrolyser, supplied by Norwegian company NEL Hydrogen, can produce up to 400 kg of hydrogen per day. This pilot aims to gain practical experience in integrating offshore energy systems and hydrogen production. The Dutch state actively participates through its agency Energie Beheer Nederland (EBN).

H2atSea

In February 2022, Neptune Energy and German energy company RWE launched H2opZee, a pioneering offshore wind-to-hydrogen project in the Dutch North Sea. The initiative aims to produce green hydrogen at sea using electricity from offshore wind farms, with plans to install 300–500 MW of electrolyser capacity. A key innovation is the use of existing offshore gas infrastructure to transport hydrogen to shore, significantly reducing the need for new pipelines. The project completed its feasibility phase and is now preparing for implementation, targeting operation before 2030. H2opZee is supported by the Dutch government through the TKI Wind op Zee program and builds on insights from the PosHYdon pilot, positioning the Netherlands as a frontrunner in offshore hydrogen integration.



Source: PosHYdon

In the news 2024

H2SEA Studies Monopile-Based Structures for Hydrogen Offshore Wind Turbines

News item summarized from: OffshoreWIND.biz

Dutch engineering company H2SEA, in cooperation with TU Delft, has assessed the structural feasibility of monopile-based support structures for offshore wind turbines producing hydrogen. Using a 15 MW reference turbine in 45-metre-deep water, the study analysed platform geometry, mass, and dynamic behaviour through simulations and fatigue calculations for a 25-year lifetime. The results help define design adaptations needed for decentralised hydrogen production. H2SEA has been involved in several hydrogen initiatives, including H2opZee, offshore pipeline repurposing studies, and system stability research for off-grid wind-powered hydrogen production with partners such as Enersynt and Guidehouse.

In the news 2024

PosHYdon green hydrogen pilot initiates onshore testing

News item summarized from: OffshoreWIND.biz

The PosHYdon project, the world's first pilot to produce green hydrogen on an operational gas platform, has started its onshore testing phase at InVesta in Alkmaar. After testing, the 1 MW electrolyser will be installed on Neptune Energy's Q13a-A platform, 13 km off Scheveningen, to begin offshore hydrogen production in late 2024. The pilot integrates offshore wind, gas, and hydrogen systems, with hydrogen blended into existing gas pipelines. Supported by the Dutch Ministry of Economic Affairs and a consortium of 15 partners including TNO, Gasunie, Eneco, DEME, and EBN, PosHYdon aims to demonstrate safe, cost-effective offshore hydrogen production at scale.

H2sea[®]

Sea the future

We plan, build and deliver
offshore hydrogen projects.



10. Business partners



Looking for offshore wind expertise or innovative solutions?

We are proud to recommend to you our Dutch business associations Maritime & Offshore NL and NedZero, and their respective business partners with unique expertise and experience. The following business directory includes company profiles and contact details of these partners.

Use the overview on the next pages to find potential partners for your current and future offshore wind projects.

All organisations comply with the OECD guidelines for responsible business conduct ('MVO' in Dutch).

While not exhaustive, the selection highlights the Netherlands' leading expertise and innovation in offshore wind.



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AE-WaveHexapod

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Wave energy is the most prominent form of marine energy. It is generated by the interaction of tidal forces and wind, which create continuous surface waves. Due to its high energy density and predictability, wave energy represents a highly attractive source of renewable power and an ideal complement to the energy mix.

Our project aims to develop and demonstrate an innovative Wave Energy Converter (WEC), the WaveHexapod (WHP). Unlike conventional WECs, which only capture energy from large, unidirectional waves, the WHP can efficiently generate power from small wave movements in three dimensions. The system consists of six robotic “legs” (hexa) connected to three buoys, directly converting motion into electricity. By leveraging proven robotics technology, the WHP can scale up more rapidly than traditional solutions.

Wave energy holds strong potential to enhance offshore renewable portfolios. Its generation profile is not synchronized with that of offshore wind or solar, making it partially complementary. Waves typically lag behind wind by several hours, meaning energy can still be produced after winds subside. This temporal offset reduces overall variability and stabilizes supply.

By integrating wave energy alongside offshore wind and, in the future, floating solar, the Netherlands and Europe can strengthen their sustainable energy mix and accelerate progress toward climate goals.

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AFRY is a leading engineering, design, and advisory company with a global presence. With 19,000 experts in infrastructure, industry, energy, and digitalization, we are committed to accelerating the transition towards a sustainable society.

In 2023, the acquisition of BLIX Consultancy led to the establishment of AFRY Netherlands Renewables, home to AFRY's Global Offshore Wind Competence Centre. This centre acts as a one-stop shop for offshore wind projects, covering the entire lifecycle: from strategy, development, and contracting to financing, construction, and long-term operations & maintenance. We also provide complete bid support and tender management to help clients succeed in competitive concession tenders.

Our offshore wind expertise is anchored in eight knowledge clusters: Environmental Impact & Permitting, Site Investigations & Wind Resource

Assessment, System Integration, Nature-Inclusive Design, Package Management & Owner's Engineering, Floating Wind, Electrical Grid Integration, and Contracting & Procurement. Together, these clusters ensure that we deliver integrated, cutting-edge solutions for every aspect of offshore wind projects.

By seamlessly connecting with AFRY's renowned teams in Management Consulting, Transmission & Distribution, and PtX Process Engineering, we go beyond traditional offshore wind development. This cross-disciplinary approach enables us to create innovative, sustainable solutions that truly add value.

Allseas

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Allseas is a major contractor in the global offshore energy industry, leading the way in subsea pipeline construction and transport, installation and removal of offshore facilities. Our revolutionary single-lift technology is a game-changer for offshore wind operators, providing fast, efficient transport and installation solutions for large substations at the heart of new developments. With offshore wind poised for major growth over the coming decades, we are ready to play a key role in executing sustainable projects.

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Ampelmann is a global offshore access specialist that enables safe, efficient and reliable transfers of personnel and cargo to offshore installations and structures. With millions of transfers already completed across Europe, Africa, the Middle East, Asia Pacific and the Americas, the company has a proven track record in the global offshore oil & gas, wind, and floating wind markets.

Known for its innovative approach to offshore access, Ampelmann's patented hexapod allows its systems to compensate for motions in six degrees of freedom. This ensures the gangway remains stable in adverse weather conditions, ensuring offshore operations can continue safely throughout the year. Designed in Delft, built in Rotterdam, and delivered to the world, its modular and energy efficient Walk to Work (W2W) solutions include a system for every sea, market and region.

Driven to innovate, the company's diverse portfolio covers solutions for crew change, C/SOVs, Mini SOVs and cargo operations. It has also developed fully electric gangway systems to further reduce the environmental footprint of offshore operations.

Ampelmann operates on a full-service business model and provides its renting and buying clients with trained operators, 24/7 operational support and digital management tools to improve uptime and ensure maximum efficiency during offshore operations. The company recently introduced its Drone Services to facilitate the growing demand for cargo operations on offshore wind farms.

Amphibious Energy

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Amphibious Energy, based in Delft, develops hybrid renewable energy solutions for offshore markets. The company created the ICCP-Pod: a unique, all-in-one system that integrates solar, wind, battery storage, and active ICCP equipment to provide reliable, off-grid power for monopile corrosion protection.

The ICCP-Pod cuts costs by avoiding diesel use, extra steel, and harmful coatings, while also enabling long-term support for monitoring, CCTV, and communication systems. With real-time remote monitoring and proven deployments in the North Sea and Bass Strait, Australia, Amphibious Energy delivers sustainable, future-proof solutions for offshore wind's transition to net-zero.

Atradius Dutch State Business

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Atradius Dutch State Business is the official export credit agency of the Netherlands. We offer exporters of capital goods or international construction projects a wide range of insurance and guarantee products state when doing business abroad. Through its insurance and guarantee products Atradius DSB can assist you in winning export transactions and increase your financing capacity with your bank.projects.

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AYOP (Offshore Energy Association) unites companies, regional governments, and organizations that are active in the offshore energy sector. We operate primarily in North Holland, with the ports of Amsterdam, Den Helder, and IJmuiden as key hubs. With over 125 members, AYOP covers the full spectrum of the industry – from seaweed to helicopters.

The challenges for offshore wind energy in our region are substantial with the North Sea and the upcoming wind farms in our backyard. And collaboration in this is key. That's why we look for shared opportunities for our members, share knowledge, and focus on possibilities and potential. We do this through joint trade show visits, networking events, an online community, and by actively promoting the offshore energy sector.

By joining forces, we can accomplish more.

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Ballast Nedam is a Dutch construction and development company which has a rich history in designing and building offshore wind farms. Our experience dates back to 1993 when we completed our first wind farm projects in Dutch waters. Until today, we have installed over 500 foundations and other infrastructure for wind turbines across Europe that still generate large amounts of sustainable energy every day.

As an experienced managing EPCI Contractor, Ballast Nedam is active in the design and construction of unique Balance of Plant solutions, for offshore wind foundations and cabling. Whether it is for the installation of monopile foundations or specialty projects which often require one-off solutions, a project can only be completed successfully through intensive cooperation with the client and subcontractors. Especially for unique foundation concepts or challenging project locations, clients

benefit from inhouse expertise in monopile, gravity base or other foundation concepts, to enable early engagement in design and construction. We complete the offshore wind lifecycle by offering dedicated decommissioning solutions for end-of-life wind farms.

Our strength lies in combining the knowledge of ourselves and all involved parties in the supply chain. Together with our partners, our teams look for solutions that meet every unique situation.

Barge Master

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Barge Master is dedicated to increasing workability at sea with innovative and practical solutions. Leveraging our expertise in motion compensation, combined with our versatile component fleet, custom software and unique mechanical designs, we deliver tailored solutions for offshore projects.

We see motion compensation as the perfect technology to keep the load still, the equipment stable and the people safe. Our solutions eliminate the need for bigger ships and provide a cost-effective solution for offshore operations. With motion compensation, working at sea becomes almost as easy as working on land. From workability studies to complete system designs, feasibility studies, and, finally, the assembly and rental of motion compensation solutions, we provide support across the entire process. Our proven solutions - spanning across lifting, feeding, transfer, and drilling - have helped companies to increase uptime year-round in seas around the world.

Looking for offshore wind expertise or innovative solutions?

We are proud to recommend our Dutch business associations. Maritime & Offshore NL and NedZero, and their respective business partners, bring specialized expertise and experience across the offshore wind value chain that are ideal to meet your needs. Their members' company profiles and contact details are included in the following business directory.

Ranging from original equipment manufacturers to installation and marine contractors to consultancies and advisors, our partners lead offshore wind development throughout the value chain. While not exhaustive, this selection of profiles highlights the Netherlands' leading expertise and innovation in offshore wind, as internationally acclaimed industry leaders are based here.

Bezemer Group B.V.

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Bezemer Group B.V. is a privately owned rental and sales company, active in the marine and offshore energy industry worldwide. Bezemer provides pulling and lifting solutions with a small footprint, using hydraulics, based on proven technology. As a leading global winch expert, Bezemer supplies a wide range of cable-pulling equipment. Their services include:

- Linear winches
- Drum winches
- Roller & anchor fairleaders
- Various wire-handling equipment

With more than 60 years of knowledge and experience, Bezemer is committed to being the safest and most reliable supplier for infrastructural projects globally.

Bezemer is also instrumental in offshore wind projects, Bezemer recently provided mooring winches

for the South Fork Offshore Wind Farm and Revolution Wind in the USA. They also offered winches to support during the landfall of the export cables for the Iles d'Yeu and Noirmoutier and Hollandse Kust West Beta offshore wind farms.

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Boskalis creates new horizons for all its stakeholders. As a leading global dredging contractor and marine services provider we offer a unique combination of experts, vessels and services. Maintaining the highest safety and sustainability standards, we provide innovative and competitive all-round solutions to our clients in the offshore energy sector, ports, and coastal and delta regions of the world.

We play an important role in the international offshore wind industry. Our unique contribution to the global energy transition has included more than 130 offshore wind farms and we have a successful track record in every phase of an offshore wind project. Our unparalleled range of activities and experience, in combination with our versatile fleet of equipment, allows us to deliver the most effective solutions for the completion of any offshore activity on time and within budget.

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Extreme Precision:

At Breman Machinery, we specialize in the manufacturing of complex, high-end products with extreme precision. Our team of highly skilled professionals excels in creating large-scale, critical steel components with exceptional accuracy. Serving a wide range of industries, offshore wind energy, oil and gas, aerospace, heavy machinery etc. Whether it's machine construction or specialized project execution, we turn challenging ideas into reality.

State-of-the-Art Manufacturing:

We utilize a cutting-edge manufacturing process to deliver high-quality products. Our advanced welding capabilities (manufacturing capabilities), certified to meet the highest standards and our extensive range of precision milling, boring, and turning machines ensure that we can handle the most demanding projects with unmatched accuracy.

Facilities for Exceptional Results:

With extensive facilities designed to accommodate large-scale projects, we ensure that every product is crafted with care and precision. Our preservation department offers advanced protective solutions to ensure the long-term durability of each piece. Situated near open water, our location allows easy access to international shipping routes, ensuring seamless project delivery.

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Bridges2000 specializes in designing, supplying, and maintaining temporary and permanent access solutions such as bridges, gangways, and pontoons. The company has a strong focus on the maritime and offshore sectors, where safety, reliability, and continuity are critical. For the offshore wind industry, Bridges2000 plays a key role by creating safe and efficient connections between vessels, platforms, and wind turbines. This not only improves accessibility but also optimizes operational time and the productivity of wind farms.

Within offshore wind, safe transfers for personnel and equipment are indispensable. By using innovative gangway systems and robust platform landing solutions, Bridges2000 reduces the risk of accidents and downtime. This directly contributes to a stronger safety culture and lowers operational risks, which is essential in challenging weather and sea conditions. At the same time, Bridges2000's approach aligns

closely with ESG principles. On the environmental side, the company promotes sustainability by deploying reusable constructions and energy-efficient materials. Socially, it enhances working conditions, as personnel can work more safely and with reduced physical strain. In terms of governance, Bridges2000 complies with strict quality and safety standards, operates with transparent processes, and places a strong emphasis on compliance.

For the offshore wind sector, this means not only greater efficiency and safety, but also meaningful progress toward sustainability goals. Bridges2000 therefore delivers tangible contributions to the global energy transition and to responsible business practices at sea.

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At Broekman Logistics, we aim to optimise supply chains for a growing, innovative energy sector. Our logistics experts provide end-to-end supply chain solutions, covering every aspect of your cargo and renewable energy supply chain. From storage and transportation to assembly and reverse logistics.

We can handle offshore wind energy items of all dimensions, from small components to heavy-duty equipment. To deliver the promises you make to your end-customers, we assist you in optimising your logistics supply chain. With our own assets, including storage and unique indoor-lifting operations up to 700 mton and open connection to sea, at our breakbulk terminals, we offer efficient, cost-effective, and safe logistics solutions that are able to meet your needs.

C1 Connections BV

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C1 CONNECTIONS



C1 Connections is the developer of the novel connection technology, the C1 Wedge Connection to connect large wind turbine components such as the connection between monopile and transition piece, the connection between foundation and tower and between floating foundation segments.

The C1 Wedge Connection(TM) has a higher ultimate and fatigue capacity than conventional connections and has track record with several connections in the largest wind turbines in the world. The C1 Wedge Connection(TM) can be installed significantly safer and faster than conventional connections and does not require maintenance, saving on OPEX. On average the connection is 50% lighter than the conventional L-flange connection and enables further optimizations in tower and foundations, thereby directly enabling large CAPEX savings compared to all alternatives.

The C1 Wedge Connection(TM) has been certified by

DNV. C1 Connections supplies the fasteners for the C1 Wedge Connection to the industry and offers engineering services to design and integrate the C1 Wedge Connection into wind turbines.

CAPE Holland

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CAPE
HOLLAND



We are passionate about piling; we continuously improve the performance of pile installation and removal: faster, easier, smoother and more sustainable. We love to make impact and contribute to good vibrations.

Our customers' offshore oil, gas and wind projects are of the greatest significance. These mighty constructions require solid foundation, and we are there to support them with the smartest piling equipment and all our knowledge, skill and craftsmanship. At CAPE Holland we proudly build on six generations of piling experience. We get the job done!

Above all, we are solution providers. We think in possibilities. Whether we need to be creative in sourcing the proper equipment for you, or the situation requires an 'out-of-the-box' approach. We are the pioneers in offshore vibro driving. Our work includes research, design, and engineering.

Since its first commercial project in 2015, the CAPE VLT (Vibro Lifting Tool) has accumulated an extensive track record with highly efficient upending, positioning installation and extraction of offshore and nearshore piles. Using various CAPE VLT configurations and pile clamping systems a large range mono-, pin-, jacket-, and anchor piles have been installed. The CAPE VLT has also been used for removal of piles during test and decommissioning projects.

CAPE Holland is a Venterra Group company.

Clarksons Port Services

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Clarksons Port Services (CPS), a division of Clarksons, specializes in supporting marine and port operations. With over 50 years of experience, CPS has become a trusted and integral part of the supply chain, offering comprehensive, integrated logistics services. Operating from 22 offices across the UK and The Netherlands, CPS is committed to delivering the highest standards in logistics for the Marine and Energy sectors. Our expertise spans onshore and offshore operations, providing a solid track record in this field. CPS provides a 24/7/365 suite of services, including Port Agency, Customs Clearance & Consultancy, Vessel Chartering, Project Management, Crew Change Coordination, Helicopter Operations, Freight Forwarding, Project Logistics, Warehousing & Storage, Bunker Supply, Quayside Logistics Management, Supply Chain Management, Tooling & Supplies, and Safety & Survival Equipment.

Coastruction

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Coastruction develops and deploys 3D-printed reef structures (Purpose-Built Reefs, PBRs) that enhance marine biodiversity and strengthen coastal protection. Using our self-designed powder bed 3D-printers, we create porous, nature-inspired modules that foster colonisation by algae, mussels, corals, and fish. Unlike conventional concrete elements, our designs replicate natural complexity, making them immediately functional for ecological restoration and shoreline defence.

Our technology enables the development of nature-inclusive offshore infrastructure. Coastruction's reef modules can be integrated into wind farm foundations or function as anchoring points, ensuring offshore energy projects actively support marine biodiversity. This helps operators meet rising requirements for ecological co-benefits in renewable energy developments.

At the heart of our innovation is our 3D-printer, capable of producing one cubic meter of customized reef in just five hours. Any unused material is recycled into the process, making production circular and sustainable. By enabling local, on-site manufacturing, we minimise transport emissions and create opportunities to engage local communities.

The combination of design freedom, scalability, and ecological performance positions Coastruction as a frontrunner in reef restoration and offshore biodiversity integration, delivering solutions that contribute to a more resilient, biodiverse, and sustainable offshore future.

CORROSION Offshore Wind

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CORROSION is a pioneering specialist in safeguarding marine and infrastructure assets against fouling and corrosion. Since its founding in 1993, the company has grown into a trusted global partner, applying advanced proven technologies to protect vessels, offshore foundations, wind turbines, jacket Offshore substations.

At its core, CORROSION develops, produce, implements, and maintains systems such as ICAF/ MGPS, ICCP (Impressed Current Cathodic Protection), UV-C coolers, and sacrificial anodes. CORROSION's offerings span multiple sectors, from maritime and offshore wind to FPSO's, fish farms and more - delivering robust and environmentally solutions. One of CORROSION's distinguishing strengths is its commitment to sustainability and proven technology and track record.

CORROSION has its in-house laboratory enables

continuous R&D, testing, and optimization of protective technologies and quality assurances. CORROSION also supports clients with full life-cycle service: maintenance programs, spare part packages, monitoring, and budget control. CORROSION's global team of engineers ensures consistent performance and local responsiveness, no matter where assets are located. In recognition of its organizational maturity, CORROSION holds ISO/IEC 27001 certification, a testament to its rigorous approach to managing information security and operational excellence. By combining technical leadership, sustainability, and comprehensive client support, CORROSION positions itself as a foremost authority in corrosion mitigation and asset protection worldwide.



CSL OWL SRI B.V.

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CSL OWL SRI is an independent marine contractor specializing in subsea rock installation services, dedicated to delivering safe, sustainable and cost-effective solutions for the installation and maintenance of subsea rock.

Based in Rotterdam, the company combines OWL's extensive experience in the offshore marine construction sector with CSL's expertise as a leading provider of complex marine solutions. We are committed to providing tailor-made capacity to the fast-growing offshore renewable sector. This will support the sectors' ambitions of ramping up installed capacity, reducing the levelized cost of energy (LCOE) and minimizing emissions. Our subsea rock installation solutions are specifically designed to enhance flexibility and cost efficiency for operations in and around bottom-fixed wind farms and associated cables. We believe in making green energy affordable and are committed to doing our part by optimizing

offshore renewable energy logistics. The first subsea rock installation vessel is scheduled for delivery from the shipyard in August 2026, followed by the second vessel in November 2026.

The CSL Group is a world class provider of complex marine solutions and the largest owner and operator of self-unloading ships in the world. Headquartered in Montreal with operations throughout the Americas, Australia, Europe and Africa, CSL provides a broad range of shipping and handling services, and delivers millions of tonnes of cargo annually for customers in the construction, steel, energy and agri-food sectors. OWL is renowned for its top-tier logistics solutions in the offshore wind sector, further enhanced by its industry-leading capabilities. The company was founded to enhance the efficiency of the offshore wind logistics supply chain, both operationally and financially.



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Damen Offshore Wind for your offshore ambitions

Damen Shipyards Group has served the maritime industry with shipbuilding and repair services. Today, Damen operates 35 shipyards and 20 other companies in 20 countries and employs over 12,500 people.

With an eye to the future, we are proud to support the offshore wind industry. In all that we do for this sector, we are led by you, our clients. Our aim is to build an in-depth understanding of your business. With this, we craft a solution tailored to your needs.

A solution that will put you at the forefront of your game and keep you there. We look beyond tomorrow, pioneering solutions for the wind farms of the future because your ambitions shouldn't have to wait.

Our solutions cover everything from crew transfer vessels to (commissioning) service operations

vessels, available with hybrid and full electric propulsion and featuring unique offshore charging capabilities. From vessels prepared today for the swift, cost-effective conversion to alternative fuels as technology matures, to those ready for the next generation of floating offshore wind turbines. We offer the flexibility to build these vessels at one of our yards, or at a partner yard of your choice.

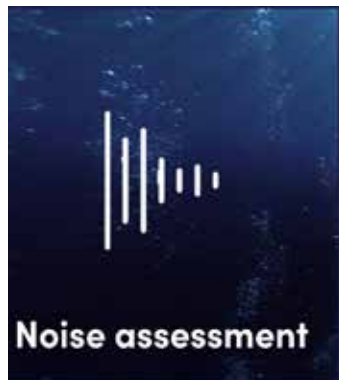
Our integrated services continue throughout the lifecycle of your vessel with a comprehensive range of services including flexible financing, training, delivery and lifecycle support.

Whatever your role in creating tomorrow's renewable energy picture, we stand ready to translate your ambitions into innovations.

Delft Cymatics

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Delft Cymatics specialises in the quantitative prediction and mitigation of underwater noise generated during offshore pile installation. Originating from research at Delft University of Technology, the company develops and applies state-of-the-art models that describe underwater sound propagation and the vibrational mechanisms that generate it.

Its core expertise lies in noise assessment, vibration analysis, and the development of mitigation strategies. Delft Cymatics' capabilities span source-level modelling of pile vibrations through to far-field acoustic propagation, consistently linking structural dynamics, soil-structure interaction, and underwater acoustics. The company has extensive experience with both vibratory and impact pile driving and models a wide range of mitigation measures to quantify and compare their effectiveness.

Through this integrated approach, Delft Cymatics

delivers frequency spectra, broadband metrics (SPL, SEL), and three-dimensional sound maps to support compliance assessment, mitigation evaluation, and installation optimisation.

By combining advanced numerical modelling, empirical validation, and a deep understanding of vibro-acoustic processes, Delft Cymatics bridges the gap between ecological concerns in underwater noise and the practical requirements of offshore contractors and developers.

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Deltares

As an independent knowledge institute, Deltares works on innovative solutions in the field of water and subsurface. Deltares focuses on the Dutch, European and global missions. It is the impact of these agendas that determine our priorities and actions. This mission-driven way of working is given focus at Deltares with so-called 'moonshots', ambitious goals with great social importance. We can only achieve this by working together with other (knowledge) partners and our clients.

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DMEC

DMEC is an accelerator and knowledge centre for offshore renewable energy solutions. As a non-profit organisation, we advance innovation, support market development and further policies for offshore renewable energy development. Through this integrated approach, we create multipurpose energy solutions including offshore renewable energy, offshore system integration and nature-positive solutions for a wide variety of use cases.

We work closely with key offshore renewable energy players and advise on the uptake of offshore renewable sources to create sustainable growth. By combining our technical and financial expertise and models on offshore renewable energy technologies with our industry insights, we are the go-to partner for developing offshore renewable energy solutions that fit specific market needs.

As an accelerator, we lead international innovation

projects, covering the entire trajectory from concept to commercial deployment of offshore renewable energy solutions. We provide project management, technical, financial and market support for a wide variety of national and international offshore renewable energy innovations.

To maximise impact in all of our activities, we team up with top-notch test sites, research institutes and companies across the value chain around the world. With this global network, we help governments worldwide by sharing expertise and insights and advancing science-based policy innovations.

DNV

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DNV is an independent assurance and risk management provider, operating in more than 100 countries. Through its broad experience and deep expertise DNV advances safety and sustainable performance, sets industry standards, and inspires and invents solutions.

Whether assessing a new ship design, qualifying technology for a floating wind farm, analysing sensor data from a gas pipeline or certifying a food company's supply chain, DNV enables its customers and their stakeholders to manage technological and regulatory complexity with confidence. Driven by its purpose, to safeguard life, property, and the environment, DNV helps its customers seize opportunities and tackle the risks arising from global transformations. DNV is a trusted voice for many of the world's most successful and forward-thinking companies. In the energy industry.

We provide assurance to the entire energy value chain through our advisory, monitoring, verification, and certification services. As the world's leading resource of independent energy experts and technical advisors, we help industries and governments to navigate the many complex, interrelated transitions taking place globally and regionally, in the energy industry. We are committed to realizing the goals of the Paris Agreement, and support our customers to transition faster to a deeply decarbonized energy system.

DOT B.V.

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DOT is a spin-off from TU Delft, focussing on bringing offshore wind innovations to the market. The core concept is the Delft Offshore Turbine. A sea water pumping turbine, that reduces turbine mass by 50% and allows high-pressure seawater to be turned into power or fresh drinking water. With partners, DOT has demonstrated the Slip Joint technology, vibratory installation techniques, SkyBox and Green SOCCS. In 2025, DOT is owner/operator of the Phynix platform. Developed by CrossWind as Baseload Power Hub, DOT uses the 2.5MW electrolyser platform for training, R&D and knowledge sharing. Through Phynix, DOT brings the next step of the offshore energy transition closer to commercial viability: fire from water. Molecules from offshore wind.

DOT believes that only through collaboration real world testing and demonstration, innovation is accelerated: steel in the water.

DOT, Positive Displacement

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DRAFTEC

Draftec designs and builds high-end systems and mission equipment with expertise in mechanical, hydraulic, and electrical engineering. As a trusted turnkey integrator, we manage complete projects from concept to completion, delivering solutions for onshore and offshore operations in wind, maritime, subsea, and other heavy industries. Since 2009, our headquarters in Middelburg has housed a modern workshop and state-of-the-art analysis tools, ensuring precision, reliability, and efficiency in every project. We take a proactive, multidisciplinary approach, working closely with clients to achieve optimal results through collaboration, creativity, and innovation.

Sustainability and quality are at the core of our operations. We integrate environmentally responsible engineering practices into all projects, focusing on resource optimization, waste reduction, and compliance with recognized standards such as ISO

14001. Our management processes and certified products uphold the highest industry standards, aligned with ISO 9001, and are approved by major classification societies and notified bodies. Safety is a top priority at Draftec. Our team receives continuous training, adhering to international frameworks such as ISO 45001 and the Safety Culture Ladder, fostering a strong safety culture that protects personnel and enhances project reliability. Every project tells a story where precision, durability, and innovation converge. Draftec is committed to delivering high-quality, sustainable, and safe solutions that meet the evolving needs of our clients and contribute to a more sustainable future.

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Drone Lift specializes in heavy-lift drone transport, operating drones capable of carrying 40, 100, and up to 200 kilograms. Our focus is on delivering tools, components, and emergency equipment to hard-to-reach locations, both onshore and offshore. In the offshore wind sector, Drone Lift plays a vital role by enabling direct transport of critical parts and supplies to turbines and platforms. This reduces downtime, increases efficiency, and supports safer maintenance operations.

What sets Drone Lift apart is our combination of innovation, scale, and reliability. With all required certifications and permits to operate across Europe, we provide clients with the assurance of compliance and safety in every mission. Our heavy-lift drones represent a breakthrough in logistics, offering a sustainable and cost-effective alternative to traditional solutions such as helicopters and supply vessels. By reducing CO₂ emissions and operational

expenses, we support the offshore wind industry in achieving both efficiency and sustainability goals.

By combining cutting-edge technology with certified operations, Drone Lift contributes to the reliability and growth of the offshore wind sector. We enable faster response times, reduced risks for personnel, and a greener approach to logistics—helping the industry move forward.

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ADVANCED UNMANNED ROBOTICS SERVICES

We deliver worldwide Advanced Unmanned Robotics Services (AURS) for ultrahigh-resolution inspections, surveys and 3D imaging and Non-Destructive Testing: under water, on the water and from the air. Helping clients in Ports and Industry, Offshore Wind and Offshore Oil & Gas to assess the integrity condition of their valuable assets, being able to perform advanced analytics for Lifespan Extension strategies, Fitness for Service analysis and many more.



DroneQ Robotics is a global next-generation advanced unmanned robotics services provider, with over 40 years' experience in the industrial sector and maritime industry including maritime disaster response & salvage and offshore energy, deploying advanced robotics to support asset integrity management for ports, industry and offshore energy. DroneQ Robotics delivers worldwide ultrahigh-resolution inspections, surveys and 3D imaging and Non-Destructive

Testing: under water, on the water and from the air. With decades of experience in Ports & Industry and Offshore subsea surveying, inspection and testing, DroneQ Robotics provides Advanced Unmanned Robotics Services, encompassing ROV, subsea robot, USV, and drone operations, facilitating optimal solutions for requisite tasks and deliverables. With global Mission Operations Centres, our experienced team of Remote Operated Vehicles (ROV), Subsea Robots, Uncrewed Surface Vessel (USV), and drone

specialists execute turnkey Survey, Inspection, and Testing projects on a global scale.

Whether operating remotely or on-site, including offshore installations, our deep industry knowledge enables us to anticipate and address our clients' unique challenges effectively. By aligning our services with their operational processes, we minimize disruptions and optimize asset performance, thereby maximizing productivity and mitigating risks. With more than 40 years of experience in the industrial and maritime sector and working in accordance with our comprehensive QHSE policy, which integrates the way safety and environmental protection are integrated into our operations, we can deliver high-quality services and seamlessly embed innovation in our global services.

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DUC Marine Group is a Netherlands-based subsea and offshore construction contractor serving the offshore wind and energy sectors since 1984. We integrate commercial diving, ROV and survey with modular vessels, LARS and containerised systems to execute inspection, repair & maintenance (IRM), cable and pipeline interventions (including remedial burial support and repairs), scour protection installation and monitoring, foundation and cable protection system (CPS) inspections, class-approved In-Water Surveys (IWS) and light construction offshore. Our permanently employed dive teams and supervisors operate to international HSEQ and class requirements; DUC is approved by Lloyd's Register and Bureau Veritas for IWS on ships and MOUs. Rapid mobilisation from Urk and a shallow-draft/near-shore capability enable us to bridge near-shore and offshore scopes efficiently, reducing interfaces, schedule risk and total cost.

We provide end-to-end delivery—from pragmatic engineering, method statements and risk management (IMCA-aligned) to offshore execution and concise digital reporting. DUC works for developers, EPC(I)s and asset owners across the North Sea and neighbouring basins, providing solution-driven subsea support 24/7. Practical, reliable and focused on results, we help clients safeguard asset integrity, uptime and safety through disciplined execution in challenging offshore conditions.

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EAGER.ONE

Eager.one is a Dutch engineering, consultancy, and project contracting company with over 45 years of experience in heavy mechanical engineering. From the first concept and design to fully built, turnkey equipment, we deliver innovative solutions for lifting, transport, and installation challenges worldwide.

Our services cover the full spectrum: consultancy, detailed engineering, and complete project execution. We create advanced Lifting & Rigging Plans, perform third-party reviews, and provide on-site support to ensure safety, efficiency, and compliance with international standards.

Our lifting engineering activities focus on developing safe, efficient, and compliant solutions for complex lifting operations. This includes concept design, detailed engineering, and verification to support onshore and offshore projects across many industries.

Through our design & construct capabilities, we take custom equipment from the very first idea through detailed design, manufacturing, and delivery. This integrated approach ensures that the equipment we deliver is perfectly aligned with its intended purpose, meeting the highest safety and performance standards.

At Eager.one, our goal is simple: to turn complex lifting and installation challenges into safe, efficient, and reliable solutions.

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ECE
offshore

ECE Offshore is an engineering, cable installation and equipment company focussed on the offshore wind cable installation industry. ECE offers innovative and performance-driven solutions throughout the lifecycle of a project, from project definition to cable installation and cable repair & replacement scopes. We excel in cable repairs, shallow water and nearshore projects for both AC and HVDC cables.

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Expert Quality Management for On- and Offshore Renewables

We specialise in quality management and consultancy for on- and offshore renewable energy projects delivering results that meet your needs and ensure compliance. Our proven ways of working drive solutions to complex quality challenges with a focus on achieving project goals.

Let us handle the complexities so you can focus on the bigger picture
When you partner with us, we take the lead in driving, influencing, and coordinating your project to success.

Examples of our expertise include:

- Defining workscopes and requirements
- Document management
- Qualifications management
- Internal and external auditing

- Inspection and test coordination and execution
- Supplier quality management
- Client representation
- Technical advising
- Warranty survey



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We offer our clients support through strategic advice and consultancy, project and program management, business scans, stakeholder management, and business intelligence. This applies to the topics we consider to be our core business, but also to other current themes within the energy transition, such as security, system integration, and industry.

From the design phase to decommissioning, our knowledge is broad and our field of work is very diverse. We regularly sit at the boardroom table to develop a sustainability vision for the future or in a tender team for a major contract, but you will also encounter our ECHT colleagues at project sites mapping material use or as partners in research or implementation programs for nature enhancement or wind turbine blade recycling.

In recent years, we have helped various offshore wind farm developers to develop their bids. In addition, we

have helped Tier-1 suppliers to meet the circularity requirements set out in the latest Dutch offshore wind tender, and we are project leaders in the largest onshore wind dismantling project in the Netherlands. Also, we did research on security and cooperation in this field between offshore wind operators.

We're happy to discuss how we can support your offshore wind project, from start to finish!



ENERPAC TOOL GROUP

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Ultra-Reliable, Safe & Precise Hydraulic Tools for the Wind Industry

Enerpac delivers a comprehensive portfolio of hydraulic solutions engineered specifically for the wind energy sector. Whether you're involved in turbine installation, maintenance, or repair, our tools are built to meet the demanding requirements of wind professionals—ensuring maximum safety, reliability, and precision.

With decades of experience in industrial tooling, Enerpac understands the critical role hydraulic equipment plays in optimizing wind operations. Our solutions are designed to enhance efficiency and reduce downtime, helping you complete projects faster and safer.

Discover how Enerpac's ultra-reliable hydraulic tools can support your wind energy goals—where performance meets peace of mind.

Enersea

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Enersea is an innovative engineering & consultancy firm, providing tailored solutions for the offshore wind market. Offshore wind farms demand durable structures capable of withstanding severe marine conditions, while also needing to be lightweight and cost-effective for fabrication and installation. Enersea is the specialist that can resolve this apparent contradiction. We advise and design the best solution for each individual offshore project.

Core Capabilities in Offshore Wind

Foundations: Enersea has extensive experience in the design of monopiles (including transition pieces and secondary steel), jackets (pre-piled, post-piled, or with suction cans), and tripods for fixed applications.

Substations: The company delivers in-house engineering for complete offshore substations, covering both topside modules and supporting foundations.

Floating Wind: Enersea supports the development of

floating foundation concepts, guiding clients from feasibility through detailed engineering.

System Integration & Project Delivery: Enersea delivers integrated engineering solutions that are practical, reliable, and optimised for safe execution. Engineers also provide on-site support during fabrication, installation, and commissioning to ensure smooth project delivery.

Global Reach & Track Record: Enersea has a strong track record in the North Sea and Baltic Sea, while also delivering designs for seismically active regions in the United States and Japan. This international footprint demonstrates the company's capability to adapt to diverse regulatory, environmental, and geotechnical conditions.

With a strong foundation in structural engineering and expertise in floating wind, Enersea is well positioned to support offshore wind farm developers, EPC contractors, and technology providers in advancing offshore wind design, construction, and performance.

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Equinox Ocean Turbines develops innovative Dutch offshore technology to harness the power of ocean currents. Our turbines provide Perpetual Power: affordable, clean baseload energy available 24/7, by delivering consistent output. With no visual impact and a minimal environmental footprint, ocean current energy strengthens the renewable energy mix.

Our proprietary two-stage turbine concept overcomes the challenge of low water speeds by first concentrating the flow before harvesting it. Combined with modular semi-floating platforms and smart material selection, this enables scalable deployment with high energy yield and cost-effectiveness.

Equinox builds on the strong Dutch offshore and maritime supply chain. Through strategic partnerships with Damen Shipyards Group and other industry leaders, we leverage decades of marine expertise to accelerate installation and operations using standard

vessels and streamlined procedures.

Following a €2.5 million investment round in 2024, supported by InnoEnergy, Damen Maritime Ventures, NOM, FOM, Innit Power, and management participation, we are developing grid-connected demonstrators. Our mission: to position ocean current power as the world's third primary renewable energy source alongside wind and solar.

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'WE ARE HERE'

You, as a business, are eager to strive for the best within the energy transition. But sometimes, you can't do it by yourself. We are here to bring you the right experts for your business.

We believe in 'Strength by Knowledge', and with that in mind, we focus on sharing knowledge with our renewables experts, long-term relationships and providing quality.

Our shared expertise allows us to offer you a fullservice solution for any project in the renewable industry. From Off- and Onshore Wind to Solar and Hydrogen energy.

We have the skills; 'WE ARE HERE'



Fibersail

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Fibersail is on a mission to redefine how wind turbines are operated, with advanced monitoring and optimization solutions.

Built on top of our unique fiber optic shape-sensing technology, our solutions empower wind turbine owners, operators, and OEMs to maximize performance, reduce downtime, optimize O&M strategies, and safely extend asset lifetimes.

We provide high-performance, cost-effective, and advanced fiber optics sensing solutions to devise tailored solutions to your needs. Our cutting-edge AI and machine learning algorithms run on unique data to deliver unparalleled, game-changing control over your assets.

Our solutions are focused on three main value propositions:

- Reduce O&M costs through early damage detection

- Increase revenues through pitch and yaw optimization
- Safe lifetime extension through accurate remaining lifetime calculation

Our ambition is to become the standard Condition Monitoring System for the wind industry, with special focus on the offshore wind.

FibreMax B.V.

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FibreMax is internationally recognized for its unique, data-driven technology that delivers crane pendants, mining pendants, structural solutions and fit-for-purpose synthetic mooring solutions. Its near fully automated production method allows scalable manufacturing at or near installation ports worldwide. This approach reduces risk, boosts efficiency, and fosters local supply chain development – perfectly complementing the global requirements.

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Finsulate is an innovative maritime technology company providing a sustainable and high-performance alternative to conventional antifouling coatings. Its core product is a film (membrane) that uses physical surface micro-structures to inhibit the attachment of marine organisms (inspired by the spines of sea urchins). Unlike traditional antifouling paints, Finsulate does not rely on biocides or chemical leaching. The company offers warranties of at least eight years, with reports of longer real-world lifetimes in many cases. For offshore applications, Finsulate offers a specific grade (e.g. "Finsulate EL") that is designed for extended service life (up to 30 years).

By reducing or eliminating the periodic removal, repainting, or biocide release associated with conventional antifouling, Finsulate can yield lower maintenance costs, less hull downtime, reduced environmental impact, and fuel savings (due to smoother hull surfaces). Its technology is applicable

not only to moving vessels but also to static offshore installations (foundations, submerged structures) where biofouling is a concern. The company claims benefits such as up to 40 % fuel savings over time compared to conventional coatings.

Finsulate's business model includes providing the film plus certified application services (either via in-house teams or trained partner yards). The company emphasizes both technical performance and environmental sustainability as core pillars of its identity.

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FLASC

FLASC is a start-up working on non-battery energy storage for offshore applications. It is tackling a fundamental problem: the mismatch between renewable energy supply and consumer demand. Renewable energy is not stable and predictable and neither is the demand. Integrating storage with renewables can be a solution to this problem.

It is the first solution tailored for co-location with offshore wind. It is based on an advanced hydro-pneumatic liquid piston concept where electricity is stored by pumping a liquid to compress a volume of air. Using a patented pre-charging concept, and the marine environment itself as a natural heatsink, the compression process is optimised to achieve very high efficiencies, resulting in an offshore solution that is cost-competitive with land-based storage.

With a co-located FLASC system, offshore wind farms can become an active provider of grid flexibility when

using energy storage. Recent studies show that this can add 10-30% more value to the wind farm output by improving the way it is monetised.

The FLASC technology is covered by international patents, received a Statement of Feasibility from DNV and recently selected for funding under the prestigious EIC Accelerator and European investors.

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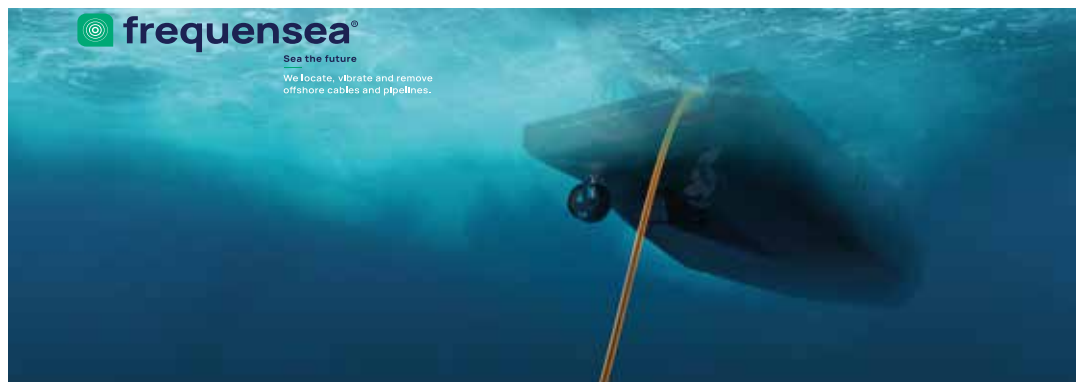
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Flux Partners brings over a decade of experience in guiding offshore wind non price criteria tenders. Our work shows that winning non-price plans are not just about meeting criteria, but about aligning strategy, stakeholder needs, and narrative coherence. By combining structured bid coordination with a sharp eye for evaluation dynamics, we help offshore wind developers strengthen their proposals where it matters most: delivering clarity, consistency, and aiming for 10/10 scoring solutions in the submission package.

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Frequensea is a pioneering technology company dedicated to developing sustainable solutions for subsea infrastructure removal in the offshore wind industry. The company is developing its patented vibration-assisted method that enables the safe, efficient, and environmentally responsible decommissioning of subsea cables and pipelines.

Offshore wind farms are entering a new phase where end-of-life management of assets is becoming increasingly important. Traditional removal techniques are energy-intensive, disruptive to the seabed, and often costly. Frequensea addresses this challenge with its controlled vibration technology, which reduces soil resistance around buried infrastructure. This makes it possible to retrieve cables and pipelines using smaller vessels, lower energy consumption, and minimal disturbance to the marine environment, while preserving materials for potential reuse.

Frequensea's innovative approach has already gained international attention. Managing Director Dieter Korndörffer presented the concept at the Wind Energy Technology Summit in Ghent, highlighting how vibration-assisted decommissioning can play a key role in shaping innovative end-of-life scenarios for offshore wind assets.

With a strong focus on innovation, cost efficiency, and sustainability, Frequensea is positioning itself as a frontrunner in the global offshore decommissioning market—contributing to a cleaner, more circular energy future.

Frontwise Group

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Frontwise Group delivers tailored recruitment within the renewables industry, supplying engineering, office, and commercial talent at bachelor's and master's degree level. We partner with consultancy firms in offshore wind, companies in the realisation phase, and their suppliers – supporting nimble start-ups as well as established corporates across Europe and Asia. At every phase of a wind farm project, Frontwise Group can add value to your team.

Our services fall into two main categories:

- Search & Selection
- Recruitment Process Outsourcing (RPO)

Powered by A.I. and smart technology yet always guided by real human connection, we approach recruitment with sourcing at the core. We leave no stone unturned to find the best candidate for every role.

We have successfully delivered hires including Tender

Managers, HR Directors, Marketeers, Electrical Engineers, Offshore Consultants High Voltage, Technical Equipment Supervisors, Cables Engineers, Project Engineers, and many others.

Sourcing is our backbone: we go beyond the CV, getting to know each business and each candidate personally. No box-ticking, just honest conversations and curiosity.

A.I.-powered, sourcing-based, data-driven, and always human-focused – recruitment made for today's world, with a truly personal touch.

Fugro

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Fugro is the world's leading Geo-data specialist. We map, model and monitor the built and natural environments, unlocking Geo-data insights for a safe and liveable world. With over 25 years of experience in offshore wind, we support every phase from planning to decommissioning. Our unique combination of technical capabilities, cutting edge innovations, talented people, and local understanding enable critical insights that drive successful offshore wind developments.

Our services include:

- Site characterisation: Detailed geophysical and geotechnical surveys to understand ground conditions, informing foundation design, landfall design and cable routing.
- Environmental services: Comprehensive environmental assessments including benthic surveys, laboratory analysis, and acoustic modelling and monitoring.
- Metocean services: highly accurate oceanographic and meteorological data for wind resource assessments,

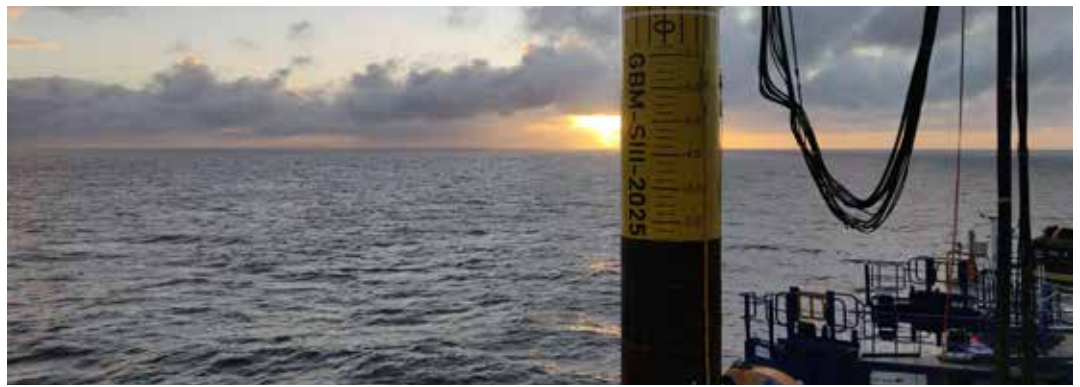
engineering design criteria and operational planning.

- Unexploded ordnance (UXO) services: Surveys to detect and identify potential UXO, followed by appropriate risk mitigation and clearance.
- Positioning and construction support: Highly accurate positioning for vessels and equipment, ensuring precise placement of foundations, turbines, and subsea cables, as well as survey support.
- Asset integrity management: Monitoring and assessing the structural integrity of operational assets to minimise downtime and optimise maintenance.
- Geoconsultancy and data management: Transforming raw data into actionable insights through integrated ground models, and providing advanced data management platforms for collaborative decision-making.

We continuously invest in innovative technologies like uncrewed surface vessels to enhance efficiency, reduce costs, and improve safety and sustainability.

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GBM Works is an innovative, groundbreaking company passionate about accelerating the energy transition. We are developing and commercializing silent installation methods for offshore foundations that reduce the environmental impact on marine life.

such as drivability analysis, noise studies, product development, subsidy applications and others.

We provide a more silent (and therefore more sustainable) tool for the installation and decommissioning of offshore wind farm foundations.

More specifically, GBM Works has been developing and commercializing the Vibrojet®, an innovative method that combines vibrations with water jetting. This approach reduces the friction between the inner walls of the monopile and the soil, reducing the resistance against installation.

Although the installation and decommissioning services with the Vibrojet® are our core, GBM Works can also support with a number of auxiliary subjects,

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Green Giraffe Advisory, the pioneering advisory arm of the Green Giraffe Group, is dedicated to financing clean energy and climate solutions for its clients. The firm provides innovative finance solutions for capital-intensive renewable energy projects and energy transition initiatives around the world.

- Financial Adviser of the Year – Africa at the 2024 IJGlobal awards.

- Geothermal Deal of the Year for the Eavor Erdwaerme Geretsried Geothermal Plant at the 2024 IJGlobal awards.

As a market leader in offshore wind, Green Giraffe Advisory has a long history of pioneering "first-of-a-kind" transactions and is one of the top three firms in the industry. It provides a wide range of services, including debt advisory, M&A advisory, development equity, and development support. The company also offers specialised services like tender support, PPA advisory, and financial modeling.

Green Giraffe Advisory's track record includes working on complex transactions and bringing its deep technological and sectoral knowledge to its clients.

The company's recent awards recognise its expertise across various sectors:

- Financial Adviser of the Year at the Wind Investment Awards 2025.

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Eemshaven is a major energy hub, producing around a third of the Netherlands' energy with an installed capacity of 8,000 MW. It hosts several large power stations and high- and medium-voltage stations, ensuring a stable energy supply. The port features three operational power stations, a new floating LNG terminal, two undersea high-voltage cable connections to Norway and Denmark, and 112 onshore wind turbines.

A LEADING OFFSHORE WIND PORT

Eemshaven plays a key role in offshore wind farm construction and turbine maintenance, positioning it as a leading port in the North Sea offshore wind industry. In 2020/2021, the port supported transport and installation work for Hornsea Two (UK), the world's largest offshore wind farm, and in 2024, it facilitated the installation of the He Dreiht wind farm while TKF opened a cable factory in the port.

IMPRESSIVE TRACK RECORD

Since 2009, Eemshaven has been a pivotal location for wind turbine assembly and shipping, building an impressive track record with projects like Alpha Ventus, Trianel Windpark Borkum, Gemini, Gode Wind, Hornsea Two, and Hollandse Kust Noord. Currently, Eemshaven serves as the base port for Denmark's Thor wind farm and Germany's Nordseecluster A, its 23rd and 24th offshore wind project. With numerous future offshore wind projects planned, Eemshaven is set to maintain its critical role in the renewable energy sector.

FACTS & FIGURES EEMSHAVEN

- Transshipment 8,444,239 tonnes (2024)
- Surface area: 1,323 hectares
- Available: 158 hectares
- Quay length: 5,293 metres
- Draught: 14 metres
- 1/3 of total Dutch energy production

GustoMSC | NOV

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GustoMSC is part of NOV, a leading provider of technology and equipment to the global energy industry. We design and engineer advanced mobile offshore units and provide reliable offshore equipment. With our experience, scientific knowledge, and technical expertise, we are committed to transforming innovative ideas into practical solutions. This commitment includes optimizing the performance of new and existing assets through operational support and engineering consultancy services. By collectively exploring the complex landscape of offshore energy, we maximize our customers' potential, contributing to the world's sustainable energy industry.

GustoMSC delivers advanced solutions for both fixed and floating offshore wind markets. Our designs include jack-ups for wind turbine and foundation installation, as well as specialized vessels for operations and maintenance services such as

mooring installation, cable installation, and repair.

Since 2002, GustoMSC jack-ups featuring integrated jacking systems, vessels, and cranes have successfully installed over 6,000 turbines and foundations. This extensive experience allows us to continuously refine our solutions, ensuring stable and robust platforms that minimize operational and investment risks.

Our engineering services during the operational support phase provide valuable insights into our customers' offshore activities, enabling us to further enhance our designs and equipment. By innovating with proven technology, we minimize project risks and maximize performance.

H2sea

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Offshore Wind Needs Offshore Hydrogen. H2sea is a trailblazer in offshore green hydrogen, serving as a true integrator in the energy transition. We don't merely convert wind power into megawatts; we engineer the full hydrogen value chain; from offshore wind generation, through modular hydrogen production, to seamless, safe and efficient transport of hydrogen molecules to shore. Our mission is to bring back complexity — embracing the intricate balance of offshore energy conversion with a design-first engineering mindset that simplifies operation and maximises cost-efficiency. We develop our own innovative IP to drive down the cost of offshore hydrogen while ensuring safety, reliability, and scalability.

At H2sea, the complete trajectory from conceptual design to planning and engineering is carried out in-house by our experienced offshore hydrogen specialists. We are supported by strong partners,

including our sister company Enersea, bringing decades of offshore wind expertise from foundations and substations to floating wind, pipelines, cables, and unmanned facilities.

For procurement, fabrication, and installation, we work with trusted industry partners and remain open for new co-operation, ensuring flexibility and the best fit for each project — worldwide and with the most economical solution in mind. Hydrogen integration today is often held back by complexity, weight, and cost. Public reference designs for 500 MW assets require 55–80 mT/MW topsides. H2sea innovations reduce this to 36–40 mT/MW — a breakthrough in offshore hydrogen efficiency.

Our philosophy lowers the Levelised Cost of Hydrogen (LCOH) and ensures reliable, scalable offshore hydrogen production.

Haskoning

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Haskoning is an independent international consultancy that combines engineering, design and consultancy services with software and technology. Based on our mission Enhancing Society Together, we take responsibility for having a positive impact on the world and contributing to the United Nations Sustainable Development Goals. Our 6,800 employees are spread across offices in more than 25 countries worldwide, working together with clients on future-proof solutions. In 2024, Haskoning joined forces with Pondera Consult to strengthen our position as a leading consultancy in renewable energy. Our multidisciplinary teams support clients throughout the energy transition, covering all aspects of the value chain: from generation and distribution to storage and conversion.

We offer strategic advice, technical and regulatory expertise, and hands-on delivery across every stage of the project lifecycle. To date, we have contributed

to over 60GW of renewable energy projects worldwide, with a strong track record in offshore wind developments both in the Netherlands and internationally. We provide expert support to project developers, investors, port operators and governmental bodies to accelerate, de-risk and successfully scale-up offshore wind projects.

Our offshore wind services include: 1) Market entry strategy and bid support; 2) Site investigation and concept design; 3) Advanced wind modelling and design optimisation; 4) EIA and consenting; 5) Design and owner's engineering; 6) Contracting, financing and due diligence; 7) Grid integration and smart management; 8) Predictive simulation – ports, supply chain, logistics; & 9) Wind port development – business case, logistics, design, T&I.

Heerema Marine Contractors

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Heerema Marine Contractors is a global expert in delivering offshore energy solutions. With over 60 years of experience, the company specializes in the engineering, transportation, installation, and removal of offshore structures across the offshore energy sectors.

From the earliest project concept to final execution, Heerema manages the full scope of offshore execution, covering design, engineering, procurement, logistics, and installation. This integrated approach ensures safe, efficient, and cost-effective project delivery tailored to the specific needs of each client.

Heerema operates one of the most advanced heavy-lift fleets in the world, including four state-of-the-art crane vessels: Sleipnir, Thialf, Aegir, and Balder. Among these, Sleipnir stands out as the world's largest semi-submersible crane vessel, with a record-

breaking 20,000 metric tons lifting capacity and dual-fuel technology that allows it to operate on cleaner LNG, significantly reducing emissions. The company is deeply committed to supporting the global energy transition and plays an active role in the offshore wind industry by providing installation and transport services for wind turbine foundations, substations, and other critical components. Through continuous innovation and collaboration with our stakeholders, Heerema contributes to accelerating the development of renewable energy infrastructure worldwide.

With a strong focus on safety, sustainability, and technological excellence, Heerema Marine Contractors combines decades of offshore expertise with forward-looking solutions that enable the efficient construction of tomorrow's energy systems. Its proven track record and commitment to innovation make Heerema a trusted partner for complex offshore projects around the globe.

Heinen & Hopman Engineering B.V.

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HEINEN & HOPMAN



Heinen & Hopman is a global leader in maritime HVAC&R systems, delivering innovative climate control solutions across all market segments, including commercial shipping, naval, yachting, and offshore energy. With decades of experience in designing, engineering, and maintaining systems for harsh marine environments, Heinen & Hopman ensures optimal air quality, temperature control, and energy efficiency across offshore platforms and vessels.

While active across a broad range of maritime sectors, the company has developed a strong presence in offshore wind. From substations to crew transfer vessels, Heinen & Hopman delivers custom-engineered, sustainable HVAC&R solutions that meet the demanding conditions of offshore wind environments and comply with international standards such as ISO 9001 and ISO 14001.

As a trusted partner in the offshore wind sector, Heinen & Hopman contributes to the safety and comfort of personnel while supporting operational continuity. Its systems are designed to withstand extreme weather conditions and are backed by an experienced global service network that ensures rapid response and maintenance.

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Offshore Wind Services Solutions & Systems

Over the last decades, Holmatro Hydraulic Solutions has built a proven track record providing various solutions for the Offshore Wind Industry. In our way of working, partnership is key. Most projects were developed & executed in close cooperation with the developer, engineering companies, and installation contractors. Besides hydraulic Solutions to level and fixate wind turbine foundations, such as transition pieces and jackets, we have supplied various systems in the field of cutting, sea fastening, deck handling, and skidding solutions.

Your reliable choice in demanding circumstances 1) Transport: Hydraulic systems for sea fastening; 2) Installation: Hydraulic systems for TP Leveling & Fixation; 3) (Onsite) service: trained & certified staff to provide onsite training, support & service; 4) Decommissioning: industrial tools & cutting tools for

offshore decommissioning tasks

Holmatro Hydraulic Solutions is at the forefront of innovation in high-pressure hydraulic tools, systems, and services. Our strong legacy & dedication to excellence allow us to understand our customers' needs. Drive the transition to green energy, enable civil engineering companies to build roads, bridges, or move buildings, and help to place trains back on track, reduce downtime for production facilities & make working with high-pressure hydraulics safer. For all these applications and more, we deliver solutions that enhance our clients' efficiency, safety, and performance.

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We are Huisman. A family-owned business, built on innovation. Huisman is a worldwide supplier of step changing technical solutions to the world's leading companies in the energy sector.

Our products range from large capacity cranes up to highly engineered installation tools, to optimise every stage of installation and operation of offshore wind farms.

The history of Huisman is one of setting new industry standards. Of making impact, since 1929, with step changing technical solutions that vary from stand-alone components to highly engineered integrated systems. From concept to installation and lifetime support. With our design philosophy, we have created equipment that is significantly lighter than the market standard. The result is equipment that reduces the required payload and size of the vessel, reduces the need for fuels and is easy to maintain.

With our passionate workforce and worldwide production, service and sales facilities, we are equipped for impact in these times of transition.

Huisman
Equipped for impact

i4sea

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i4sea provides hyperlocal weather and sea forecasting technology that enables offshore wind operators to make safer, faster, and more cost-efficient decisions in their daily operations. Our core expertise lies in translating advanced oceanographic and meteorological modeling into actionable, site-specific insights at turbine, cable, and port level. Within offshore wind, i4sea's role is to reduce downtime, optimize crew transfer and maintenance planning, and ultimately improve the workability and resilience of offshore assets.

Innovation: Proprietary AI-driven forecast engine that delivers turbine-level resolution, uncovering variability often missed by generic forecasts.

Operational impact: Proven results with leading offshore wind operators, minimizing weather-related risks and enhancing crew safety.

International reach: Active projects and partnerships across Europe and Latin America, supporting operators in diverse oceanic conditions.

Scalability: Cloud-based platform designed for multi-farm portfolios, enabling global operators to standardize decision-making across regions.

InterDam

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InterDam
Your shield in the field.

As an early entrant to the offshore wind market, InterDam developed a range of weight-saving products that comply with the DNV-ST-0145 standard for offshore substations. InterDam's G21 light-weight sandwich panels provide the most cost-effective solution for internal and external walls of offshore wind substations. As well as reducing topside weight, InterDam's sandwich panels are easy to transport and install.

InterDam also used its extensive offshore experience to develop a range of fit-for-purpose fire doors that maximize lifespan and minimize maintenance in harsh offshore conditions. Our weather-tight, durable fire doors can be applied both in substations and in the Transition Pieces of the wind turbines.

We have supplied our products to over 80 OSS and HVDC platforms worldwide for major operators as Ørsted, TenneT, EnBW, Iberdrola, EDF, Vattenfall, RWE

and Parkwind.

Design, engineering, fabrication, supply and installation of architectural products for the Offshore SubStations or HVDC platforms.

- External wall panels
- Internal wall panels
- External double sealed doors
- Internal doors
- External windows
- TP/MP Doors

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Empowering a better tomorrow in Offshore Wind

At iPS Powerful People, we empower professionals and businesses to thrive in the Maritime, Renewables, Offshore, Tunnelling, and Civil Industries. Since 1988, we've been a trusted global HR partner, offering specialized expertise in recruitment, crewing, secondment, and international payroll. We connect talent with opportunity, from operational hands-on to white collar positions.

Our tailored, data-driven solutions simplify staffing, union labor, payroll, and migration support, enabling clients to focus on their core business.

Certified with ISO 9001:2015, ISO 45001:2018, MLC:2006, and VCU, we prioritize safety, compliance, and ethical practices. As a Certified B Corporation, we align people with purpose and deliver measurable impact. With offices worldwide, including our newest in Split, Croatia, we combine global reach with local

expertise. We stay ahead of industry trends and regional developments, turning international experience into reliable, on-site results.

Our professionals have supported major offshore wind projects such as Hollandse Kust Zuid, Gemini, and Borssele I-V in the Netherlands; Hornsea One & Two and Walney Extension in the UK; Arkona and Global Tech I in Germany; and Greater Changhua and Yunlin in Taiwan. These projects reflect our commitment to powering a sustainable future through skilled talent and operational excellence.

At iPS, we deliver service excellence and empower people to reach their potential, building a better tomorrow together.

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We are Iv. We are Engineers. Engineers dedicated to solving the most complex issues. The greatest challenges of our time. Our specialists devise solutions for the energy transition, the effects of climate change, and ensure a safe and resilient society. We design offshore wind platforms, submarines, and the world's largest lock complexes.

Founded in 1949 and based in Papendrecht, Iv is a multidisciplinary engineering company with seven specialised divisions, active in Offshore & Energy, Buildings, Infrastructure & Water, Maritime, and Industry. We have offices in the Netherlands, Poland, Belgium, and Malaysia.

For decades, we have been shaping offshore energy: from the first offshore substations to the most complex HVDC/AC platforms and the substations of the world's first energy island. We continue to push boundaries and are deeply involved in the latest

market developments, designing numerous offshore wind substations including floating wind substations. We also deliver integrated (offshore) hydrogen solutions.

Essentially, we design anything that requires a high level of technical expertise and multidisciplinary knowledge. This is what we call: Engineering that excites.

IX Renewables

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At IX Renewables, our mission is to power clean energy for future generations. We are a lean and highly experienced consultancy, specialized in on and offshore wind. With offices in the Netherlands, Taiwan, and Japan, we bridge the gap between technical, commercial and legal disciplines, and between different cultures.

the highest quality standards. That is why clients like Foxwell Energy trusts us to manage complex projects such as Taiwan's TPC II offshore wind farm. IX Renewables is your partner in bridging worlds in wind. We combine expertise, adaptability, and cultural insight to make wind energy projects succeed.

Our teams support developers, investors, and banks through every stage of a project: from early development advice and site selection, to EPCI management during construction, technical due diligence for financing, and OPEX optimization during operations. We know what it takes, because many of us have been in the developers' shoes.

What sets us apart is our cooperative and solution oriented approach. We don't just identify risks, we bring practical ways to manage them, ensuring projects are delivered on time, within budget, and to

Jumbo Offshore Installation

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Jumbo Offshore is a privately owned offshore transportation and installation contractor headquartered in Schiedam, the Netherlands. With a team of approximately 130 onshore and 300 offshore professionals — including highly skilled engineers and installation specialists — Jumbo delivers practical, technically sound solutions tailored to the needs of the offshore wind industry.

combining precision offshore installation with smart logistical planning, and further supporting the global energy transition.

Operating a fleet of two DP-equipped heavy lift vessels, Jumbo Offshore Installation Contractors BV provides robust, efficient, and thoroughly engineered transport and installation services across the fixed and floating offshore wind sectors. From quayside to seabed, Jumbo is recognized for its cost-effective and risk-reducing solutions throughout the installation lifecycle.

Jumbo has a strong track record in the installation of transition pieces (TPs) and secondary steel (SS),

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jungle



Jungle's Canopy is an advanced AI platform designed to help wind energy operators optimize turbine performance, reduce costly downtime, and make smarter maintenance decisions at scale. In an industry where operational complexity is constantly growing, Canopy provides the clarity needed to regain control over your entire wind fleet.

Leveraging your existing SCADA and sensor data, Canopy's powerful AI learns the unique "normal" behavior of each turbine under all conditions, eliminating the need for extra hardware. By continuously comparing real-time performance against this dynamic baseline, the platform detects subtle inefficiencies and emerging issues long before they become critical failures. Canopy identifies specific problems such as bearing issues, component overheating, and pitch system faults, allowing your teams to move from reactive repairs to predictive, planned maintenance.

This proactive approach empowers operators to minimize performance losses, lower maintenance costs, and maximize Annual Energy Production (AEP). By turning vast streams of complex machine data into clear, prioritized, and actionable insights, Canopy helps your teams focus on what matters most, ensuring your wind assets deliver their full financial and energy generation potential. With Canopy, your machines are finally understood.

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KenzFigeer – Upgrade the system, Uplift the outcome.

KenzFigeer engineers, manufactures, and services cranes for the marine, navy, windpower, and offshore sectors. We focus on transforming technology into tailored innovations that reduce Total Cost of Ownership (TCO) and extend the lifecycle of equipment, making our solutions both cost-efficient and future-proof.

Our approach is built on three pillars:

The past – Being present for nearly 190 years doesn't make us old-fashioned. We have an anchored culture where performance, innovation, and commitment are at our core. This foundation is proven in customer-based solutions and guarantees a trusted outcome.

The present – We deliver smart, tailor-made solutions that keep operations running reliably. Through

innovation, refurbishment, and upgrades, we extend the lifetime of assets, lower overall costs, and create lasting value, improving performance while contributing to a sustainable future.

The future – The best way to predict the future is to create it. By anticipating trends, exploring innovations, and embracing challenges, we develop solutions that meet tomorrow's standards and exceed expectations.

At KenzFigeer, we are more than an equipment provider. We are a long-term partner, committed to delivering reliable, future-proof and sustainable solutions that keep operations safe and efficient, even in the most demanding environments.



LiftOff-MCE B.V.

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LiftOff is a technology-driven contractor based in the Netherlands, specializing in turnkey major component exchange and advanced lifting services. With a strong focus on client needs, we leverage our engineering expertise to develop tailored solutions, powered by our innovative up-tower crane technology.

We are dedicated to minimizing turbine downtime and maximizing performance. Our team of highly experienced engineers and technicians who are supported by a fully committed back office, ensures every project is executed safely, efficiently, and to the highest standards. At LiftOff, we prioritize safety, client satisfaction, and the continuous improvement of our operations and technology. Our proven up-tower crane technology has now been used for major component exchanges on bottom fixed (both on- and offshore) as well as floating wind turbines. Our cranes completed more than 1200 major component exchanges till date.

Lobster Robotics

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Mapping benthic ecosystems in offshore wind farms is often challenging. Current methods rely on large support vessels, trained crews, and favorable weather. Even then, resolution is often limited, while tidal currents and poor visibility add further difficulty.

Lobster Robotics designs and manufactures fully integrated underwater drones that autonomously capture high-resolution, georeferenced maps of the seafloor. The Scout 3 is their flagship product and allows a small team to operate the 46 kg unit without cranes, using only a small boat. A specially developed strobed camera system produces clear images, even when visibility is less than a meter. These images are combined into a high-resolution optical map that places the seafloor in geographic context. Once processed, these maps are immediately usable for ecological studies.

This unique technology enables organizations to

inspect seabeds with effortless precision and at low cost.

Drones are available to customers in the offshore wind market as a purchase or rental. More information about Lobster Robotics can be found at www.lobster-robotics.com.

Production slots are limited, please get in touch to reserve capacity six months before delivery.

Mammoet

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Wherever there is growth, there is a need for energy, power, raw materials, and infrastructure. Helping to meet those needs is a World in itself. In this World, it is our purpose to lift, transport, install and decommission big objects so that our customers can grow and maintain their production capacities and infrastructures in the safest and most efficient ways possible. With an unmatched fleet of equipment, Mammoet stands ready to handle any heavy lifting and transport challenge that arises, no matter the scale or complexity. Our ability to adapt to diverse environments and regulations ensures a smooth, efficient process for clients across the globe.

Maritime Research Institute Netherlands (MARIN)

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A MARIN is a globally recognised top institute for maritime research. Our mission is 'Better Ships, Blue Oceans': we stand for clean, smart and safe shipping and sustainable use of the sea.

We do this as an independent knowledge partner for the maritime sector, government and society. We offer integrated solutions, from concept development and design to operation, making optimal use of our model testing facilities, computer simulations, simulators and full-scale measurements. In developing, applying and sharing our knowledge, we stimulate innovation and global collaboration. The knowledge and involvement of our people are our strength.

In the future we will continue to support our mission, focusing on an even stronger base of knowledge, reliable tools and modern facilities. With this strengthened base we will optimise the entire maritime operation, the ship, the (floating) wind

turbine as a system and the human role in this. Our knowledge and ideas will stimulate the development of a safer and cleaner shipping industry, as well as encourage the sustainable use of the ocean for the extraction of energy, food and raw material and the development of cultivated life and autonomous systems at sea.

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Founded in 1989, Mecal has contributed to the wind sector in various ways, from detailed projects such as bearing design to large-scale projects such as location development for new parks. Furthermore, through new tower designs we were able to extend hub heights that result in higher energy generation and simplified and cheaper transport. Today, we are passionate about applying our experience, scientific knowledge, and technical expertise beyond wind turbine towers to transform innovative ideas into practical solutions.

An excellent example is the Mecal Nodes, the technically functioning and nature-inclusive scour protection modules. Nodes are made of natural chemical components with a controlled shape and surface complexity to provide shelter and habitat for marine life of various types and sizes, promoting biodiversity. The increased marine organism growth on Nodes compared to standard rocks also allow for

more CO2 sequestration, furthering nature-enhancement and offsetting CO2 emissions from wind turbine installation. Moreover, the Nodes' stability have been tested to be safe in severe hydrodynamic conditions. Finally, engineered to suit conventional installation methods, Nodes make nature-enhancement incorporation into wind parks a more attractive choice.

Mecal Nodes create synergy between ecological and technical expertise, delivering the nature restoration we are committed to. Building on our long-standing expertise, Mecal is excited to support clients in designing integrated solutions that address today's growing need for ecological enhancement in offshore wind parks.

NedZero
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We are NedZero, the trade association for wind energy.

Together with our 300 members, we are making the Dutch energy system CO2-free.

On behalf of the wind sector, we are discussion partners for ministries and other organizations. We maintain good contacts with governments, politicians, policy makers, scientists, knowledge institutes, companies and various nature and social organizations in the Netherlands. NedZero is also part of various international partnerships.

This way, members of NedZero have their own voice in the national and European energy transition.



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Next Ocean has invented the vessel motion radar. Our system predicts waves and resultant vessel motions for the upcoming 1-3 minutes, enabling crew to avoid the rough moments during critical steps in their operations.

Using traditional X-band radar we are able to 'see' the waves 3 minutes ahead of time. Applying physics, naval architecture and hydromechanics principles, our algorithms predict the ship's responses. These predictions are continually cross-checked against the measured motions which provides a real-time verdict on the reliability of the predictions.

In Offshore Wind construction and maintenance projects, crews on board vessels use our system to position their vessel relative to the wind turbine, substation or other fixed structure and then decide the right moment operations like connecting the gangway, transferring people or equipment, launching

or recovering the ROV. Act when the next 2 minutes are smooth, pause when out of limit motions are upcoming.

Our mission is to minimise accidents resulting from unexpected ship motions. When things get rough, the crew can see the motions coming their way ahead of time. Day or night, rain or fog, it makes no difference for the radar or the algorithms.

When lives are at stake and serious accidents are a constant risk, relying on wave statistics only is not good enough. Instead, use motion radar from Next Ocean, making a deterministic, real-time, DNV approved prediction that you can rely on.

N-Sea
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N-Sea is an integrated total subsea solutions provider in Survey, UXO ID & Disposal, IRM & Construction, and Subsea Cable Repair & Installation. We deliver total solutions for subsea infrastructures and assets that meet the needs of our clients and the international offshore energy industries, considering a safe (working) environment.

We create substantial value through managing and reducing complex interfaces, solid project management & support, full client focus, and awareness. N-Sea Group is a privately owned company headquartered in The Netherlands with decades of experience, over 500 people employed, operating in EMEA region.

Oceans of Energy B.V.

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Oceans of Energy is a pioneering company and global leader in offshore solar energy. Founded in 2016, it has developed and proven a unique floating solar technology that thrives in high-wave environments. In 2019, the company installed the world's first offshore solar farm in high-wave conditions off the coast of The Hague, which has operated continuously for four years, enduring more than ten winter storms in the North Sea.

Its modular and lightweight design makes it exceptionally easy to transport and assemble: five standard floaters fit in one shipping container, and a 500 kWp array can be built in just three days. Each floater hosts approximately 5kWp, and a patented flexible interconnector system allows for large, stable arrays to elegantly float on top of the water surface, much like a waterlily. The system requires very little maintenance thanks to the built-in redundancy and the self-cleaning effect of the on-the-water design with air/light gaps between individual floaters. The

smart, efficient modular system enables rapid deployment from any harbour, requiring only light-vessel support and standard harbour cranes, making installation possible even in remote regions with limited facilities. Oceans of Energy's floating platforms are multi-purpose: beyond clean energy generation, they can serve as floating logistics bases, emergency or defence platforms, or coastal and coral reef protection structures. The technology integrates seamlessly within offshore wind farms — using less than 5 % of the area while adding over 40 % extra energy yield — or operates stand-alone nearshore, invisible from land. The company supplies offshore solar systems typically sized at 1, 5, 15, 50 or 200 MW, including full installation and 25-year operational services. It also provides engineering and ecological monitoring expertise through its Floating Solar Consultancy Group, launched in early 2025.

Oceanwide Crew

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Build Your Renewable Future with Oceanwide

Renewable energy is the future and Oceanwide is proud to help shape it. The global energy sector is transforming rapidly, with growing investment in onshore and offshore wind, large-scale solar, hydrogen projects, and CO₂ storage. This shift from fossil fuels to sustainable energy sources is creating exciting opportunities for skilled professionals.

At Oceanwide, we connect leading renewable energy companies with the right technical talent. From Wind Technicians and High Voltage Specialists to Electrical Service Technicians and more, we help professionals take the next step in their renewable careers.

Working in this dynamic sector means contributing to meaningful projects that drive the global energy transition. With Oceanwide, you'll have access to training opportunities, diverse work locations, and

clear pathways for growth, from onshore to offshore projects.

Our commitment to quality and safety is backed by internationally recognized certifications. Oceanwide is ISO 9001:2015 certified, our maritime offices meet CMO/MLC standards (conducted by DNV and others), and our Dutch offices hold SNA/NEN 4400-01 and VCU certifications.

Are you ready for a career that gives you energy? Join Oceanwide and help build a clean, sustainable, and CO₂-neutral future. Explore our current vacancies and discover how we can power your renewable journey.



OEG

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OEG is a leading energy solutions business providing critical infrastructure, technologies, and services to the global energy industry. Since our inception in 1973, we have grown organically and through strategic acquisitions to become a trusted partner across the offshore renewables and wider energy sectors.

With specialised capabilities in topside, marine, and subsea operations, OEG supports the full lifecycle of offshore wind developments, from development and construction through to operations, maintenance, and decommissioning. Having been involved in more than 90% of offshore wind farm projects to date, we deliver both stand-alone and integrated scopes of work, creating efficiencies and economies of scale for even the most complex projects.

Headquartered in Aberdeen, OEG employs around 1,500 people and operates from more than 65 global locations.

Osbit

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We are a team of people based in Rotterdam and passionate about driving the energy transition forward by delivering cutting-edge equipment solutions to the offshore renewable energy sector.

The solutions we design, and build are used to construct offshore wind farms across the globe. We work on projects across a wide range of technology areas including cable lay, repair & burial, foundation installation, lifting & handling and access.

We are powered by Venterra Group, a services business seeking to transform how we engineer, build, and support offshore renewable energy developments.

Osbit's team works closely with our clients to tailor methods & equipment concept development from design, through to build, and then support during offshore operations.

With our long-standing experience in delivering equipment solutions since the early days of offshore wind in Europe, we are well placed to enable contractors & supply chain to successfully participate in Offshore Wind projects.

If you have an upcoming project requirement or simply a problem to solve, then we'd love to learn more and work with you to support your operational needs, give us a call on +31 (0) 10 322 0778 or send us a message at teamNL@osbit.com

OutSmart

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OutSmart started in 2008 with performing Asset Management for onshore and offshore wind projects.

Over the last 17 years OutSmart has been known and recognized by the market as front-runner. We strive for continuous improvements in our 24/7 services. Our experts treat your projects as their own, we work independent of any OEM and component suppliers and maintenance providers. We challenge them to do their utmost for your and our projects. We have the same incentive: make your project as predictable as possible and avoid surprises. We work with clients with a large portfolio (> 100 MW) and with small projects (10 MW), in wind, solar and battery storage. OutSmart is the leading, independent service partner for Asset Management in renewable energy assets, including BESS projects.

assets, ensuring optimal performance and swift response to any issues. With real-time data analysis and proactive maintenance, we minimize downtime and maximize efficiency, keeping your operations running smoothly around the clock. Our operations services cover every aspect of your renewable energy projects. We handle contract management, performance monitoring, and downtime allocation, ensuring your assets operate at peak performance and deliver maximum returns. We provide tailored IT solutions, integrating advanced technologies to support your operations. Our services include system setup, cybersecurity measures, and ongoing support, ensuring your digital assets are secure and efficient.

OutSmart – more insights, better performance.
Contact us to learn more.

Our state-of-the-art Control Center in Emden provides continuous monitoring of your renewable energy

Pentas Moulding B.V.

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Pentas Moulding B.V. is a Dutch manufacturer specialized in rotational moulding of high-quality plastic products. With over 50 years of experience, we produce durable and innovative solutions such as technical parts, tanks, and floats for leading international customers in industries including agriculture, automotive, energy, and maritime.

We combine advanced manufacturing with a strong focus on sustainability. Pentas is actively working towards CO₂ neutrality and develops products that contribute to circularity and energy transition. Our team of over 130 professionals ensures reliable quality, flexibility, and long-term partnerships with renowned clients such as CLAAS and Daimler.

Based in Almelo, the Netherlands, Pentas is proud to deliver products worldwide and to support sectors that demand robust and sustainable moulded solutions.



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Periplus Group is a centre of excellence for subsea data expertise. Services provided to the offshore wind sector include archaeological assessments, alignment chart production, hydrography services, GIS services and software services.

Periplus's specialist software products are widely used by the offshore wind sector in northwest Europe. GRIDit (www.gridit.nl), a cloud-based geodata platform, offers tools including Burial (Difference) Assessment, Jack Up Vessel Footprint Repository and Scour Protection Monitoring. Using GRIDit, offshore wind operators can access the data and tools they need to operate efficiently from any location.

GRIDit's offshore wind clients find Periplus's combination of GIS and hydrography expertise, and software tools, invaluable since it allows them to manage, analyse and visualise data without the need for a large in-house team.

GRIDit is used by offshore wind operators across northwest Europe, with clients including EnBW (Germany), Eneco (Netherlands) and Norther (Belgium).

Periplus Group meets all relevant ISO Standards, including ISO 27001 (Information Security).

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Leading the way

We are a world-leading, innovative and highly trusted international energy logistics and supply chain solutions company, driven by a passion to lead the way in transforming how industry plans, manages and executes the movement of critical resources globally.

We deliver high quality logistics and supply chain solutions; our priority is to focus on safety and superior service delivery freeing up our customers to focus on maximising productivity.

Our ultimate objective is to unburden stakeholders by applying business intelligence to enable greater efficiency, consistent accuracy and increased sustainability.

Port of Rotterdam

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The port of Rotterdam is the largest port in Europe. We manage, operate and develop the Rotterdam port and industrial area and are responsible for ensuring safe and expedient shipping services. We are proud of our current port and are working hard with our partners to build the port of the future. Looking ahead, we aim to create an environmentally-friendly, inclusive and safe port.

The port stretches over 42 km, over 12.500 ha and is home for the largest maritime and offshore cluster in Europe. Over 900 companies in transport, engineering, equipment supply, education, manufacturing, finance, shipping, heavy lifting, etc are well capable of proving a total service solution in the port. Strategically located to the offshore wind developments in the Netherlands as well as Belgium, UK, Germany and beyond, over 25 offshore wind installation projects have been supported to date.

Primo Marine

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Primo Marine is a leading independent technical advisor specializing in sustainable energy connections. Established in 1997, we have supported major subsea power cable and pipeline projects worldwide, driving the transition to greener energy.

We combine academic expertise with decades of field experience to deliver smart, tailored solutions that meet the needs of our clients.

With a global project presence and offices in the Netherlands, United Kingdom, Germany, and Denmark, we have contributed to over 125 offshore wind farms (fixed bottom and floating) and export systems, 40 interconnectors, floating solar and tidal developments and hydrogen and CO2 pipelines, and the installation of 8,700 km of cables in the last decade - equivalent to 42 GW of energy.

ProPakt Personnel

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ProPakt.com is a recruitment support company with an efficient online recruitment tool for offshore project personnel, and offline search support for all other maritime personnel, either interim, freelance, or permanent placement. Run by people from the industry.

QuinteQ Energy

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QuinteQ Energy is a Dutch scale-up technology company that develops and builds compact flywheel energy storage solutions. The flywheels are a mechanical storage technology that are perfect for very fast power delivery or absorption. This solution is compact, robust and sustainable, with a lifetime of +15 years. QuinteQ focuses on the peak shaving of port cranes, reducing power demand of electric cranes by 70%.

RADAC B.V.
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We are Radac, a technology leader in radar-based wave measurement. Since 1996, our Delft-based Dutch company has developed unique sensors to monitor the ocean surface. Our wave radar operates without water contact, moving parts, or the need for calibration, making it a maintenance-free device.

Offshore operations are significantly impacted by weather conditions. Highly accurate, real-time wave data is crucial for determining optimal weather windows during which operations can be performed safely. Waves, in particular, contribute to project downtime, as work can only proceed within specific wave conditions for safety reasons. While wave measurements are often taken from transformer platforms or turbines, Radac also provides radars for vessels such as pipelaying, survey, and construction vessels.

turbines, stress and fatigue analysis are becoming increasingly important. Accurate wave data at the turbine's location is invaluable for conducting these lifetime analyses.

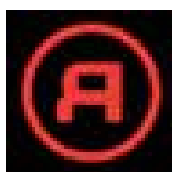
Our flagship product, the WaveGuide 5 Direction, is a truly unique system. Radac is the only company offering this technology. This directional wave radar precisely measures wave direction, height, period, and tide, while also presenting the 2D-spectrum. It's available in a motion-compensated (roll-pitch-heave) version, making it suitable for floating wind turbines.

At Radac, innovation and high quality are in our DNA. Want to learn more about our solutions? Feel free to contact us.

With the growing size and capacity of offshore wind

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RebelGroup is a financial advisory firm that has been active in the renewable energy sector since 2008.

Operating from the Netherlands, it applies its financial, economic and strategic expertise in renewable energy sectors such as wind energy (offshore and onshore), district heating and cooling, water, geothermal energy, biomass, biogas, solar and energy efficiency.

Rebel provides the complete package of financial advisory services for all stages of offshore wind projects. We have provided our clients in the offshore wind market with the following services:

- Perform financial feasibility studies
- Compile financial models suitable for debt arrangement
- Define tender strategy in concession tenders and support clients in optimising their bid

- Project structuring & defining an optimal contracting strategy
- Structuring financing solutions and arranging equity and senior debt
- Performing valuation services and providing buy-side and sell-side M&A services.

Reefy
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Reefy provides eco-engineering, nature-inclusive infrastructure, and biodiversity monitoring as independent services or integrated projects to our partners.

With a strong scientific methodology, Reefy's BlueBiodex service provides the proof of biodiversity changes towards claims and reporting, while igniting further action

EcoEngineering

Marrying ecology and engineering, we help unlock the value of nature with our consultancy services in offshore, coastal, and river projects.

Nature-Inclusive infrastructure

Key components for local manufacturing or end-products. Our ReefBlocks and ReefTextures projects have up to 3 times more biodiversity than traditional concrete or rock solutions, and reduce up to 20% of volume and costs of concrete on a project while working with nature to improve resiliency and water quality.

Impact quantification and monitoring

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For over 35 years, RelyOn has provided a broad and evolving training portfolio to their clients in the offshore, maritime and wind industries. They are committed to delivering high-quality training that is continuously adapted to the latest developments and safety challenges.

Flexibility is central to RelyOn's philosophy. Training is tailored to the operational needs of a wide range of professionals, including platform workers, ship owners, managers, rescue teams, port authorities, and pilot services.

RelyOn's training centers are fully certified by OPITO, NOGPA, GWO, and STCW. They are also regionally accredited by bodies such as ILT/Netherlands Shipping Inspectorate for their locations in Amsterdam and Rotterdam.

RelyOn empowers teams with the skills, confidence, and resilience needed to perform in the toughest environments, going beyond mere safety training. With more than 46 locations worldwide, including training centers in Amsterdam and Rotterdam, RelyOn is always nearby.

With advanced facilities and simulators, RelyOn simulates realistic scenarios. This helps participants develop essential knowledge and skills to prevent and manage incidents. They promote appropriate behavior so that tasks are performed safely, efficiently, and confidently in high-risk environments.

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Reynard High Voltage Solutions is a Dutch specialist in high-voltage cable services for both offshore and onshore energy infrastructure. Since 2011, Reynard has supported some of the world's leading wind farms with precision work at the critical interfaces of the grid.

The company's expertise covers the full spectrum of high-voltage jointing, array and export cable terminations, and resonance testing, ensuring that every connection from turbine to substation is reliable and resilient. With dedicated fault-finding and maintenance capabilities, Reynard also secures continuity during operation, quickly resolving unexpected challenges to minimize downtime. Beyond execution, Reynard provides consultancy and engineering support, including project-specific advice on termination, testing, and cable layouts. Its own Academy is the only DNV-certified training program for High-Voltage Jointers in Europe, ensuring the

highest international standard of qualification. By training and certifying its own specialists, Reynard guarantees the availability of skilled professionals while raising the overall standard in the industry. Reynard's approach is shaped by a strong operational-excellence mindset: minimizing vessel time, reducing risk during installation, and providing predictable project outcomes.

Whether supporting EPCs, utilities, or cable manufacturers, the company delivers field execution that is precise, safe, and efficient. As the Netherlands accelerates its offshore wind build-out under the RVO 2026 roadmap, Reynard plays a vital role in connecting turbines to the grid. Its proven track record across Northwest Europe underlines its ability to handle complex projects at scale. Ultimately, Reynard offers not only technical expertise, but also the most valuable outcome for its partners: peace of mind.

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The RPPC works to enhance the visibility of its 275-plus members both in the Netherlands and further afield. Our efforts contribute directly to our members' commercial objectives.

In order to further strengthen the Port's position, the RPPC connects its members with stakeholders in the global cargo industry by means of promotional trips, exhibitions and networking events. General events, field trips and knowledge meetings aimed at specific market segments and industries are also organised. We also develop dedicated programmes for separate business communities like the Offshore Community.

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IHC Offshore Energy is a global leader in the design and construction of fully integrated vessels and high-tech equipment for the renewables sector. With a proven track record in delivering sustainable offshore systems and expert services, we provide both standard and tailored solutions to improve operational efficiency for our clients.

Alongside our advanced vessels, our product range also includes modular cable lay equipment designed for flexibility and rapid mobilisation, as well as subsea ploughs and ROVs capable of burying and protecting cables up to 5m deep in the most challenging environments.

Our experts operate worldwide, guaranteeing local presence and industry-leading support on every continent. We support our clients beyond the initial design and build, offering responsive spares and rental equipment services, maintenance support, and

product upgrades to maximise the productivity of your vessels and equipment.

IHC Offshore Energy is part of Royal IHC, a leading designer, builder and supplier of integrated vessels, equipment, and services to clients in the dredging, offshore, mining and defence industries. As we navigate new waters, our aim remains unchanged: to deliver the smartest and safest way forward for our clients.

Together, we create the maritime future.

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The Royal Van Beest Group is the leading manufacturer of premium quality lifting, lashing, and mooring fittings. We combine consistency and quality craftsmanship with an outstanding ability to deliver products when and where they are needed to customers across the globe. Royal Van Beest brings the best of the industry with Green Pin®, Irizar Forge, Sling Supply International, and Heuer Hebetechnik.

Green Pin®

Green Pin® is the world's leading brand for chain and wire rope fittings, such as shackles, sockets and fibre chain. Our products are always a small but indispensable link in bigger projects, positioned right at the heart of security. All Green Pin® products thrive at the core of any project. As the centrepiece of rigging.

Irizar Forge

Irizar Forge produces innovative, tailor-made crane

components, such as crane hooks and blocks, that come with a high safety factor, an excellent fatigue rating, lower maintenance costs, and a longer lifetime.

Heuer Hebetechnik

Heuer Hebetechnik offers a wide range of hooks, manufactured according to well-known standards such as DIN and EN, in a variety of different sizes. Standard sizes can be supplied from stock or according to your wishes.

Sling Supply International

Slingsintt develops, designs, manufactures, and supplies lifting equipment for all types of components for wind turbines. They offer a wide range of commercial and custom lifting tools for any complex installation and transportation challenge.

RWE Renewables Benelux B.V.

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RWE is a global leader in the development, realisation and exploitation of offshore wind farms. We have first-class resources, experience, and expertise to cover the entire wind energy value chain from development through to construction and operation. Offshore wind energy plays an important role in the energy transition, and is a key part of our sustainability strategy.

OranjeWind at the site of Hollandse Kust West VII confirmed that our many years of knowledge and expertise is unique. With this wind farm, RWE has developed a blueprint for the integration of wind farms in the Dutch energy system.

RWE is committed to contribute to the development of offshore wind energy in the Netherlands and Belgium. Therefore, we're joining forces with various innovative start-ups, the business community and leading knowledge and research institutions. In all our projects, sustainability is top of the agenda. We own a minority stake in the Belgian wind farm C-Power and are currently building the OranjeWind farm off the Dutch coast, together with our partner TotalEnergies.

Our success in the tender for the wind farm

SeaHiker BV

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SeaHiker is an experienced young company providing proprietary hardware and engineering solutions to offshore energy/wind industry.

We have a multi-disciplinary team with EPCI experience in heavy equipment used for mobile offshore units and wind turbine installations, like crane, mooring, drilling, pipelay and motion compensation systems.

We are developing three proprietary technologies for offshore wind to support energy transition, and seeking industrial collaborations and external investments to speed the go-to-market process of our products:

- (a) Jack-up leg cushion and push-up system, to increase the productivity of Wind Turbine Installation Vessels by 35%
- (b) Floating Offshore Wind Turbine in-situ large component exchange, with crawler crane and without

change to turbines

(c) Single anchor mooring technology for Floating Offshore Wind Turbine, to reduce CAPEX of the mooring and anchor system by 75%

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Seaqualize is a Dutch offshore tooling company, which builds and rents out the world's most sophisticated Balanced Heave Compensation (BHC) tools, to be placed in any standard heavy lift crane hook: The Heave Chief. Beyond its flagship vertical position and load control (Active Heave Compensation or "AHC") for delicate heavy loads, it now also offers horizontal (XY) stabilization. All done, from a single in-line lifting tool. We stabilize heavy floating lifts, quick lift loads from deck to prevent re-hits or gradually introduce loads to minimize harmful dynamic loading. We keep both the long and double horizontal pendulum swing motions under control, both floating to floating as floating to fixed. And, we do it both in-air as well as subsea.

Seaqualize tooling helps clients minimize their risk of weather delay, and offers them full control and higher safety levels during the handling of turbine or foundation components. The first three commercial

scale windfarms built on the US East coast, chose to use the Seaqualize Heave Chief for their operations, making it the most proven technology in the market. Since 2022, Seaqualize has executed ~1.300 floating feeder barge lifts for a total of out in the open ocean, for a total of ~200.000mT. The current fleet of tools range from ~300mt to max 1100mT capacity, with new machines planned for ~1500- 2000mT WTG components, and for the heaviest future foundations, up to 4500mT. The tools are Li-ion battery powered, with minimal crane interfaces and can operate ~12hrs on a single charge.

We offer a wide range of simulation analyses which can be customized to run any offshore lifting operation, and jointly investigate lifting hazards, calculate workably for a specific operation or train operators. Through our 24/7 operational hotline, we can guarantee our tools keep working.

SeaCurrent
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SeaCurrent® develops TidalKite™, an innovative technology that harnesses predictable tidal currents to generate clean baseload energy. To address the challenge of the energy transition, a reliable source of 100% carbon-free energy must be found that complements intermittent renewables. Tidal energy is uniquely positioned to provide baseload power, ensure energy security, overcome spatial limitations and minimise grid congestion.

The innovative 3D TidalKite technology significantly enhances energy production, capturing three times more energy than conventional tidal turbine technologies. This capability allows for deployment across all tidal segments (high and low velocities, and shallow and deep waters) effectively doubling its market potential. The TidalKite system design ensures low-cost installation and operational expenses. 100% recyclable, the system has a negligible environmental impact.

SeaCurrent delivers multiple benefits:

- Reliable baseload power for energy-intensive industries like data centers.
- Scalable utility projects in previously untapped nearshore locations.
- Grid resilience and efficiency, helping overcome spatial and congestion constraints.
- Alignment with global sustainability goals, supporting the green digital transition and blue economy growth.
- The wings of the kite can rotate 360° and can be individually positioned, allowing optimal positioning of each individual wing for maximum energy harvest and for steering the kite.

It is SeaCurrent's ambition to make TidalKite™ a mainstream renewable energy solution within a decade, providing 24/7 electricity to millions around the globe and accelerating the transition to a 100% renewable energy future.

Seekable

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GLOBAL BURIED CABLE & PIPELINE SOLUTIONS

Seekable delivers reliable and innovative solutions for cable and pipeline detection across offshore wind, subsea infrastructure, and utility sectors. Based in Amsterdam, Seekable's team of experienced geophysicists and software developers provides unrivalled accuracy in cable location and burial depth, supporting faster, safer, and more sustainable project execution.

Clients benefit from Seekable's unique approach, which integrates electro-magnetic and acoustic measurement data into comprehensive survey results, ensuring every project is completed precise and transparent. With flexible rental and service options, Seekable empowers partners to detect all types of cables and pipelines worldwide. Even in demanding environments such as intertidal areas we offer a unique cable tracker solution on a drone.

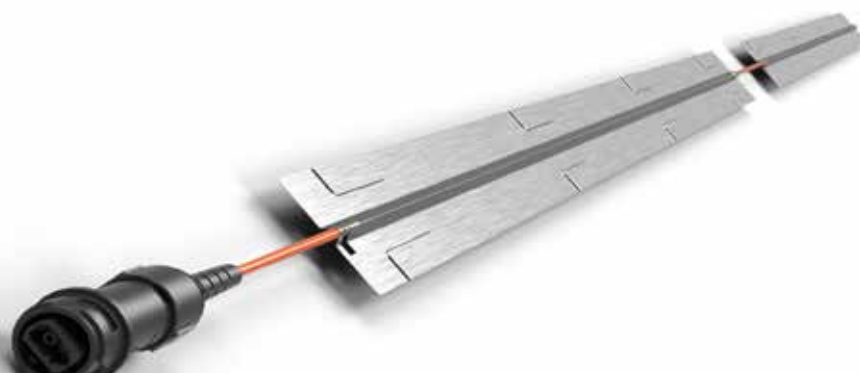
Seekable's focus is on rapid mobilization, clear reporting, and consistently repeatable results, detecting threats, cable faults, and even supporting missions involving unexploded ordnance or infrastructure protection.

Seekable proudly supports critical infrastructure resilience and national security by offering specialist cable and pipeline detection solutions for Defence applications. Trusted by NATO partners and national naval forces, Seekable's systems excel in safeguarding the critical underwater infrastructure.

Sensing360

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Sensing360 makes wind turbines smarter, safer, and more sustainable. With innovative fiber optic sensors and intelligent algorithms, we provide operators and OEMs with highly accurate insights into turbine performance, condition and loads – both onshore and offshore.

Our mission: extending asset lifetime, reducing maintenance costs, and maximizing energy output.

Our core expertise lies in combining advanced sensing technology, data analytics, and in-depth wind energy knowledge. This unique mix enables us to play a key role in the energy transition: unlocking predictive maintenance and boosting the reliability of offshore wind farms.

What makes us stand out?

Patented sensing solutions that enable real-time monitoring of real usage parameters and the

remaining life of critical turbine components.

Our solutions are certified to international standards for safety and reliability and we have 20+ installation across global wind projects, from the Europe, to Asia and North America.

With our technology, operators gain independently real operation insights and its effect on the driveline to make smarter decisions, minimize downtime, and lower the Levelized Cost of Energy.

Discover how we accelerate the future of wind energy – powered by smart sensors and data.

Sideshore Technology

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Sideshore Technology is a specialist company focused on optimising offshore wind farm design using advanced data science and bespoke optimisation algorithms. Our core activity is to design and optimise layouts of wind turbines, substations, and cable routes such that each project meets minimum cost, maximised energy yield, and practical installation constraints.

We integrate a broad array of cost drivers into their modelling - including wake effects, foundation costs, seabed preparation, and cable routing - to ensure realism and feasibility. In the offshore wind sector, Sideshore plays the role of a design-optimizer and technical consultant. We support developers or engineering firms by improving layout designs early in planning phases, aiming to generate millions in cost savings and improve the feasibility of projects. Our algorithmic approach is applied project-specifically, enabling automatic turbine placement and cable

routing under realistic site constraints.

Unique strengths include:

- An in-house development of state-of-the-art optimisation tools and algorithms, rather than off-the-shelf or open source software.
- A holistic cost modelling mindset - bringing in foundation, seabed and wake costs, rather than simplified regular grids.
- Demonstrated track record: projects have reportedly saved clients €50 to €100 million per project.
- International reach: we have been involved in projects in Poland and Taiwan (for example optimizing wind farm layout, cable routing, and OSS placement in challenging seabed conditions)
- Ability to handle complex site conditions (e.g. migrating sand waves, boulder fields, difficult soil conditions) in their optimisation.

Sif Netherlands

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Since 1948, Sif is a leading manufacturer of offshore foundations for wind energy, with more than 2,600 monopiles delivered worldwide. We specialize in producing large-scale foundations, including XXXL monopiles up to 11 meters in diameter, providing the foundation of modern offshore wind farms.

We operate two production facilities in the Netherlands: Roermond and Maasvlakte 2 in Rotterdam, employing nearly 1,000 skilled professionals. By combining craftsmanship, flexibility, and modern automation, we handle complex projects safely, reliably, sustainably, and always deliver on time.

Our mission is to be the best provider of monopile solutions for our customers. We design, engineer, manufacture and deliver monopiles, transition pieces, and piles for jacket foundations. Our technological know-how in rolling and welding heavy steel plates is

built on more than 75 years of experience and continuous innovation of processes and techniques.

Our vision is to accelerate the energy transition and contribute to Europe's energy independence and security. By combining technical expertise, craftsmanship and operational excellence, we provide products of exceptional quality.

Sif delivers the foundations that enable Europe's sustainable energy future, ensuring performance, reliability, and innovation every day.

Slow Mill Wave Power
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Slow Mill is a Dutch clean energy technology company, founded in 2012, that develops wave energy converters (WECs) designed especially for the moderate and irregular wave climate of the North Sea. Its core mission is to harness ocean waves reliably and affordably, complementing offshore wind, solar energy and helping fill energy gaps when wind or sunlight are low.

Wave energy converter

Slow Mill has developed a device with a patented blade system that captures both vertical and horizontal (heave and surge) wave motion. It incorporates design choices to reduce lateral stresses, snap loads and fatigue. It uses strong, lightweight, non-corrosive composite materials and it has a modular, “plug & play” design. Maintenance and operations are predominantly done from surface level. No underwater interventions are needed (diver-free). The company has progressed through lab scale and

open water tests offshore. A 40 kW device has been tested off Scheveningen proving to generate electricity. A 400 kW unit is under development to be installed in a wave energy farm of 2,4 MW. We offer 12-24 MW array configurations, compatible with offshore wind and islands.

Synergy with offshore wind farms

These wave energy array systems are developed to be co-located with or integrated into offshore wind farms, using shared subsea infrastructure (e.g. cables), which can reduce capital & operational costs and leverage existing grid connections. Environmental co-benefits go beyond generating energy; the design can help with coastal erosion mitigation, act as artificial reefs, and enhance biodiversity.

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SMST

SMST is a well-established supplier of equipment to the offshore industry, with a strong focus on the renewable sector (Offshore Wind). SMST's products provide solutions for the safe and efficient transfer of people and cargo, for worldwide offshore operations.

Through the unique combination of in-house design and engineering expertise, production facilities, testing capacity, worldwide installation and service, SMST delivers high quality engineering and product solutions that are distinctive in the offshore market.

In addition to prioritizing safety and efficiency, the products feature a modular design that offers maximum flexibility to the operations for the international offshore partners. For the offshore wind sector, SMST has developed a complete system package, which includes a range of gangways adjustable for various heights, modular offshore cranes which can be equipped with various knuckle

booms and active heave- and (3D) motion compensation, and special handling equipment.

SMST is committed to delivering high quality solutions along with comprehensive services and training. The company continuously improves its products and services to meet evolving industry standards, driving innovation and taking the industry to the next level.

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Smulders is a multidisciplinary and international organisation with a passion for steel and sustainability. With over 50 years of experience, Smulders delivers turnkey solutions for offshore wind farms, including transition pieces, jackets, floating foundations and offshore substations.

The company operates across Belgium, the Netherlands, Poland, and the UK, with a strong presence in the Dutch market through its facilities in Vlissingen and the recent acquisition of HSM Offshore Energy.

Manufacturing a sustainable world is what our mission is all about. A mix of passion for steel and the drive and know-how to be a sustainable pioneer in the industry. Innovative too, which has made us evolve from a pure steel construction company to a systems integrator (EPC - Engineering, Procurement, Construction). With our own electrical/mechanical

engineering department, we can design and build offshore projects completely in-house (turnkey). A team as strong as steel guarantees the well-known Smulders quality, flexibility and delivery reliability.

With a portfolio of over 2,500 transition pieces, 160 jackets, and over 40 substations, Smulders continues to lead the way in manufacturing the energy infrastructure of the future.

SolarDuck B.V.
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SolarDuck develops Offshore Floating PV technology for large-scale deployment at sea. Since 2020 it has successfully deployed 3 demonstrator projects progressing towards more challenging environmental conditions.

In 2024 the Merganser platform has been successfully deployed to the North Sea. The measurement campaigns from this last demonstration indicated strong benefits for offshore PV deployment with higher energy yields than land-based counterparts due to better solar irradiance, higher wind speeds benefitting the cooling effect and gains from the water surface reflection due to its bi-facial panels (Albedo effect). Offshore solar furthermore greatly complements to offshore wind power, balancing the power profile and improving the project economics.

SolarDuck's triangular, elevated and interconnected platforms provide strong survivability characteristics

for amongst others the North Sea, sheltering the PV panels from wave impact loads. The platform components are easy to manufacture and transport, and once on-site they are efficiently assembled for which SolarDuck has invented new assembly techniques. Whilst only requiring widely available standard vessels for installation there is no increased burden to the existing supply chain of specialised offshore wind installation vessels. Therefore, offshore floating solar allows for rapid large-scale deployment in a wide geography with little infrastructure limitations.

Speeder Systems B.V.

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Speeder Systems is designing unmanned eVTOL ground-effect vessels; Speeders. Speeders bring the surface capability of a boat together with VTOL capability of a helicopter to deliver cargo; 6X cheaper than helicopters, 3X faster than boats with 99% fewer emissions. The patented design of the Speeder traps the air between the wings and water surface to create an air cushion to enhance the lift-efficiency by up to 40% compared other flying vehicles. This efficiency is employed to carry bigger payloads to longer distances with higher speeds. Today the average cargo delivery to offshore platforms are generating hundreds of kilograms of emissions; the electric propulsion system in the Speeder delivers those packages with zero emissions. The ability to float over the water, to fly or vertically land on a platform enables a flexible operation. Speeders can fit inside a van to be carried around, can be deployed from any beach or port area and can also carry smaller inspection drones or ROVs to platforms to reduce the transportation time and

cost for inspection operations while reducing the risks to personnel in the offshore environment.

Switch2 B.V.

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Switch2 B.V.
SeaWater into Clean Hydrogen

Switch2 is a Rotterdam-based project developer pioneering the next generation of floating offshore production units (FPSOs) for green hydrogen and ammonia, harnessing wind, solar and wave energy. Switch2 leverages decades of offshore engineering expertise from its founders and shareholder base, further strengthened through its partnerships with top-tier technology providers.

Switch2's net zero FPSO offers a unique solution to challenges arising in the energy system, particularly for offshore wind. Offshore wind farms are increasingly built further at sea, making it difficult to connect them to shore via long subsea cables, with higher costs and transmission losses. By integrating the energy with hydrogen production at sea, the need for long cables and costly grid connections can be avoided.

With its "design one, develop many" approach,

Switch2's net zero FPSO is adaptable for various global locations, enabling low cost hydrogen production where renewable energy resources are abundant. Switch2's flagship 300 MW project is located in offshore Portugal and will produce ca. 240 ktpa of green ammonia from wind and solar energy. After obtaining Approval in Principle in 2022 for the FPSO design, the project is now in the FEED phase with a target FID date in Q2 2026 and commercial operations date in Q1 2030.

Projects in other locations are also being developed, including Southern Africa and North West Europe.

Tarucca

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Offshore wind depends on critical assets that are difficult to see and even harder to reach. Tarucca makes them visible from shore.

Using advanced optical sensing systems, Tarucca reveals the dynamic behavior of wind turbine blades, subsea cables, and floating structures. The technology measures vibration, strain, deflection, and temperature changes across entire assets, supporting predictive maintenance and lifetime extension of offshore energy infrastructure. Tarucca is one of the few Dutch innovators addressing both wind turbine and power cable integrity with a single optical monitoring platform.

The company applies artificial intelligence and data science to interpret complex time series, detect anomalies, and forecast degradation so operators can act before failure occurs. As part of the Dutch photonics ecosystem through PhotonDelta, Tarucca

combines optical sensing, signal processing, and digital twin technology to transform raw light data into actionable engineering insights. The company's expertise bridges photonics, materials, and structural dynamics, allowing its systems to monitor loads, vibrations, and environmental impacts in real time.

Together with partners including TNO, TU Delft, Eneco, Vattenfall, and Shell, Tarucca contributes to projects such as Eemshaven (V90), AIRTuB-ROMI, and ReliaBlade-2. These collaborations advance digital twin frameworks for structural health assessment across blades, cables, and hydrogen systems, improving asset reliability and sustainability. From the rotating blade tip to the buried cable and the hydrogen network behind it, Tarucca delivers optical intelligence that helps operators make informed, reliable, and sustainable decisions.

Technostrobe

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Technostrobe: A Leader in Obstruction Lighting Systems for Marine and Air Navigation

Technostrobe is a trusted provider of integrated obstruction lighting solutions, serving key industries such as the wind industry (onshore and offshore), broadcasting, telecommunications, ports, and coast guard operations.

Our robust, high-performance systems are designed to enhance safety for aviators, mariners, and the public. Our mission is clear: to support navigational safety through the design, manufacturing, and distribution of innovative and reliable lighting technologies. We place strong emphasis on research and development, ensuring our products meet the evolving needs of modern infrastructure while complying with international standards including FAA (USA), ICAO, Standard 621 (Canada), DGAC (Mexico), and STAC (France) as well as IALA for marine aids to navigation (AtoN). Technical expertise is at the heart

of our operations. Our commitment to know-how drives the delivery of cutting-edge products and high-level services to clients worldwide.

Technostrobe's portfolio includes major projects such as:

- Hollandse Kust Zuid (2021) – Offshore wind farm lighting for Vattenfall in the North Sea.
- Moray West Offshore Wind Farm (2025) - Offshore wind farm lighting provided to SGRE in the UK.
- South Fork Wind (2024) – Supplying electrical systems and embedded parts for Orsted and Eversource's offshore wind farm near Montauk Point, NY.
- Vineyard Wind 1 (2023) – Aviation lighting systems supplied to GE Vernova for offshore wind farms off the coast of Massachusetts, USA
- Eclipse Light (2022) – Designed for Blue Hills Wind Energy Project in Saskatchewan, Canada.

The Rich North Sea

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The Rich North Sea started with a dream: What if offshore wind farms could generate green energy and bring new marine life to the sea? Thanks to the Dream Fund from the Nationale Postcode Loterij, we got the opportunity to bring this dream to life. Two Dutch NGO's Natuur & Milieu and The North Sea Foundation joined forces – and in 2018, the joint program The Rich North Sea was launched.

Our mission

The North Sea's seabed was once rich with reefs, home to fish, shellfish, and other marine life. But overfishing and climate change have caused a major decline in biodiversity over the years. Nature could use a helping hand. With more offshore wind farms, the pressure on sea grows – but so do opportunities to restore marine life in the North Sea.

explore how nature-enhancing measures in offshore wind farms contribute to a healthy ecosystem. By sharing our knowledge, connecting stakeholders, and spreading our message, we hope to inspire action – because the beautiful North Sea deserves our protection and restoration.

Our vision

We strive for a future where sustainable energy drives nature's recovery: a future where every offshore wind farm becomes a nursery for underwater life. That's what we're building through innovation, monitoring, and collaboration. Our work demonstrates how the energy transition and nature restoration can work together.

The energy transition can go hand-in-hand with underwater nature. Using innovative methods, we

Tillen B.V.

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At Tillen, we provide innovative solutions for lifting and handling unmanageable objects in a wide range of industries. Our custom-designed tools and systems are built to tackle the most challenging projects, ensuring safety, efficiency, and precision in every operation. Whether onshore, offshore, or in confined spaces, our solutions are engineered to meet the demands of your project, streamlining processes and minimizing downtime.

solution engineered for deployment in offshore environments, quaysides, and industrial yards. The integrated design provides a compact footprint, built-in lifting height, and optimized use of available working space. Visit our stand for more information about this Container Based Cranes.

Send us an email at sales@tillen.com for your copy of the Container Based Cranes spec sheet.

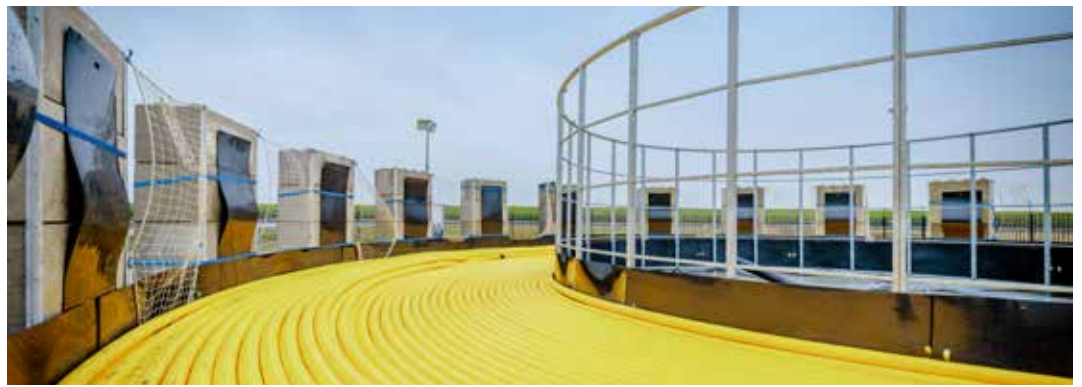
We support your project from start to finish, offering fit-for-purpose solutions, expert engineering, precise fabrication, and rigorous verification. Each service is designed to ensure that your custom solution meets the highest standards of quality, safety, and performance.

Check out our new product range of Container Based Cranes

The Container Based Crane is a modular lifting

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TKF CONNECTIVITY SOLUTIONS

Founded in 1930, with more than 1300 colleagues and headquartered in the Netherlands, TKF is a leading manufacturer and supplier of advanced cable solutions. With a strong focus on sustainability and innovation, TKF plays a pivotal role in supporting the global energy transition by enabling the efficient and reliable transmission and distribution of renewable energy. Our portfolio comprises low-, medium, high-voltage power cables for on and offshore networks.

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TMA Logistics is a full-service logistics partner with multipurpose terminals strategically located in the Amsterdam port region and beyond. With extensive quay and yard capacity, TMA offers offshore clients the ideal facilities for vessel demobilization, project assembly, and specialized handling of heavy and complex cargo. Our teams provide flexible, tailored solutions for cables, components, and offshore equipment, ensuring smooth operations from arrival to redeployment.

TOS People

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People who know crewing

Worldwide crewing, that's what made us. Thanks to our extensive experience in the maritime sector, we know better than anyone who and what is needed to get the job done. Because people who know their trade make the difference on every vessel. From officers to engineers, and from riggers to crane operators. We select, recruit, train and employ the best people.

Offshore wind & Construction

Our flexible teams excel in offshore wind installations and decommissioning projects across the North Sea, German Bight, and Asia (providing construction and maintenance). Trained to the highest industry standards, they are ready to tackle any project, ensuring seamless operations from start to finish.

Offshore support

TOS provides highly qualified crews for various types of regular offshore vessels, including Platform Supply Vessels (PSVs), Offshore Support Vessels (OSVs), Commissioning Service Operation Vessels (CSOV), Diving Support Vessel (DSV), and Anchor Handling Tug Supply (AHTS) vessels. Our professionals are well-versed in the demands of offshore operations, ensuring reliable support for your projects.

TouchWind B.V

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TouchWind develops an innovative floating wind turbine with a tilted one-piece rotor, specifically designed for extreme offshore conditions. This downwind concept reduces wake effects, increases efficiency and power output, and remains operational during severe storms. The simplified design lowers both CAPEX and OPEX by reducing structural loads, enabling lighter floaters, and simplifying maintenance.

became a strategic investor in 2023, reflecting strong interest from the Japanese floating wind market. Together with MOL and other partners, TouchWind is preparing the next step: the development of a 4 MW floating wind turbine as the first step toward multi-megawatt scale and commercial deployment.

Founded in 2018 and based in Eindhoven, TouchWind works at the forefront of Dutch offshore wind innovation. The company collaborates with engineering partners such as Enersea and knowledge institutes including TNO, MARIN, and leading universities to validate and scale its technology. A dedicated RVO-funded program is supporting prototype development and offshore testing.

TouchWind's ambition is to make floating offshore wind cost-effective, reliable, and deployable worldwide — opening new possibilities for energy companies and governments in markets with strong wind regimes and deep waters. The company is open to collaboration with industry partners and investors who share this vision of accelerating affordable offshore wind.

International partnerships play a key role in TouchWind's growth. Mitsui O.S.K. Lines (MOL)

Tree Composites

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Tree Composites introduces the TC-joint, a novel technology based on composite as an alternative to the complex welded joints in multi-membered tubular structures.

We provide solutions to realise dynamically loaded structures with higher fatigue resistance. Additional advantages include substantial steel reduction, lower pricing, reduced carbon footprint, and simultaneous increase of structure manufacturing speed at the construction site.

In 2024 we obtained a C-level statement of compliance for design of TC-joints for offshore wind turbine foundations issued by offshore certification body DNV. In fall 2025 we are building a pilot jacket using prefabricated TC-joints integrated by only circumferential welding. Next step is to demonstrate the technology in an offshore wind farm in the WrapUp projects that we are setting up with our partners. The

team located at Delft Campus currently consist of 20 people that bring together experience in offshore wind structures, composite design and composite manufacturing.

The TC-joint is applicable to a wide variety of industries, but we put our efforts in the industry where we can make the greatest impact, offshore structures. Continuous effort is put into reaching new levels of certification, developing new tools and knowledge. From this point on, we look forward to develop our joint technology to its full potential: paving the path towards more sustainable renewable energy.

Twindo B.V.

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Twindo is a global software company based in Amsterdam, dedicated to digitalizing asset condition monitoring and reporting, focused on the renewable energy sector. It transforms human-driven data from installation, inspections and maintenance into structured insights, enabling asset owners, operators, and service providers to streamline reporting, enhance collaboration, and make operational decisions faster and more efficiently.

Our expertise lies in bridging the gap between field teams and stakeholders by standardizing the input collected during project execution. Inspection and maintenance data are integrated into a user-friendly and scalable platform, ensuring transparent, reliable, and actionable information across the offshore wind value chain.

Within offshore wind, Twindo supports the long-term performance of assets by connecting technicians,

operators, and owners in one system. Data mismatches are reduced, operational reporting becomes clearer, with less downtime and more accuracy on costs and hours spent. Safe innovation is our core, with a pioneering human-input-driven approach that builds the foundation for digital reporting, planning, and staff allocation in offshore wind. We have supported inspections covering over 6GW of onshore and offshore assets across the EU, UK, and Nordic countries, including major projects like GEMINI, Borssele 3 and 4, Hollandse Kust Noord and Zuid, and Moray East.

With a focus on practicality, transparency, and collaboration with our partners and clients, Twindo is helping shape the digital future of offshore wind.

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Van Oord is a Dutch family-owned company with more than 155 years of experience as an international marine contractor. Our focus is on energy transition, climate adaptation and marine biodiversity, aiming to contribute to a better world for future generations.

Our dedication to marine ingenuity drives us to deliver sustainable solutions for today's global challenges. Working closely and safely with our clients and stakeholders, we address the growing demand for space, resilient maritime transport infrastructure, and stronger coastal protection. At the same time, we recognise the urgency of reducing global CO₂ emissions and meeting the world's rising energy needs. Offshore wind is a cornerstone of this energy transition, and Van Oord plays a leading role in building the energy infrastructure of the future.

With more than 20 years of proven expertise in offshore wind, we have built an impressive track

record in delivering complex projects worldwide. We manage the entire lifecycle of wind farm development, from engineering and design to the installation of subsea foundations, electrical infrastructure, and turbines, as well as heavy maintenance and repair.

Through continuous investment in innovation, digitalisation, and a modern, sustainable fleet, we strengthen energy independence and actively contribute to net-zero emissions. By combining the expertise of our people with specialised equipment, we deliver projects that are safe, efficient and sustainable, accelerating the growth of offshore wind energy and contributing to a sustainable future for generations to come.

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Ventolines – Moving Forward with Renewable Energy

Ventolines is an integrated service provider within the sustainable energy sector, with a clear mission: we aim for a world in which renewable energy projects deliver value for everyone. We optimise value for our clients in the energy transition by guiding them through the successful development, realisation, and operation of renewable energy and system integration projects. We offer expertise across all project stages, from early development to repowering. Our strength lies in our integrated approach, delivering tailored solutions that meet our clients' ambitions and needs, while staying aligned with market trends and societal expectations.

Founded in the Netherlands in 2007, Ventolines has grown into a company of over 100 experts. Together, we have realised more than 2GW of renewable energy capacity for our clients and manage over 1.5GW in

asset portfolios. We are proud to have played a major role in some of the Netherlands' most significant renewable energy projects, including Windplan Groen and Windpark Fryslân. Internationally, we are involved in numerous onshore, nearshore, and offshore projects across several countries.

Driven by a vision of a future where renewable energy moves everyone forward, we are expanding into international markets, including Ireland, the USA, Scandinavia, and the Baltics. In doing so, we support communities worldwide, create investor value, and contribute to a sustainable, affordable energy system.

Vibrotwist

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Vibrotwist develops the Gentle Driving of Piles (GDP), which is a new technology for the noise-free vibratory installation of offshore piles and monopiles. An efficient pile installation and low noise emission can be achieved by applying a combination of axial and torsional vibrations. The GDP method allows full extraction of old (mono)piles at the end of their lifecycle.

The advantages of the GDP technology for decommissioning projects are:

- Contribution to the circular economy goals by providing complete removal of offshore and onshore pile foundations;
- Reducing the operational offshore time and, in this way, minimizing the costs of the decommissioning operation;
- Aiming at zero environmental impact: by causing no damage to any neighboring structures, such as dams or any other type of coastal protection infrastructure.

The development of the GDP technology was carried out within several large joint-industry projects: GDP1.0, GDP1.2, and SIMOX. Currently, in cooperation with Ampelmann Operations, the team is working on the offshore prototype within the GDP2.0 project.

Voltiq

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Voltiq is a leading financial advisor in offshore wind and other energy transition assets. During the last 16 years, we built an unparalleled track record in offshore wind through our involvement in the development, structuring and financing of many offshore wind projects across the project life cycle. Voltiq has a deep understanding of the asset class, including key commercial and technological parameters, with extensive expertise in key offshore wind markets globally.

Our team consists of > 25 skilled professionals with offices in Amsterdam, Madrid, Bogotá and Singapore.

Voltiq advised bidders in 15+ offshore wind tenders in various jurisdictions whereby we bring experience in supporting tender bids based on both price criteria and qualitative criteria where credibility of the bid is key. Furthermore, Voltiq has proven to be very successful in advising investors in offshore wind (buy and sell side) across the globe.

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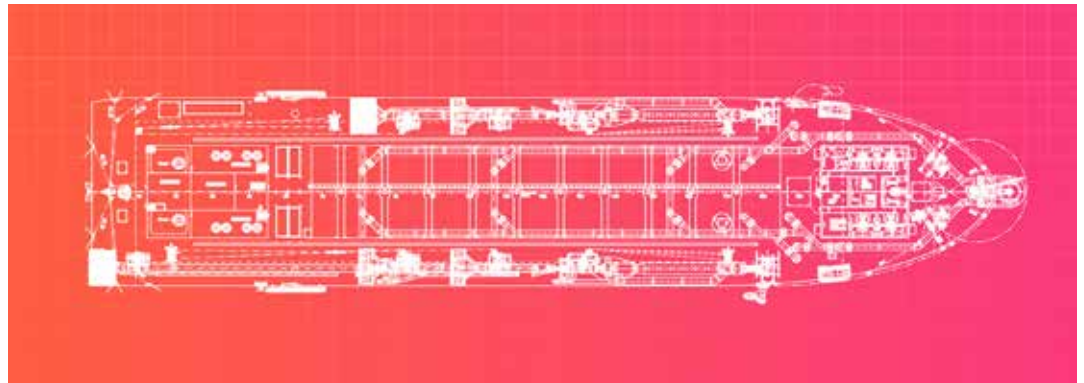
Vuyk Engineering Rotterdam is the independent Maritime Design House specialised in ship design, methods engineering, equipment design and temporary steel design. Our team of experienced engineers draws on over 45 years of engineering excellence. In the worldwide maritime sector, we provide solid yet innovative engineering solutions that form the foundation of complex projects.

In the maritime market, we are the only independent engineering firm offering four unique specialisations. This allows our clients to benefit from the synergy of our combined expertise. Our extensive knowledge and experience in each area enable us to integrate these specialisations seamlessly into a single project. This way, we deliver innovative and comprehensive solutions that advance the maritime industry.

Our client focus and collaborative approach ensure efficiency, effectiveness and the highest possible

quality. Our goal is to develop design and engineering solutions that meet and exceed the unique requirements of our clients. By continuously investing in the development of new technologies, we remain at the forefront of innovation. We not only focus on improving existing solutions, but also strive to develop new solutions that address current and future maritime market needs.

Vuyk Engineering Rotterdam has all the in-house expertise to support innovative projects in various maritime markets: from offshore wind, dredging and subsea to renewables and heavy lifting.



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Waardenburg Ecology is a private company carrying out ecological research and consultancy since 1979. Our more than 175 employees include specialists with strong backgrounds in aquatic and marine ecology, as well as ornithology.

We carry out all sorts of offshore projects: from short-term advisory work to multi-year scientific projects, from field observations to complex modelling studies using data from our own radar and sea bird tracking studies. We have been involved in the EIAs for all newly developed OWFs in the Netherlands, including cumulative impact assessments of all OWFs in the southern North Sea.

Abroad we have been involved in ecological studies for OWFs in Denmark, UK and Germany as well as radar and tracking studies in Europe, South America and Africa. Finally, our certified scuba diving team is active in monitoring of marine biodiversity and reef

restoration using sonar, video observations and environmental DNA.

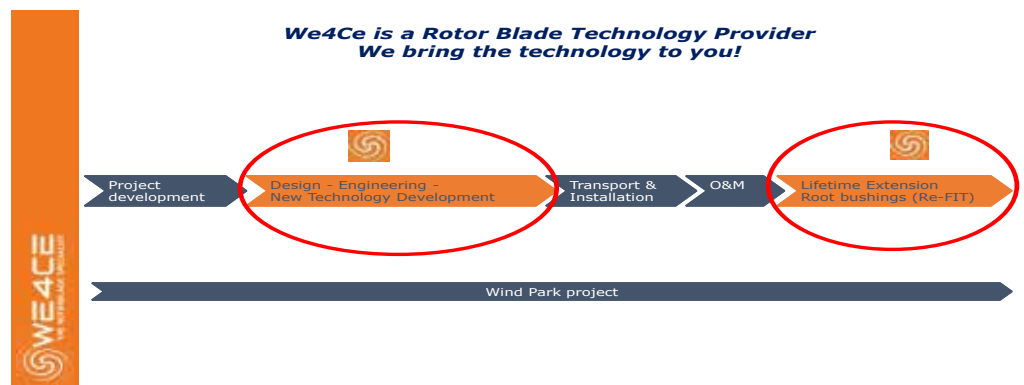
In June 2024 we co-founded, together with partners from France, Croatia and Greece, the European Renewable Energy & Wildlife Consortium. With over 500 staff members combined in ERWC, we provide high-quality ecological research and consultancy services for offshore wind projects across the continent.

WE consult nature.



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We4Ce is the worldwide leading independent wind turbine rotorblade specialist.

Rotorblade portfolio from on-shore to off-shore in the range up till 14MW.
 More than 50,000 rotor blades world-wide has We4Ce technology.

As a blade technology provider, We4Ce developed novel technologies as for example:
 Blade root connections:
 Since 2008, we developed a M20, M30, M36 and M42 We4Ce bushing solution according to GL2010, DNVGL-ST-0376 ed. 2015 and ISO61400-5 ed. 2020. This solution can be implemented in customers specific rotorblade designs..

Re-FIT:
 Many turbine face real issues with rotor blade suffering loose blade root bushing connection.

This We4Ce Front Infusion Technology, is a solid tested, validated and certified solution to repair rotor blades in the field.

Sectional Rotor Blades:
 This patented, typical sectional tip module blade solution can be designed in customers rotor blade. Advantages are: less instalment cost, less maintenance costs, less turbine downtime and more annual yield.

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Weco is a dutch startup, specialised in the development of wave energy technology. Their flagship technology 'Kaizen' is a lightweight and modular system that can be installed in a farm configuration to provide power for different applications, such as powering offshore platforms or integrate with offshore wind parks. Weco is also able to built custom wave energy solutions for specific conditions and integrate with other equipment (e.g. measurement buoys).

Whiffle

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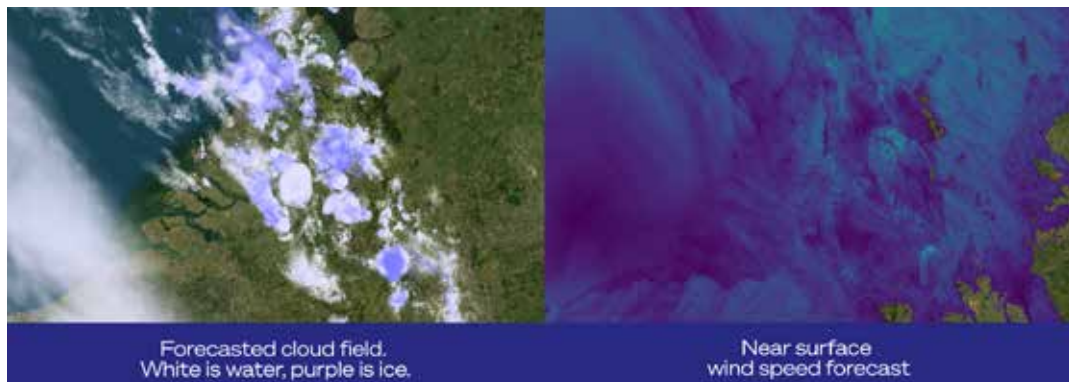
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Whiffle is a leading provider in ultra-high-resolution weather data using Large Eddy Simulation (LES).

Our advanced LES technology seamlessly integrates comprehensive weather and environmental data, turbine specifications, and obstacle information to provide you with accurate insights into every aspect of your wind project such as wind resource assessments and yield calculations, including turbulence, (far) wakes, blockage and wind farm cluster effects. These insights are available through Whiffle Wind, a web application for running high-resolution (100m) simulations and resource assessments, Whiffle Atlas, a long-term representative, meso scale dataset (2km) that helps reduce uncertainty in early-stage project screening and benchmarking, or via our bespoke consultancy services, providing flexibility and expert support tailored to your project's needs.



For wind power forecasting (day ahead and intraday) our approach combines the power of our LES model with the latest advancements in artificial intelligence and machine learning to deliver precision in both day-ahead and intraday forecasting.

Our weather model runs on graphic processing units (GPUs), allowing large areas and high resolutions to capture local turbulence and underlying processes and conditions in the atmosphere. Our technology delivers benefits in many economic sectors, but our primary focus is on the renewable energy market (wind and solar energy), making sustainable energy production more predictable and reducing the costs of weather risks.

WhisperRing (Mega Windforce)

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Oceans of Energy is a pioneering company and global leader in offshore solar energy. Founded in 2016, it developed a unique floating solar foundation designed to withstand harsh offshore conditions. In 2019, the company installed the world's first offshore solar farm in high-wave conditions off the coast of The Hague, which has operated continuously for four years, enduring over ten winter storms in the North Sea.

The company supplies offshore solar systems typically sized at 50 or 200 MW (covering 0.25 to 1 km²), along with installation and 25-year operational services. It also provides engineering and ecological research services for offshore renewables and marine industries.

Oceans of Energy addresses the challenge of limited coastal space for renewable energy by offering offshore solar solutions that are invisible from shore, suitable for any sea conditions, and compatible with



offshore wind farms. When integrated into wind farms, offshore solar can use less than 5% of the area to generate over 40% additional energy annually using the same infrastructure. It can also operate as a standalone system near the coast without visual impact.

In 2023, the company signed its first commercial contract with CrossWind (a Shell and Eneco joint venture) for the Hollandse Kust Noord offshore wind site. Engineering, permitting, and fabrication were completed, and offshore installation began in April 2025. Oceans of Energy also leads ecological research and nature-enhancing initiatives, supported by programs such as RVO, MIT-Zuid-Holland, REACT-EU, INTERREG, and Horizon 2020.

WIND Subsea Cable Services

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WIND is a global leader in subsea cable logistics, recovery, and offshore services. Since its founding in 1991 as a cargo ship owner and operator, WIND has built on decades of maritime expertise to provide innovative and cost-effective cable handling solutions for subsea cable manufacturers, installation companies, marine contractors, and utility providers.

Our unique strength lies in combining a robust shipping network with specialist subsea cable knowledge. We operate worldwide cable storage yards, deploy advanced equipment, and train skilled crews to deliver efficient, reliable, and safe operations. With a large pool of in-house cable handling equipment and the ability to source additional specialized gear through our global network, WIND offers maximum flexibility for every project. We serve both the offshore wind energy market and subsea telecommunications industry, supporting the full lifecycle of cable logistics,

installation, maintenance, and recovery. Services range from cable transport, recovery, and maintenance to custom-engineered storage solutions and vessel conversions equipped with specialized handling systems.

Sustainability and innovation are at the heart of our operations. Through WINDUniversity, we train local teams and promote best practices in offshore wind energy. Our cable recovery projects, carried out in line with ICPC regulations, provide major environmental benefits by recycling defunct subsea cables into high-quality metals and plastics. Operating as an extension of our clients' teams, WIND ensures flexibility, short communication lines, and rapid mobilization capabilities. WIND is the full-service solutions provider for transport, handling, and storage of subsea cables worldwide.

Z-Bridge B.V. Bring-to-Work system

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"Right-Sizing Offshore Access with Z-Bridge" Discover Z-Bridge's innovative "Bring-to-Work" Offshore Access System, designed to enhance operational flexibility while significantly reducing costs in the offshore industry.

The Bring-to-Work system features a state-of-the-art telescopic arm mounted on a fully motion-compensated pedestal. It accommodates flexible landing heights from 8 to 21 meters above the deck, while eliminating the need for heavy and expensive pedestals. The Bring-to-Work system efficiently transfers teams up to 6 persons or 1000 kg of cargo using a trolley driven up and down on the telescopic arm. For larger or heavier items, our integrated crane can lift loads up to 3000 kg, providing a crane functionality for lifting materials both on the vessels deck and to and from offshore structure.

Compact and versatile, the Bring-to-Work system is perfect for smaller vessels, unlocking new opportunities in the offshore access market at a competitive price point. It can also optimize deck space on larger vessels and maximizing its versatility (read: people and cargo transfer) in various types of projects. Z-Bridge has extensive international experience operating for well-known contractors on Heavy Lift Vessels, in the O&M market operating on (mini)-SOV's and in the support of cable installation projects. Our system has proven to be invaluable in these high-stake environments, where safety, reliability and efficiency are paramount. We offer flexible options for the Bring-to-Work system, available for project rental and long term lease allowing for seamless integration on any vessel. Its design facilitates 24hr quick mobilization by truck to any harbour, accommodating your operational planning.

Colofon

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Partners

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