



International Marine and Dredging Consultants S.A. (“IMDC”) was founded in Belgium in 1982. For 40 years IMDC provides, on a worldwide base, specialized, water-related engineering and consultancy services in the domain of inland waters, coasts, ports and estuaries as well as offshore, dredging and environment. Our highly qualified staff offers advice based on recent research results of leading universities and research institutes and hands-on experience acquired throughout the years.

One of IMDC’s core subjects is presented in this product sheet: Offshore Energy.

More information can be found on our website: [www.imdc.be](http://www.imdc.be)

## Offshore Energy

The Energy transition is a crucial enabler of a sustainable development by generating positive impact on the nature and on the society. Since the first offshore wind development in Belgium in 2000 and in Europe, IMDC has assisted project developers, transmission grid operators, national authorities, marine contractors and other consultants through the different phases – **from feasibility to sustainable decommissioning** - of their Offshore Energy projects

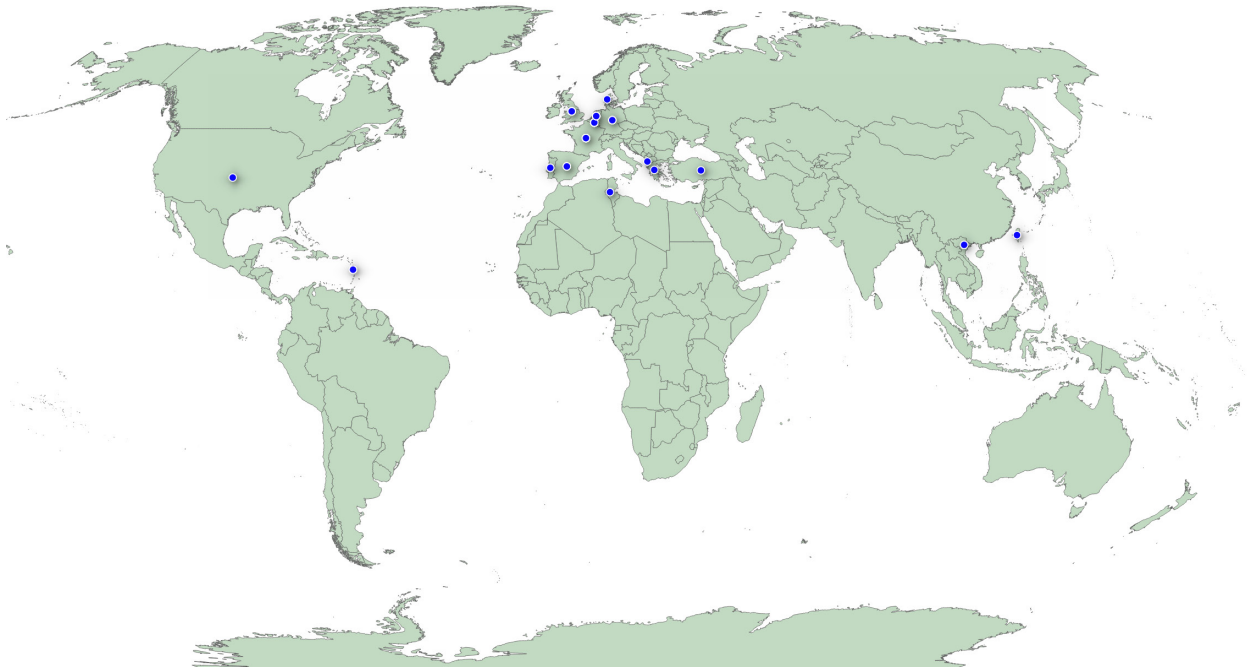
- Offshore wind – fixed & floating
- Subsea cables and interconnectors
- Wave and tidal energy
- Floating PV
- Ecosystem & multi-use of offshore space

IMDC has over **20 years’ experience** in offshore energy projects, contributing to the development of more than **25 GW** offshore energy and to the engineering and installation of more than **4,000 km** of subsea power cables.

A non-exhaustive list of IMDC’ clients is Elia Asset, National Grid, 50Hertz, RTE, Red Electrica, Engie, Elicio, Iberdrola, Oceans Wind, POM West-Vlaanderen, Shinfox Energy, TERAS, Fabricom/Equans, Smulders, Les Eoliennes en Mer, Terna energy, Cobrowind, Parkwind, C-Power, Belgian federal government, Otary, DEME, Jan de Nul, NKT, Prysmian, Storengy, Colruyt Group.

With its international and multidisciplinary expertise, as Owner’s Engineer and Marine Consultant, we can offer an integrated approach covering a wide range of aspects required during the different phases of the realisation of a project. Having worked in more than **20 countries** worldwide in offshore energy projects ensures that we have built knowledge and relationships with several local consultants and developers, and by understanding the needs and considering the social and environmental of such type of project.





IMDC worldwide experience in offshore energy

A non-exhaustive list of IMDC' competences, validated by project references are listed further in this brochure.

## Services

### Determination of site conditions: soil, water and wind

- Desktop and feasibility studies, site selection
- Basis of Design (geology and geotechnics, metocean and wind, weather workability and statistics...)
- Metocean and Hydrodynamics conditions
- Interpretation of geophysical and geotechnical data and set-up of ground models
- Seabed morphology and morphodynamics studies
- LCOE studies and project layout optimization studies
- Procurement, coordination and supervision of offshore geophysical, geotechnical, metocean and environmental surveys and desktop studies

### Environmental studies

- Environmental and Social Impact Assessments for all offshore works
- Nature Inclusive Design: engineering and consultancy
- Environmental monitoring (bird, water quality, flora and fauna ...)
- Plume and turbidity modelling
- Noise modelling
- Pollutant modelling
- Supervision of environmental management plan execution
- Macro & micro-plastics modelling
- Multi-use offshore and aquaculture





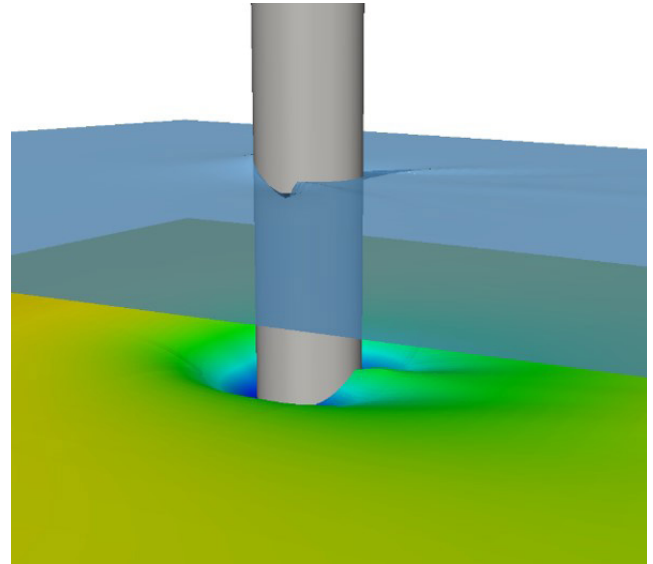
### Subsea cables and interconnectors – from feasibility to decommissioning

- Cable route and landfall selection
- Cable Landfall design
- Cable Burial Risk Assessment and Burial Assessment Techniques
- Seabed morphology and morphodynamics studies
- Marine navigation studies
- FEED method statements
- Mooring, cable dynamics and installation analysis (OrcaFlex)
- Preparation and coordination of EPCI tenders
- Offshore client reps and EPCI coordination
- Crossing and proximity agreements



### Scour assessment and protection

- Scour assessment
- Conceptual to detailed scour protection design
- Rock berm and crossing designs
- Coordination of physical model tests and results analysis
- Eco-scour design
- Installation coordination and supervision



### Procurement, Constructability and O&M

- Preparation and coordination of EPCI tenders
- Construction and site supervision
- Constructability review assessment
- CFD analysis: load-out and transportation
- Weather downtime, workability and forecasts analysis
- O&M plans and consultancy on monitoring and maintenance activities

### Artificial Islands - from feasibility to O&M

- Concept and tender design inclusive of all modelling studies
- Subsea cables interface
- Interface management
- Preparation and coordination of EPCI and construction

### Wave and Tidal energy

- From feasibility to pilot projects
- Wave / tidal resource assessment and energy production
- CFD modelling: turbine optimization and energy production
- Coordination of physical model tests and results analysis

### Circular design & sustainable decommissioning

- Repowering strategies
- Environmental and circular indicators
- sustainable decommissioning plan and material passport



Source: Blade Made Blade Made | RE-USE.EU

# Key references

## Owner's engineering and marine consultant for Offshore wind farms and Transmission Grid Operators (2005-ongoing)

Belgium, France, Taiwan, Germany, Spain Vietnam ...  
Client: various

From early 2006, IMDC has acted as Owner Engineering and marine consultancy for inter-array / export subsea cables and for Offshore Substation work packages for various offshore energy project: C-Power Thorntonbank, OWF Le Tréport and Noirmoutier, Soc Trang OWF, SeaMade OWF Changua phase II OWF, Modular Offshore Grid I and II. IMDC has supports its clients with deksoto studies and layout, preparing / coordinating site investigations, tender and FEED designs, procurement and coordinating of EPCI phase.

### Sustainable Development Goals



## Scour protection design for offshore substation Alpha of the Hollandse Kust West wind farm zone and the platform of the Hollandse Kust Noord (2020-ongoing)

The Netherlands  
Client: JV Iemants / Equans

IMDC is assisting the Joint-Venture of Iemants and Equans since 2019 by providing tender scour protection designs for three jacket offshore substations for the wind farms Hollandse Kust Noord and Hollandse Kust West and supporting the tender process for the rock installation sub-contractor. Consecutively, IMDC prepared the detailed scour protection design for the offshore substations Hollandse Kust Noord and Hollandse Kust West Alpha. During the rock installation phase, IMDC assisted as client representative. IMDC provides support on technical interfaces such as the export cables.

### Sustainable Development Goals



## Bird monitoring at Neart na Gaoithe OFW (2021-ongoing)

Scotland  
Client: STRIX

IMDC is supporting STRIX to design, install, and maintain a bird monitoring system at the Neart na Gaoithe Offshore Wind Farm in Scotland. This monitoring campaign consists of an #innovative collision detection and bird-tracker system by using radars and cameras with the aim to study avoidance-behaviour and barrier effects in offshore wind farms. The collected and modelled data will be visualized in Synapps, a web application developed by IMDC.

### Sustainable Development Goals



## WindFloat Atlantic (2018-2022)

Portugal  
Client: Ocean Winds

IMDC is supporting the **WindFloat Atlantic** project since 2018. The three wind turbines with an installed capacity of 25 MW, are mounted on floating platforms anchored to the seabed designed by Principal Power. The tasks of IMDC included coordination management during the construction phase, support during commissioning and coordination of the operations and maintenance activities.

### Sustainable Development Goals



## Ocean Energy resource assessment (2020-ongoing)

The North Sea  
Client: confidential

IMDC developed a **Weather Downtime (WDT)** and **Metoccean Data Resources** tool to assess site conditions for offshore windfarms worldwide. The webservice tool allows to quickly calculate high-level monthly and yearly discrete WDT and key Metoccean figures (waves, wind) for offshore wind installation activities based on a given wind or wave threshold. Next to this, the tool has been upgraded with **ocean energy (wave and tidal) resource assessment** by several ocean energy technologies.

### Sustainable Development Goals



## Innovation projects at IMDC (2019-ongoing)

Belgium  
Client: various

IMDC is strongly engaged in research and development initiatives, via both internal innovation calls and national / European buds, related to scour protection, subsea cables and offshore energy. Innovative projects such as:

- Wave Energy Converters in Port infrastructure Se@ ports (a project with the support of H2020),
- Blue Energy Resource Assessment BluERA - project with the support of VLAIO and Blauwe Cluster
- Monitoring of offshore power cables and foundations by Distributed Fibre Optic Sensing BOPTIC, - project with the support of VLAIO and Blauwe Cluster
- Bucket foundations for offshore wind turbines Pro-Bucket Project – project with the support of the German Federal Ministry for Economic Affairs and Climate Action (BMWK)
- Marine Ecosystem Performance Framework MEsP, represent the present and the future of the Blue energy industry - project with the support of VLAIO and Blauwe Cluster

represent the present and the future of the Offshore energy industry.

### Sustainable Development Goals



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