Q-Connect – quick connection & release systems

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Quoceant

Engineering Consultancy & Innovation Specialists.

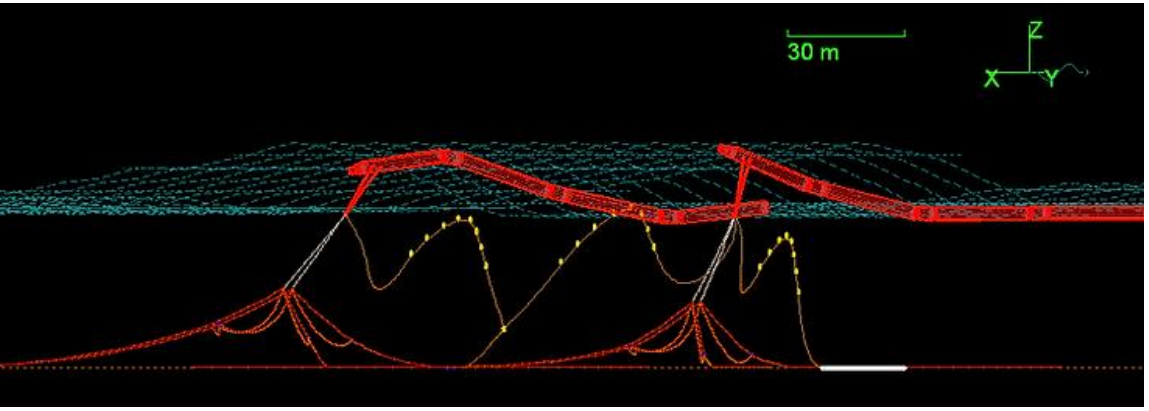
- 9-year track record working with a range clients and technologies
- Team of 14. Multi-disciplinary engineering expertise
- 20+ year track record with offshore mooring & cable connection systems

OW OCEAN WINDS
ORBITAL MARINE POWER
wave energy SCOTLAND
SynchroStor The Future of Long Duration Energy Storage
sequentec
INYANGA marine projects
AWS
Camper & Nicholsons International YACHTING SINCE 1782
Minesto
ANDRITZ Hydro
Carnegie CLEAN ENERGY
Danfoss
CATAPULT Offshore Renewable Energy
MARINE POWER SYSTEMS
MORAY EAST OFFSHORE WINDFARM
3D AT DEPTH
EMEC THE EUROPEAN MARINE ENERGY CENTRE LTD

Background

Practitioner's Perspective…

- Founders have decades of experience from wave energy
- Large floating structures, moorings, dynamic cables
- **Technology development** – concept through to detail design.
- **Manufacturing** – steel fabrication, assembly, qualification testing
- **Marine operations** – towing, installation, quick connection systems



Offshore wind – now over 50% of turnover

Engineering Design & Support:

Our team are experts in marine structures.

We are experienced in designing to offshore codes and structures through each design stage.

- Primary and secondary structures
- Temp. works equipment & tooling
- Transition piece design
- Fatigue & wear analysis
- Linear and non-linear FEA
- Fabrication drawings
- Owner's engineer/Client representative
- Design review

"I've found the team to be highly knowledgeable in structural analysis and design. Responsive, professional and open - they have been straightforward to work with." – **Ocean Winds**

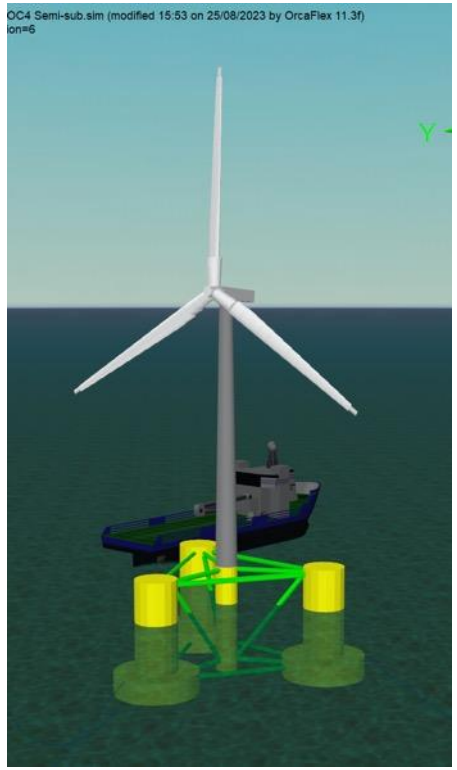
Photos: Courtesy of Ocean Winds

Offshore Wind Services

Marine Operations Support:

Quoceant have extensive design and practical experience across a range of offshore technologies. We understand the interactions between cost of offshore operations, weather limits, and availability – and how to design operations and supporting equipment to manage risks and minimise overall costs.

- Storyboard and concept evaluation
- OrcaFlex simulation
- Cost-benefit modelling of O&M strategies
- Marine connector design
- Temporary tooling design for installation



"Quoceant has a long history of working in marine renewables and have developed a skill set well suited to support the engineering advancements needed for floating offshore wind" – **Marine Power Systems**

Project Experience

Ocean Winds: Moray West Offshore Wind Farm

Work Scope:

- Design of temporary steel work structures for installation
- General, third-party engineering support and analysis to the monopiles and transition pieces.

Project Summary:

Quoceant are providing engineering support to Ocean Winds Moray Firth fixed wind project.

- Ocean Winds are a 50:50 JV with EDP Renewables and ENGIE
- Each turbine is 14.7MW and the project has some of the largest monopiles ever used.
- Work follows Quoceant's previous support to Moray East Offshore Wind Farm which is now operational.

OW
OCEAN WINDS

Project Experience

Minesto Tidal Power: Quick Connector System (QCS)

QCS deployed in the Faroes Isles in 2020. Second unit manufactured & installed the following year

Minesto

Work scope:

- Concept through to detailed design
- Procurement, qualification testing
- Build and operational support

Project Summary:

Design, procurement, assembly and test of subsea quick connection system for Minesto's tidal kite technology.

The system designed is:

- Seabed mounted
- Dual mechanical and electrical connection
- Capable of repeated connection and disconnection
- Quick operation, no divers or ROVs

Minesto

Leading Innovation in Connection Systems for 2 Decades

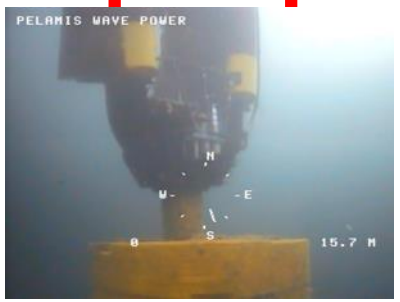
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021

1st Pelamis Install

1st generation Pelamis QCS

2nd gen Pelamis QCS

3rd gen Pelamis QCS



>50 successful install remove cycles with new-gen Pelamis QCS

ANDRITZ elec. con. system developed

Minesto QCS Systems #1 & #2

Q-CONNECT FOW

FOW Q-Connect Concept Dev.

OWGP Project

2022 2023 2024 2025

Q-Connect Project Start

Completes qualification tests at full scale

1st Commercial orders in the pipeline

Q-CONNECT WAVE & TIDAL

wave energy SCOTLAND

Approval in Principle

APPROVED

Q-CONNECT

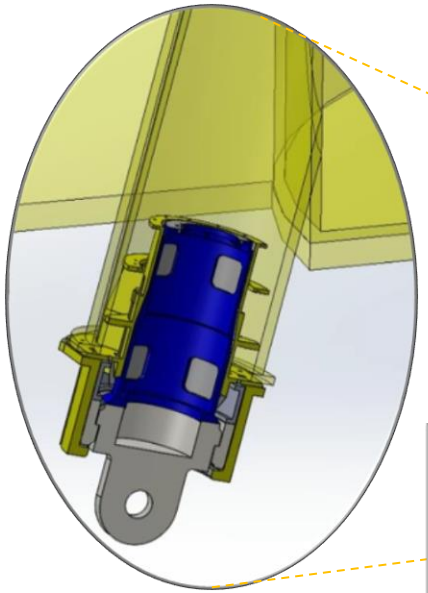
Mooring & Electrical Quick Connection System

- Culmination of 25 years of real, at sea experience
- Provides fast connection and disconnection
- Initial product for wave & tidal sectors @ 600t 6.6kV
- Patent pending and IP owned by Quoceant

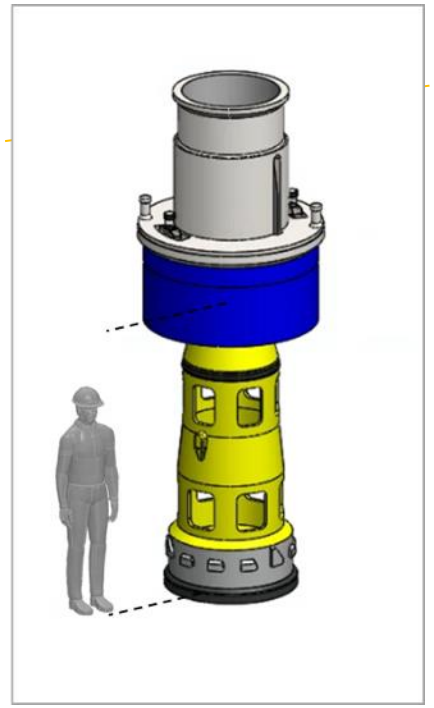
OWGP Project – Upscale & Uprate for FOW

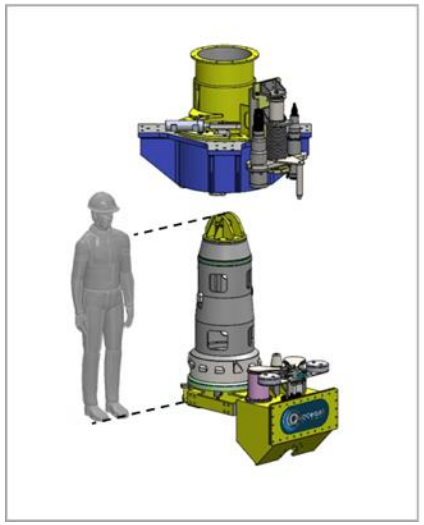
- Separate the mooring and electrical connection functionality
- Adapt and uprate the mechanical system for larger FOW mooring loads 2500 – 5000t MBL
- Redesign the electrical QCS to include 66kV wet-mates & FOW project architectures
- Prepare plans for qualifying key elements ahead of demonstration project

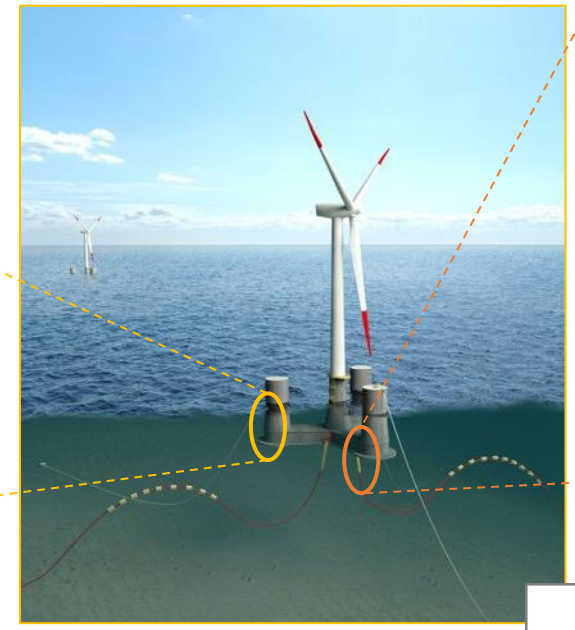
Q-Connect for Floating Offshore Wind

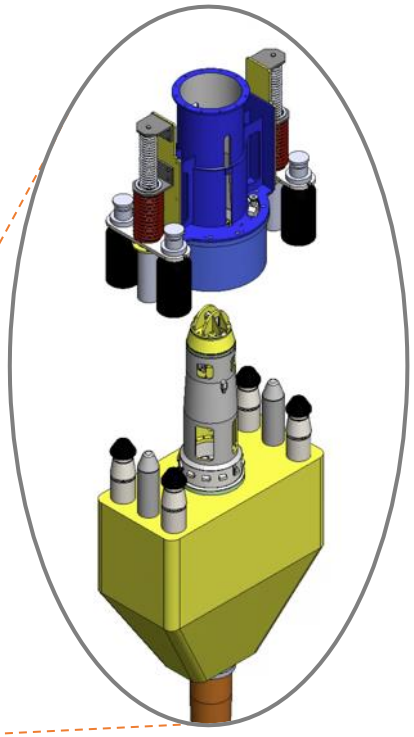


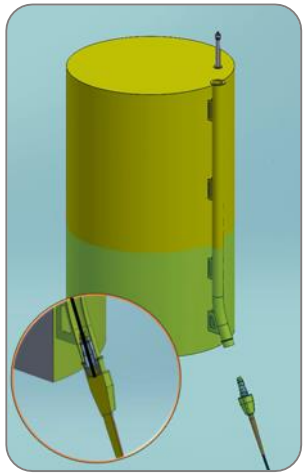
Moorings



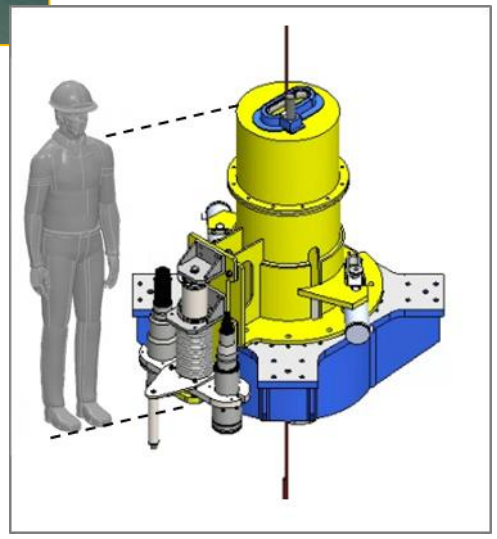


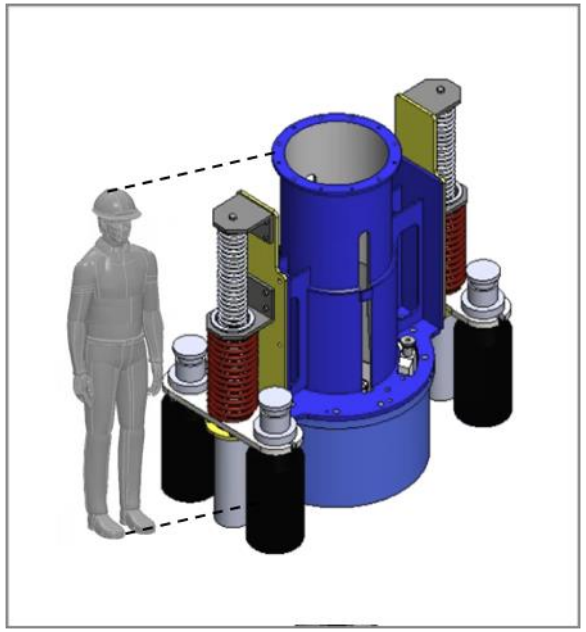






Cables





Opportunities to work together

Q-Connect FOW

- Quoceant has secured a OWGP grant to fund the next stage of Q-Connect for FOW.
- Currently looking for developer and supply chain input and data to support our design process.
- Longer-term we are seeking partners for development and demonstration.

General Floating & Fixed Offshore Wind

- Independent review
- Technology innovation & evaluation
- R&D support – experts in design, analysis and modelling
- FEED & general design support
- Operational planning & support

TEAM:

www.quoceant.com/team

PROJECTS:

www.quoceant.com/projects

LINKEDIN:

www.linkedin.com/company/quoceant-ltd/

Contact Us

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