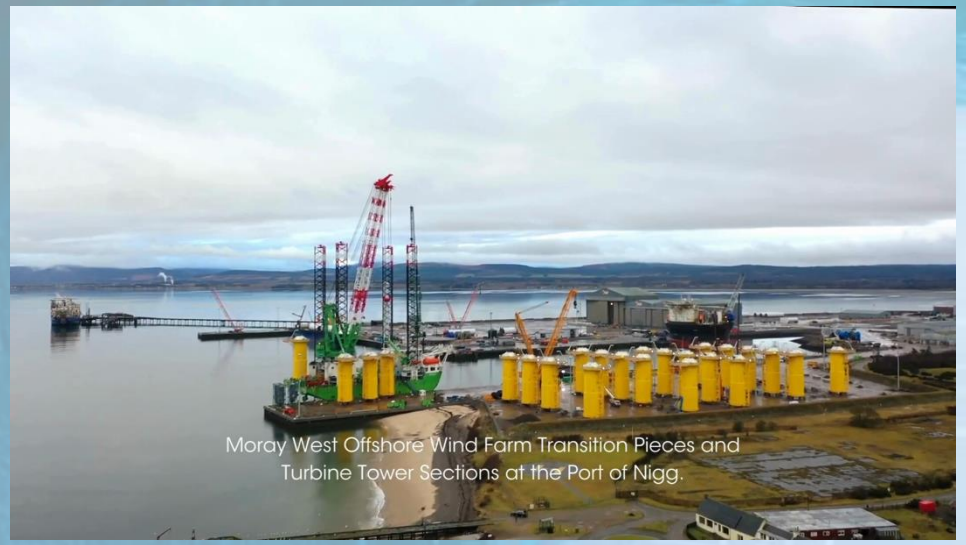
Going Deeper – The Opportunity: How FOW installs could be affected by weather less

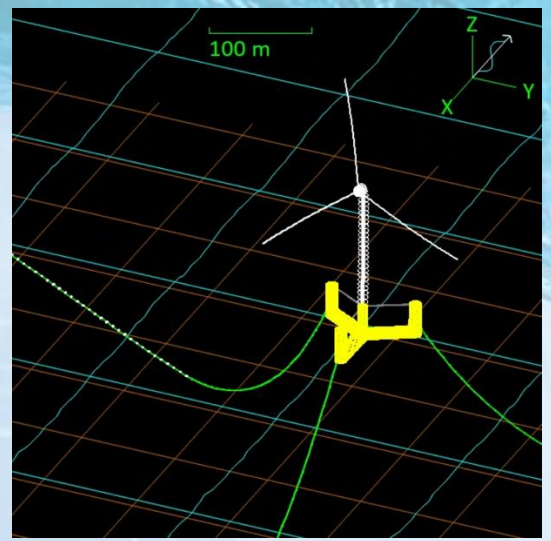
Beth Dickens

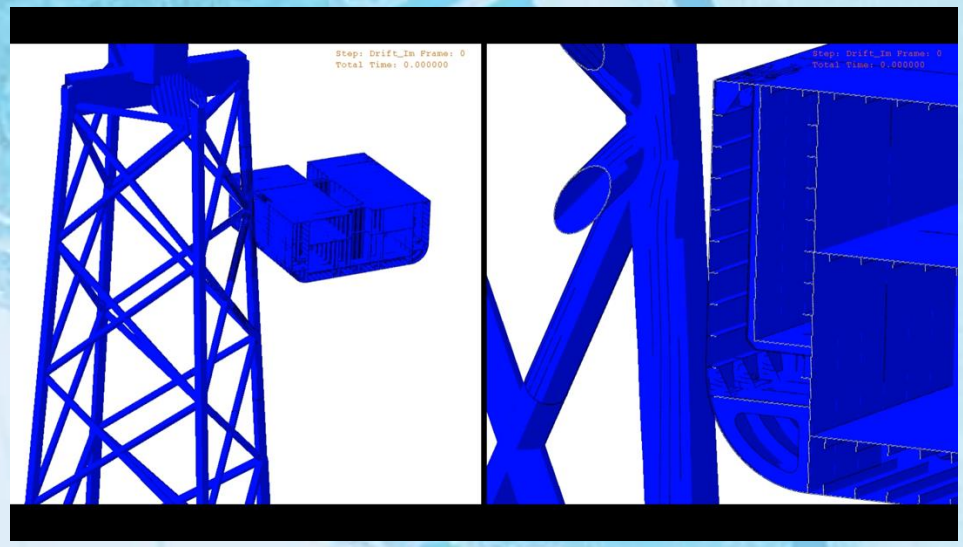
Foundation Ex - 2025

An Engineering Consultancy Delivering Innovation Offshore

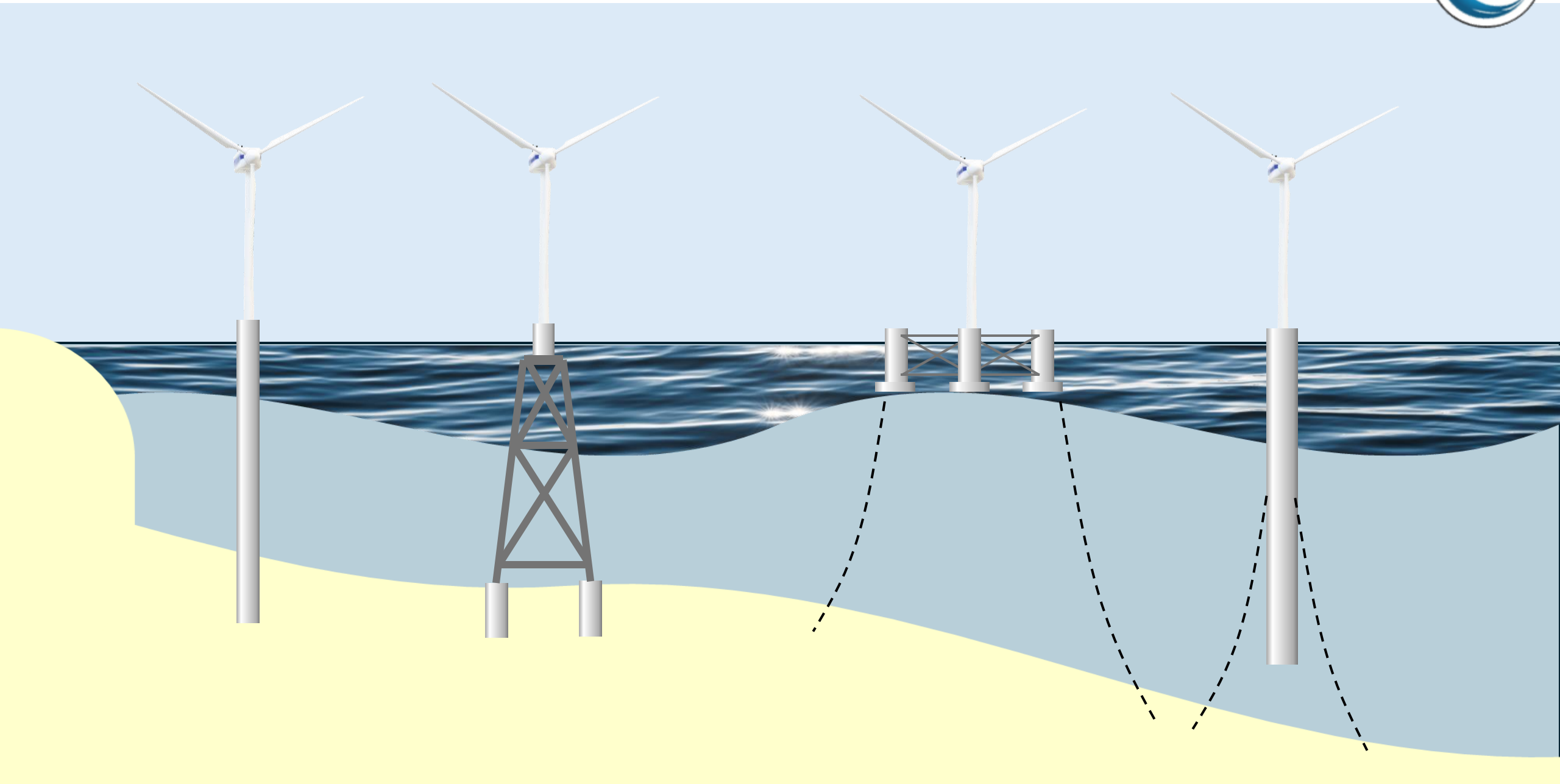
- Founded 10 years ago by engineers with world class credential in marine renewables
- Working in floating and fixed wind, wave and tidal energy, and energy storage.
- Developers of Q-Connect.



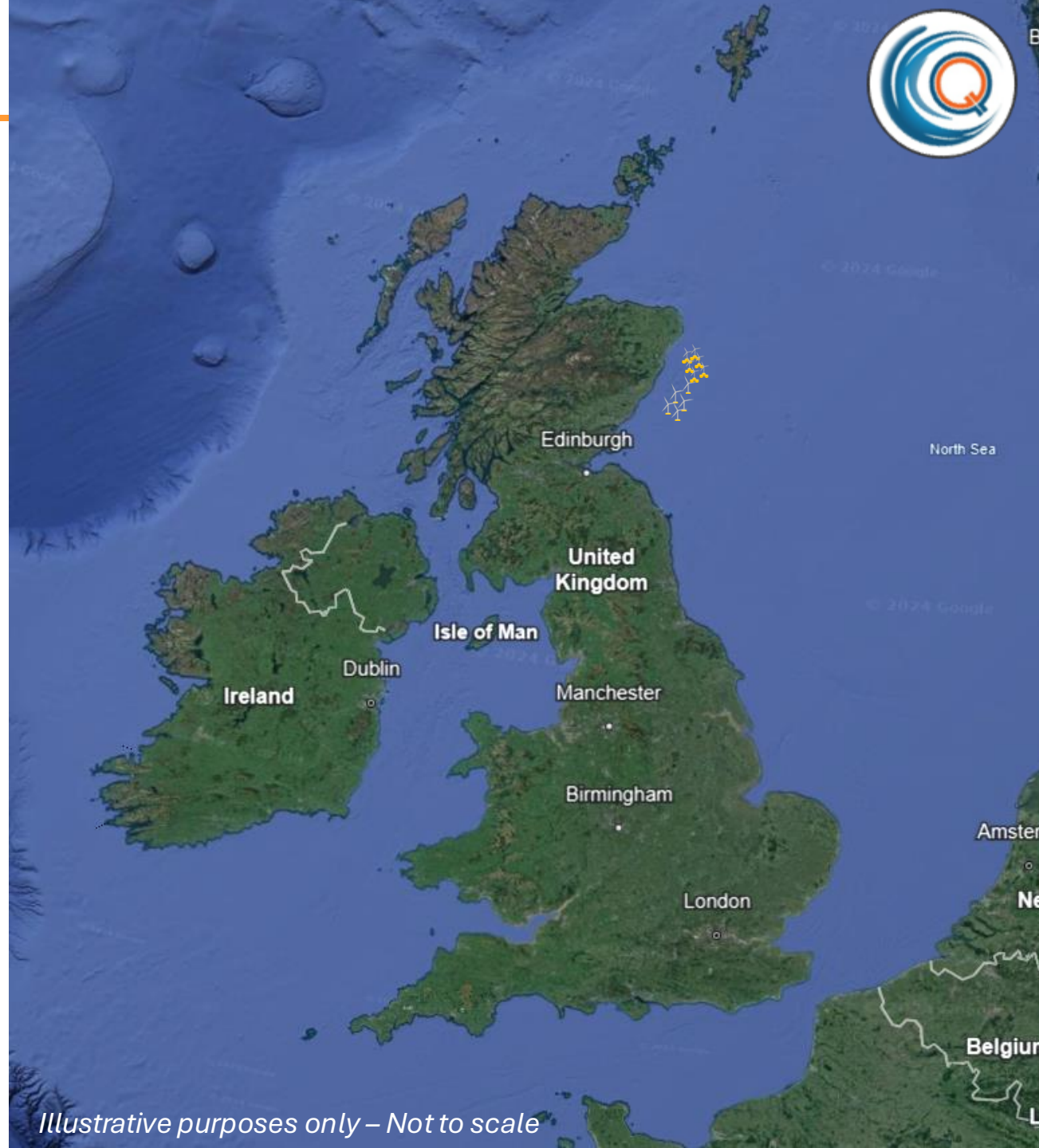




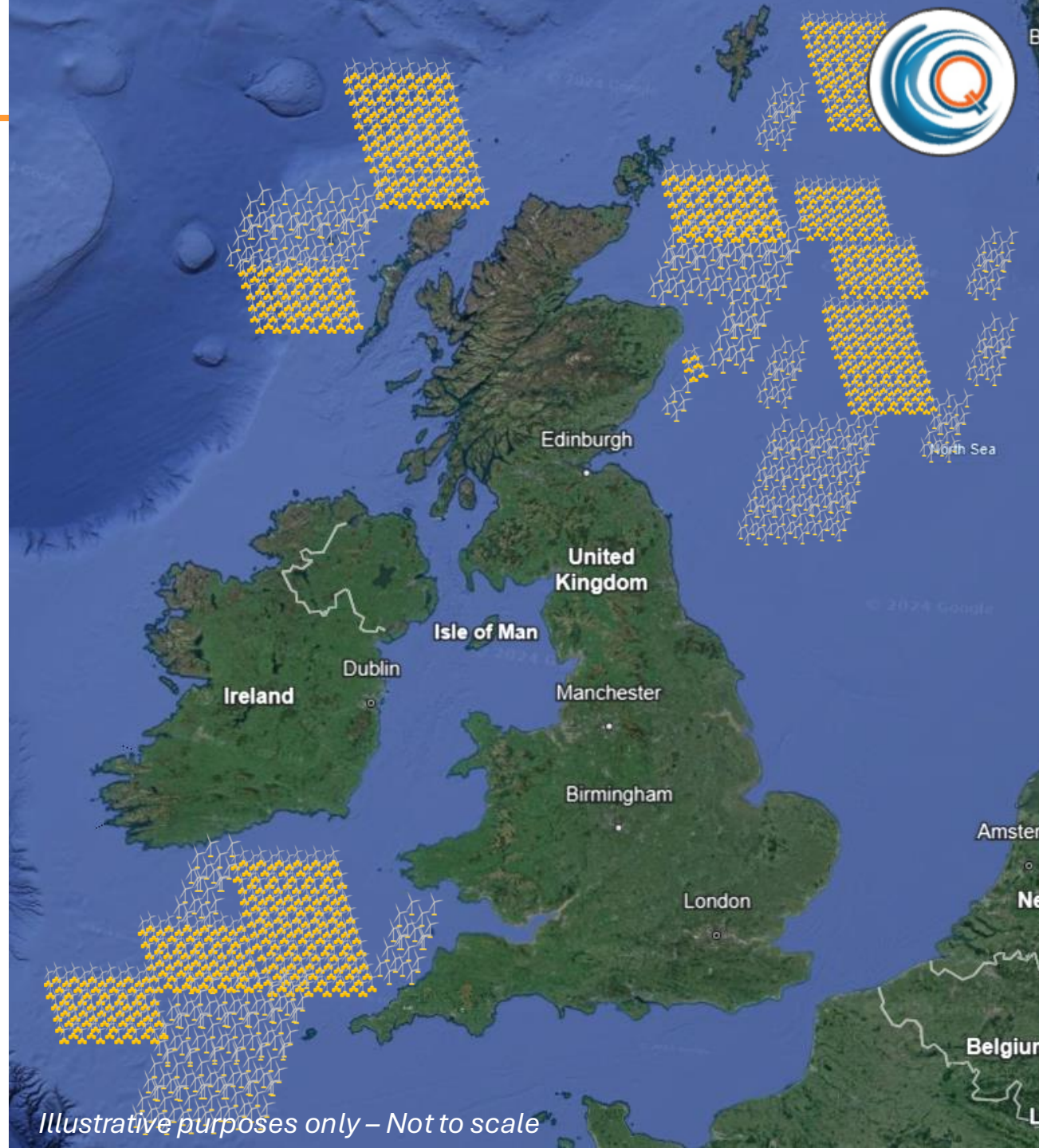
Going Deeper – A move to Floating Foundations



A Pioneering Industry



A Pioneering Industry



Illustrative purposes only – Not to scale

The Challenges

Vessel availability

Weather conditions

Financial pressures

Improved safety

Port infrastructure

The number of platforms

Challenge or **Opportunity?**

Floating Offshore Wind can choose a different way…

Reduced Vessel spec

Reduced weather constraints

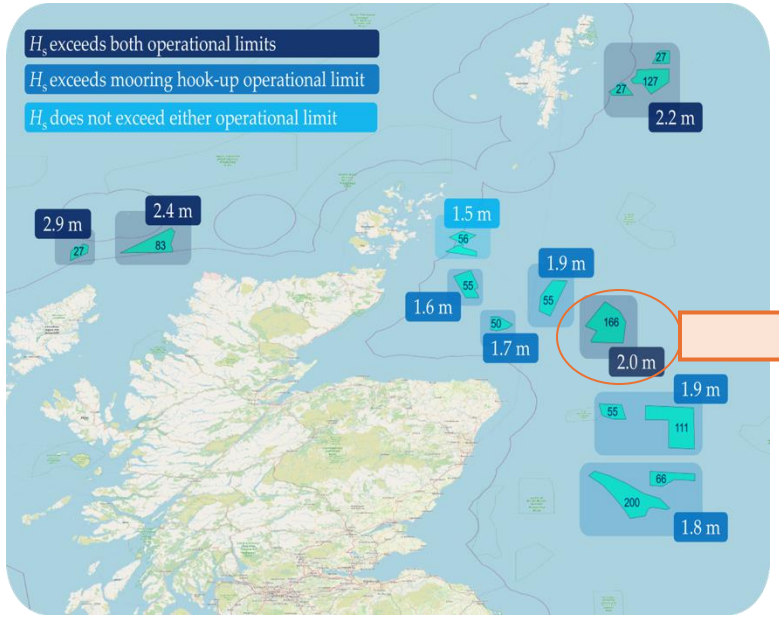
Improved economics

Operational safety

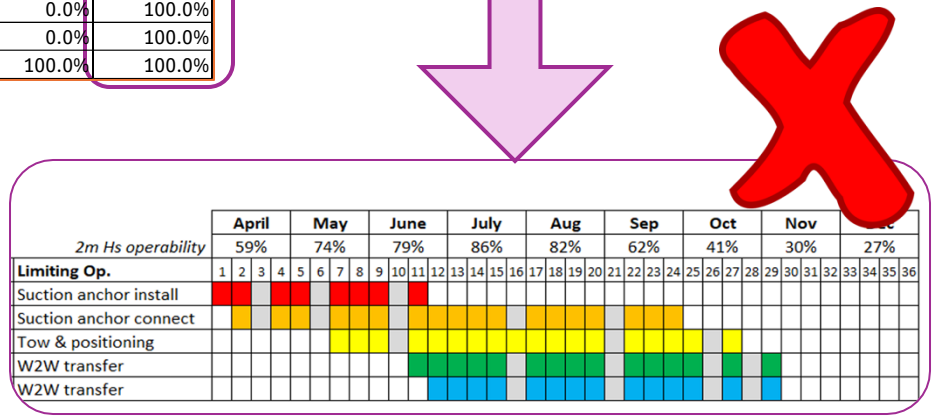
Speedier Installation

Tow to port

Understanding the Challenge



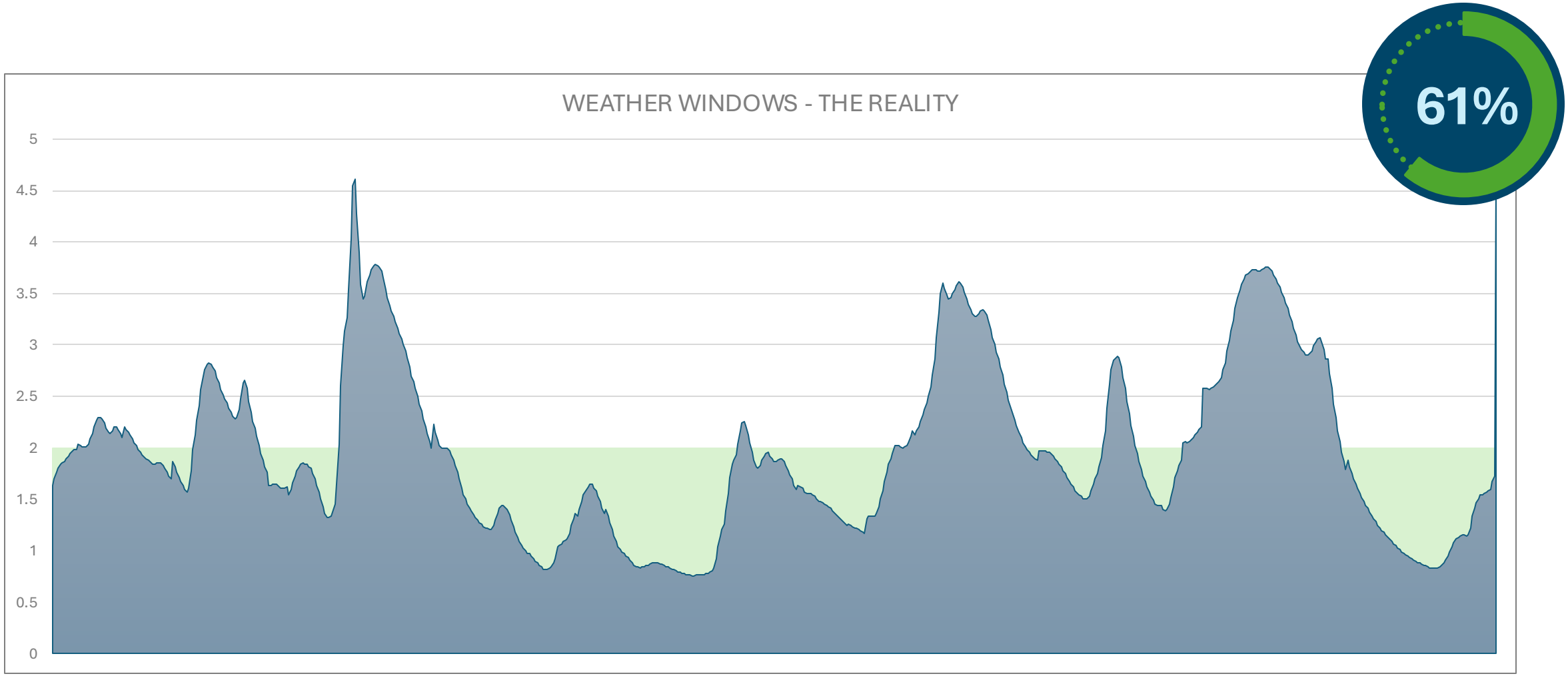
Hs	WindSpeed 0-5	5-10	10-15	15-20	20-25	Grand Total	Cumulative Total
0.25	1.6%	0.1%	0.0%	0.0%	0.0%	1.7%	1.7%
0.75	9.7%	8.1%	0.0%	0.0%	0.0%	17.9%	19.6%
1.25	5.9%	16.2%	0.5%	0.0%	0.0%	22.6%	42.2%
1.75	2.5%	12.3%	4.4%	0.0%	0.0%	19.2%	61.4%
2.25	0.9%	5.6%	7.2%	0.0%	0.0%	13.7%	75.1%
2.75	0.3%	2.1%	6.7%	0.1%	0.0%	9.2%	84.3%
3.25	0.1%	0.7%	4.8%	0.4%	0.0%	6.0%	90.3%
3.75	0.0%	0.2%	2.6%	1.0%	0.0%	3.9%	94.2%
4.25	0.0%	0.1%	1.1%	1.2%	0.0%	2.4%	96.6%
4.75	0.0%	0.0%	0.4%	1.0%	0.0%	1.5%	98.0%
5.25	0.0%	0.0%	0.1%	0.7%	0.0%	0.8%	98.9%
5.75	0.0%	0.0%	0.0%	0.4%	0.0%	0.5%	99.3%
6.25	0.0%	0.0%	0.0%	0.2%	0.0%	0.3%	99.6%
6.75	0.0%	0.0%	0.0%	0.2%	0.0%	0.2%	99.8%
7.25	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	99.9%
7.75	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	100.0%
8.25	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
8.75	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grand Total	21.0%	45.5%	27.9%	5.3%	0.2%	100.0%	100.0%



Quantifying Downtime: avoiding the simple trap that catches many people out…

Simple downtime estimates based on occurrences lead to grossly inaccurate results – they can be factors of 2-3 out! a

Weather Windows – The Reality



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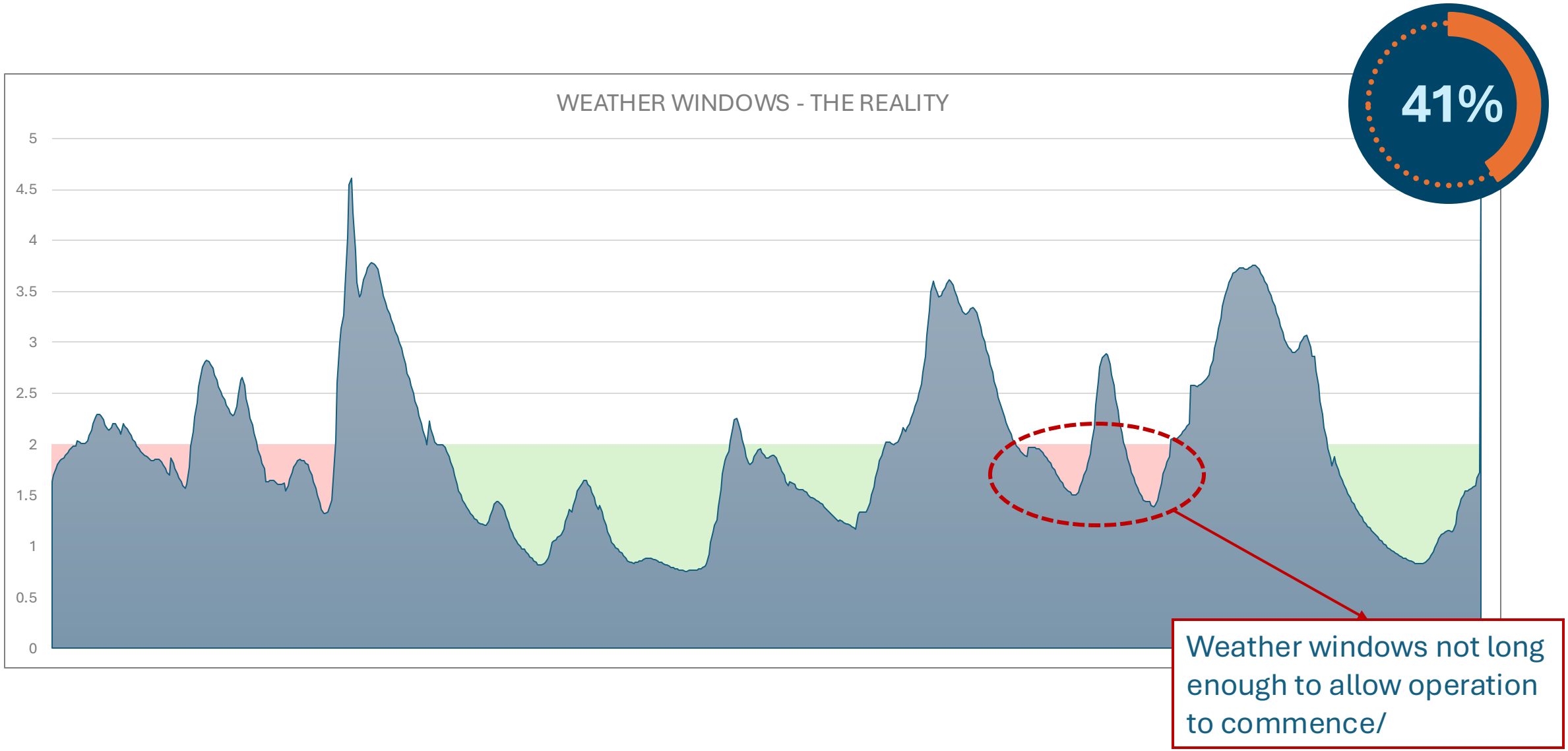

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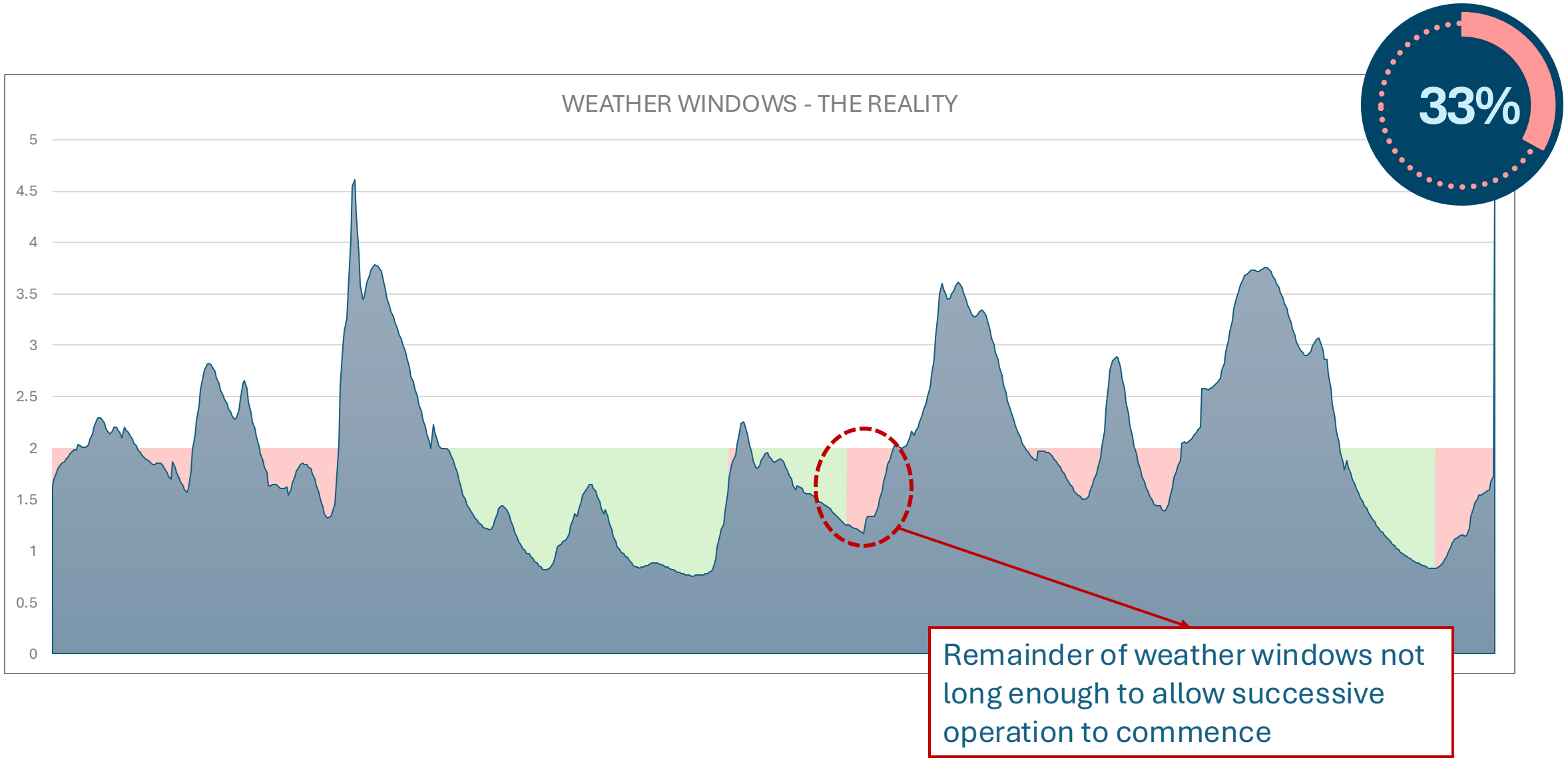


Understanding the Challenge... Properly

Metocean conditions (30yrs ERA5 data)

Ops sequence

Weather limits (per ops 'block')

Turbine numbers & locations

Site & Port locations & tow routes

ForeCoast® Marine

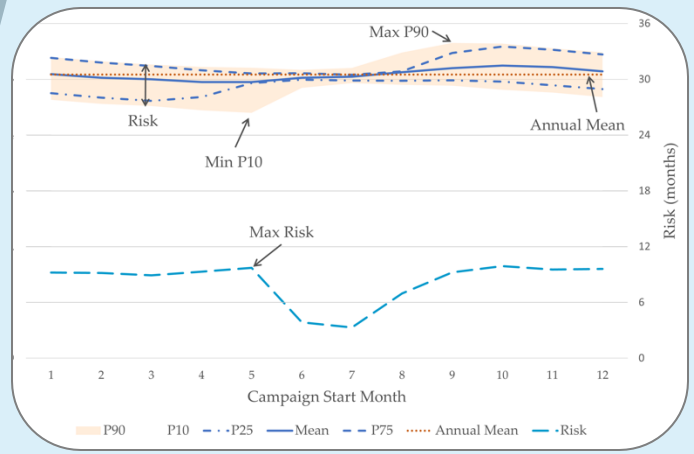
Total duration

Weather downtime

Vessel usage

Turbine install rate

Schedule risk



The Challenge - Quantified

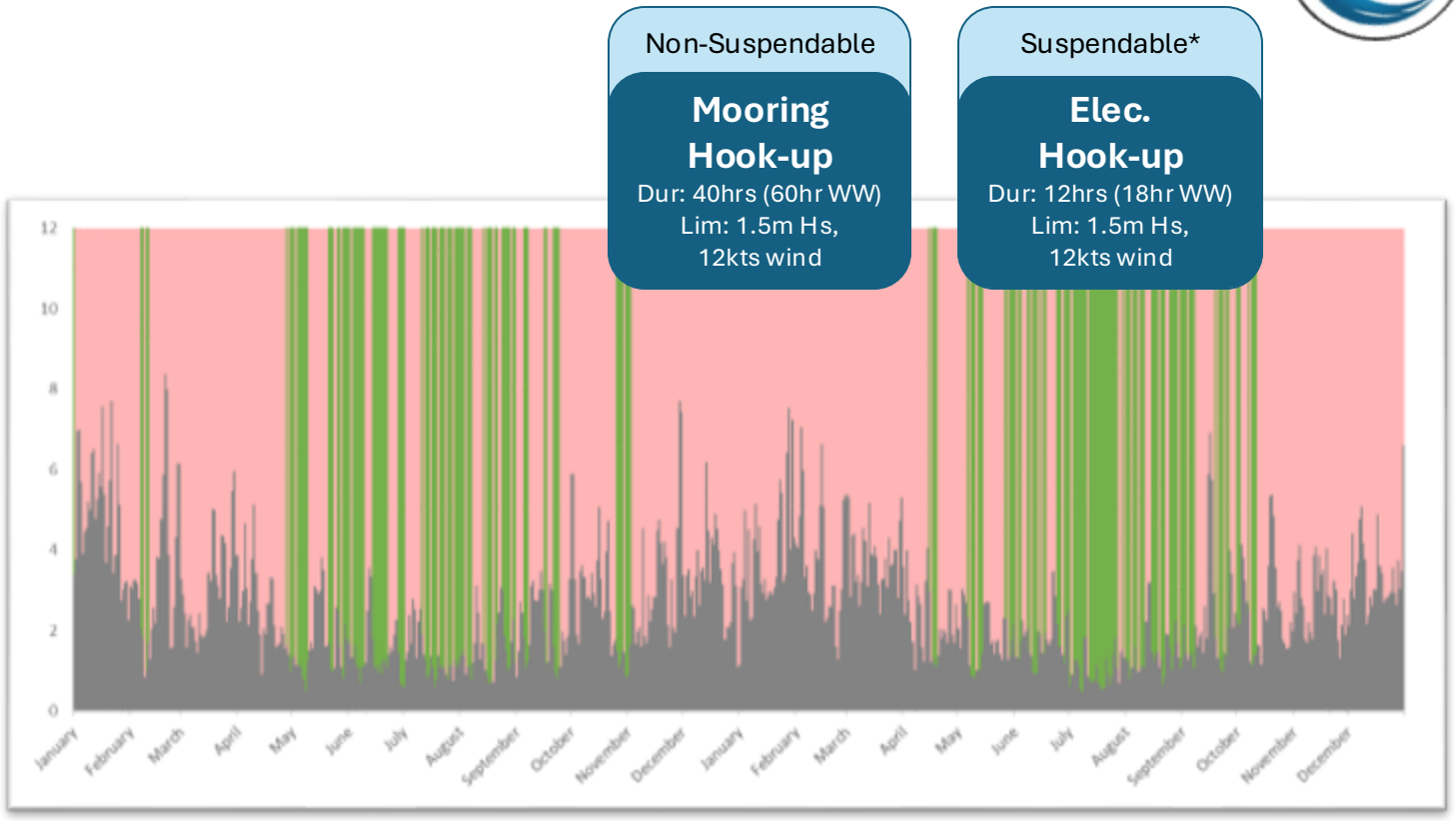
Total Duration = 5.1years

>20yrs vessel hire

72% downtime (274days/yr)

15days avg. per platform

1yr risk (maximum)



25 platforms per year

The Opportunity – Quantified

Q-CONNECT

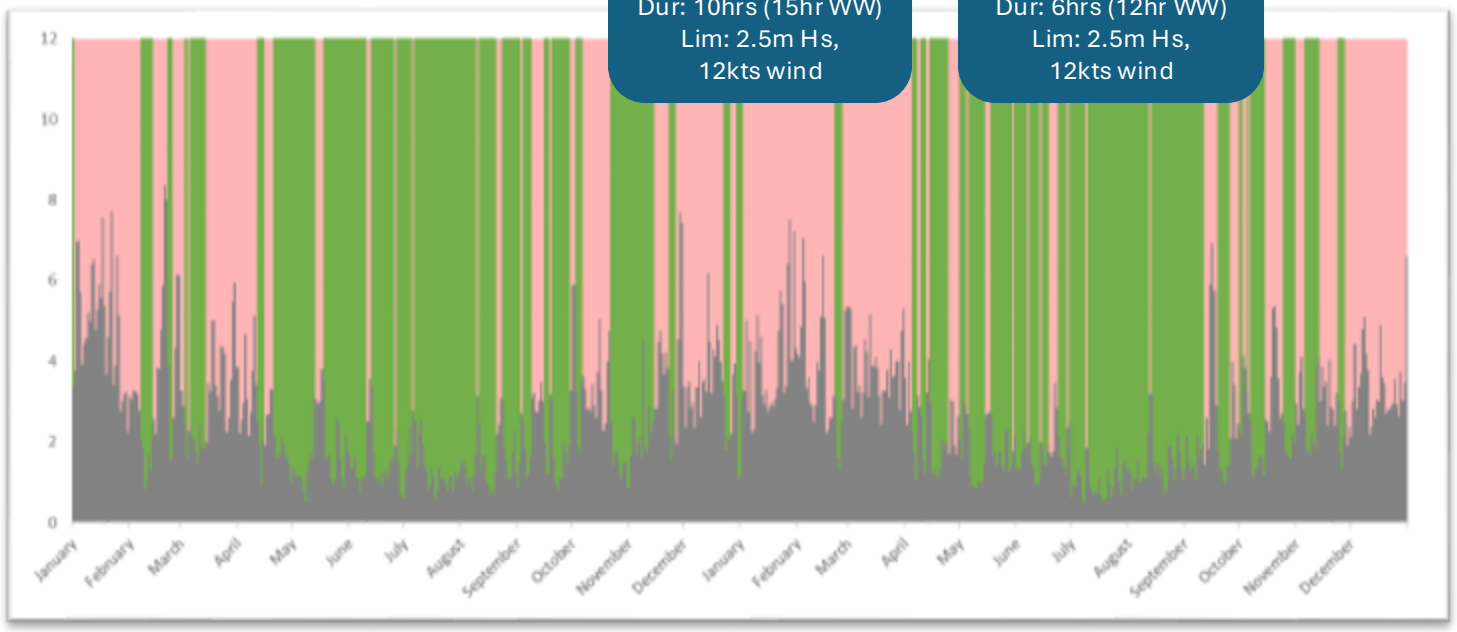
Total Duration = 2.1years

6.3yrs vessel hire

53% downtime (197days/yr)

6days avg. per platform

6months risk (maximum)

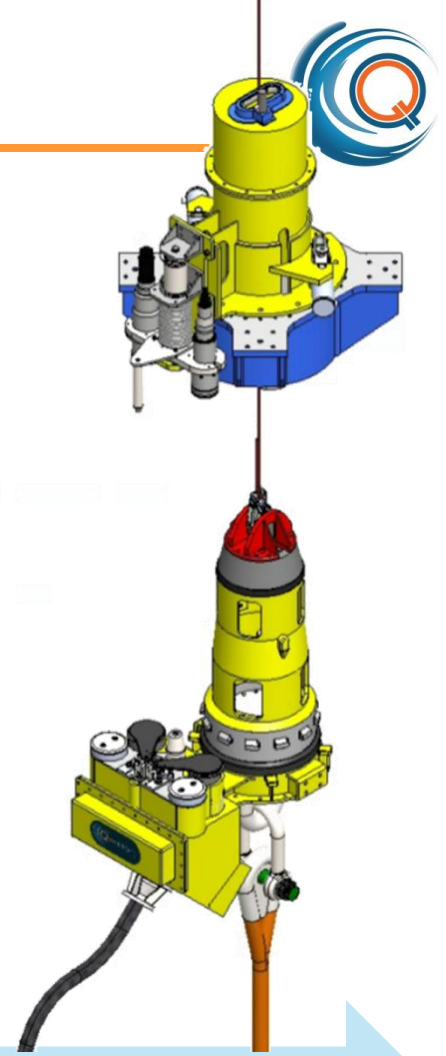


58 platforms per year

A Better World Exists!

A Better World Exists!

Campaign Duration	5.1years	2.1 years
Downtime	72%	53%
Vessel Hire Duration	20years	6.3 years
Schedule Risk	11 months	6 months
Platforms / year	25 per year	58 per year
Vessel Cost Estimate	£233million	£92million



Going Deeper – Quick Connections are achievable!

A Solution Born from Real-World Experience

Installation of a Pelamis

Pelamis Wave Power:

>80 successful install remove cycles with electro-mechanical quick connect

Full mooring and electrical connection in <30mins in up to 2.5m Hs

Minesto, Tidal Kite:

Commercial client – ordered 2 units

Lower down passive connection

Operational in Faroe Islands since 2020

Q-Connect prototype:

600Te / 6.6kV connection

Lloyds Register Statement of Feasibility awarded

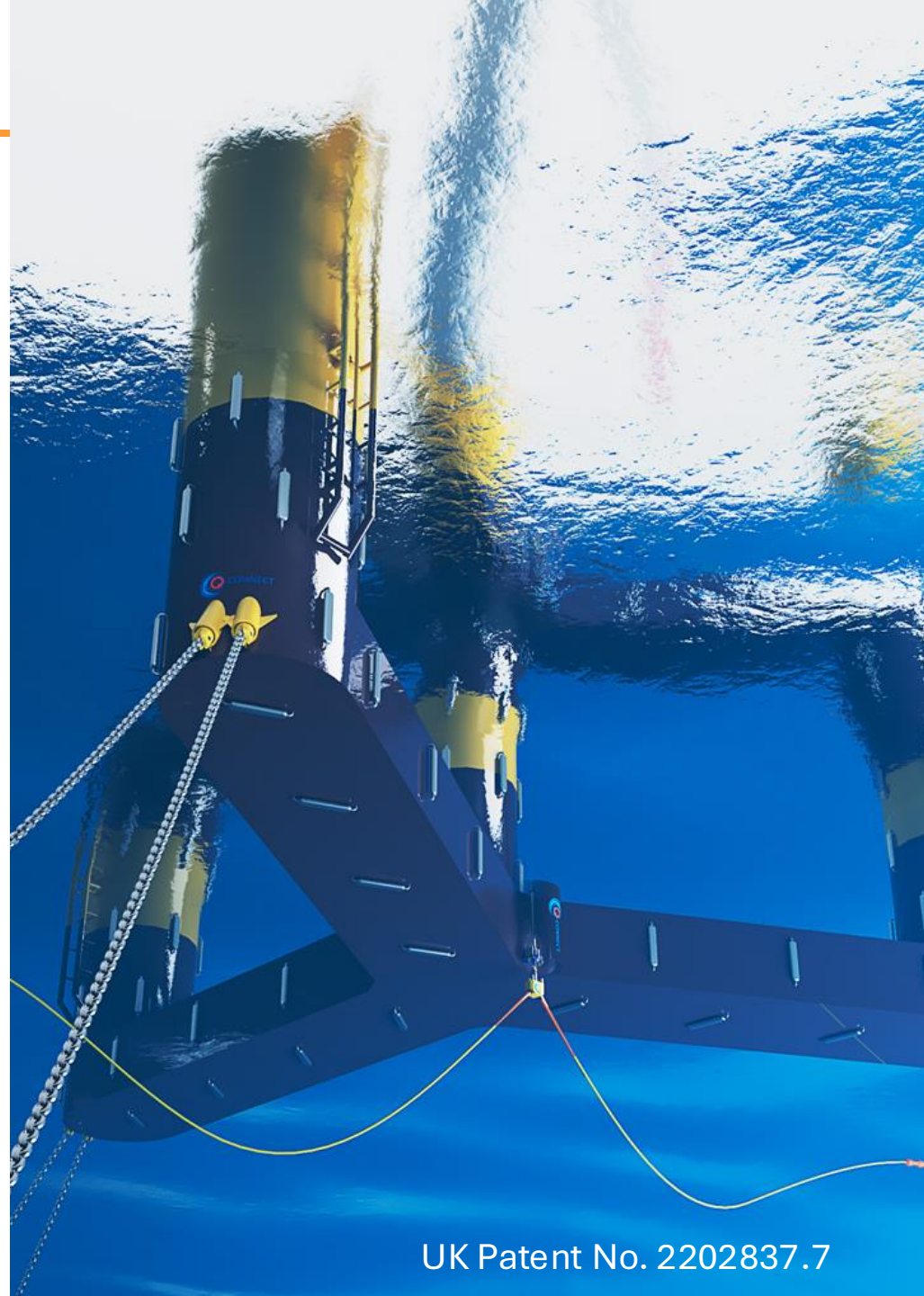
UK Patent granted, PCT underway

Q-CONNECT

Marine Quick Connection System

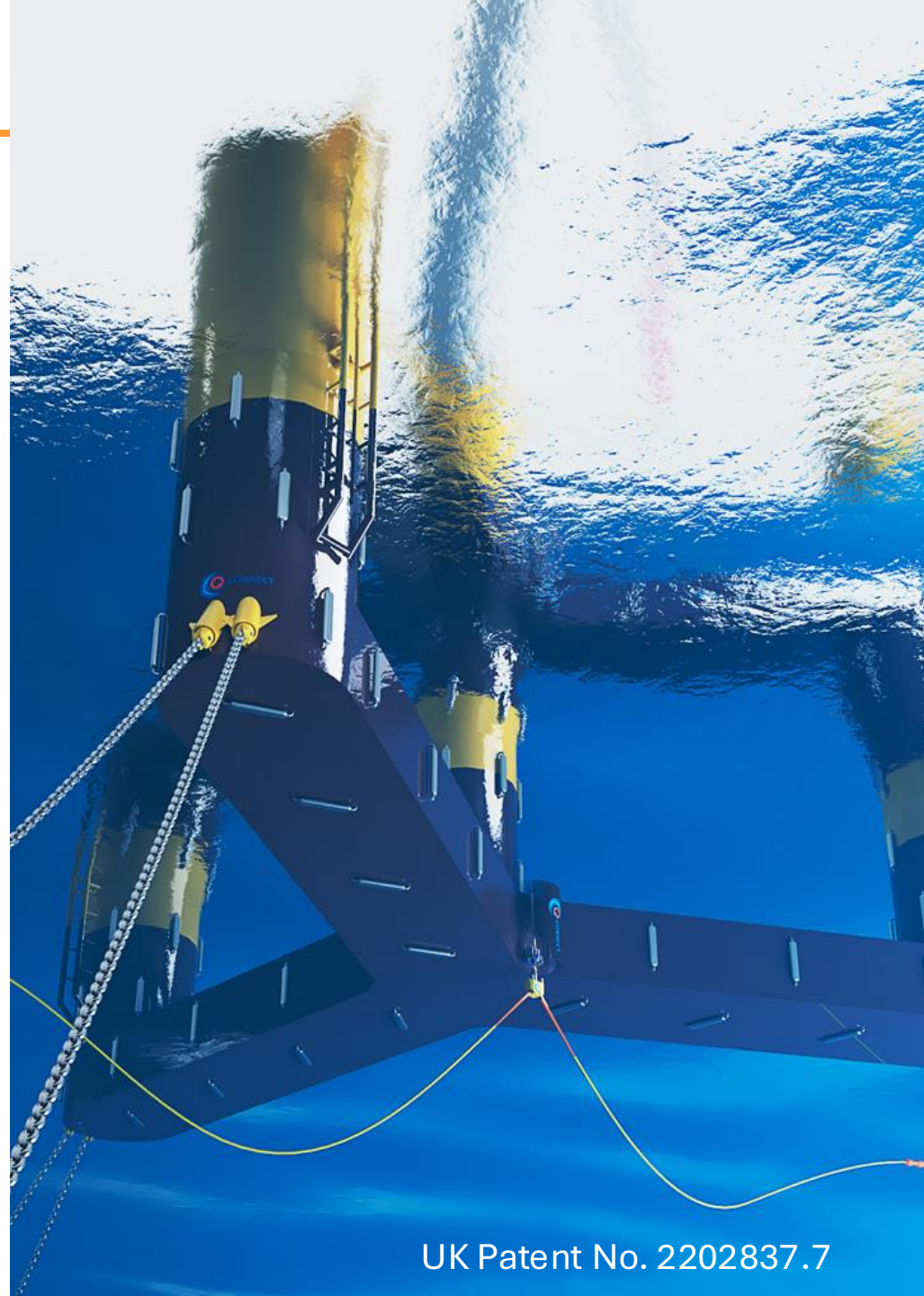
Provides rapid connection and disconnection. Developed for the wave sector, the technology is now being adapted for Floating Wind.

- Simple pull-to-connect
- No ROV or divers, minimal vessel requirements
- Wet-mates fully isolated from motion/vibration



UK Patent No. 2202837.7

Thank You



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