

AON

II OFFSHORE WIND CONGRESS

Risk and Insurance Strategy



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The Insurance Industry

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What is the Insurance Industry and how it works

The **insurance sector** provides financial protection against risk to individuals and businesses. This is, an insurance business agrees to take on risks on behalf of a company or individual, in exchange for a fee.

One of the pillars of the industry is the **Predictive, statistical modelling** basically means working out what will happen in the future by measuring and understanding as much as we possibly can about what has happened in the past.

An **insurance broker** is an intermediary who sells, solicits, or negotiates insurance on behalf of a client for compensation. Insurance broker does not take in any risk.

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Aon, Your Preferred Risk
Partner

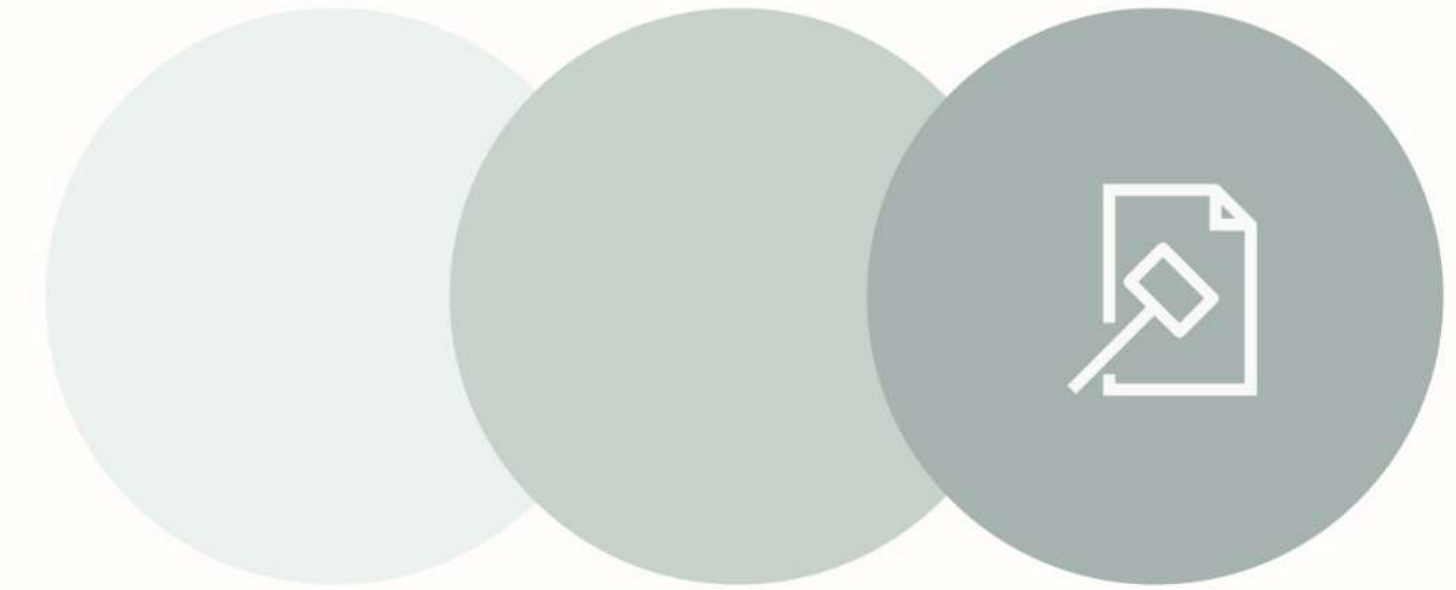
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Aon Offshore Wind

Leading

Offshore Wind Insurance Broker



>30,000MW
of offshore wind
project experience

Over 60
offshore wind projects
placed in operation or
under construction

Direct financed &
balance sheet
JV projects

Dedicated
offshore wind broking
team in the international
insurance market

In-house
risk engineering
specialists

**Dedicated
claims
specialists**

In-house
Industry contract
specialist

**USD450
million**
of claims recoveries

High diversity
of offshore wind
turbines ranging from
2MW to 14MW

**Extensive placement
experience**
of the world's largest offshore
wind turbines

**At the forefront of
innovation including
program package
design**

Aon's Managed Floating Offshore Wind Projects

Offshore wind Project Name	Project Size (in MW)	Country	Foundation	Role		
				Pre-Development	Construction	Operational
Floating Offshore Wind Projects	180MW+					
WindFloat 1	2	Portugal	Semi-submersible	✓	✓	✓
WindFloat Atlantic	25	Portugal	Semi-submersible	✓	✓	✓
Hywind Demo	3	Norway	Spar	✓	✓	✓
Hywind Scotland	30	United Kingdom	Spar	✓	✓	✓
Hywind Tampen	88	Norway	Spar	✓	✓	✓
Fukushima	14	Japan	Semi-submersible	✓	✓	✓
Goto	17	Japan	Semi-submersible	✓	✓	✓
ScotWind Project 1	TBC	United Kingdom	TBC	✓		
ScotWind Project 2	TBC	United Kingdom	TBC	✓		
ScotWind Project 3	TBC	United Kingdom	TBC	✓		

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Insurability of an Offshore Wind Project



Aon's Floating Offshore Wind Initiative

Requirement

- Clients need to develop insurable (and bankable) projects.
- Insurers need confidence in order to offer best in class coverage.



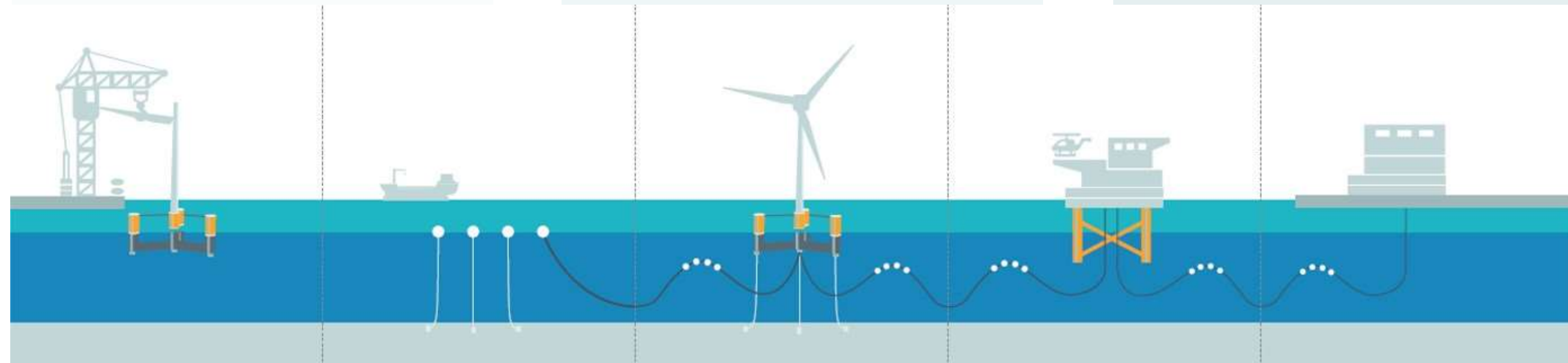
Aon's Initiative

- Engagement with insurance market.
- Engagement with industry specialists.
- Engagement with contractors.
- Feedback to clients developing floating offshore wind projects.
- Build Aon's technical understanding to ensure best service provided to clients.
- Promote insurability of new technology



Goals

- Create a sustainable floating offshore wind insurance market.
- Provision of best advice to client's inline with latest technology advancements.
- Provide clients with best possible chance of an insurable project with reasonable terms at a workable cost level.
- Enhance the insurability of new technology.



Market Perceived Risk - WTGs



Unproven large capacity models

Unique Configurations

Design / Certification Standards and Strategy

Control systems

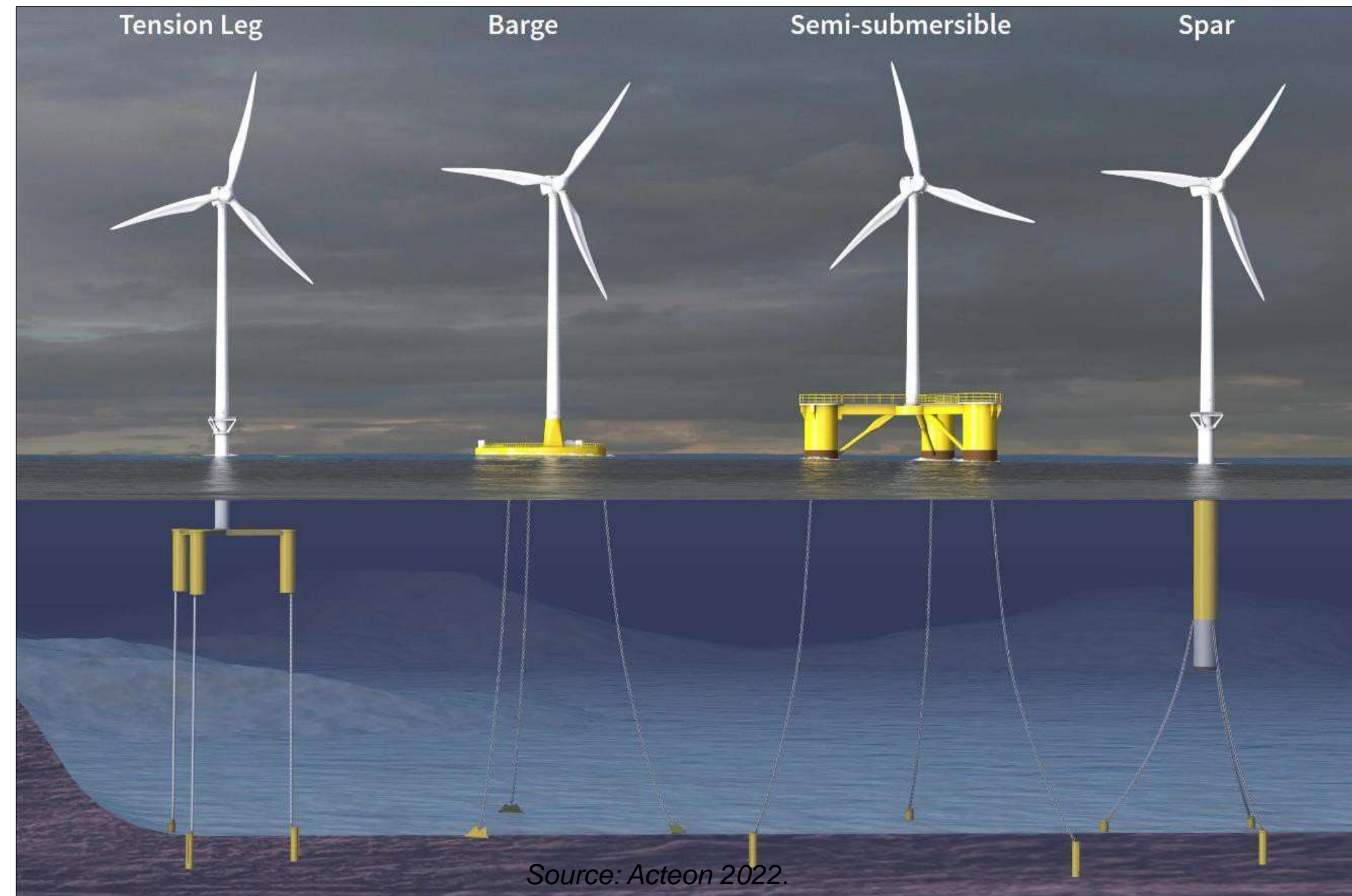


Market Perceived Risk - Floater

Numerous 'Unproven' Designs

Resonance with WTG

Tower Interface



Supply Chain

Ballast Systems

Vulnerability to NatCats

Market Perceived Risk - Mooring System

Mooring Line
Material &
Monitoring



Redundancy

Shared Anchors

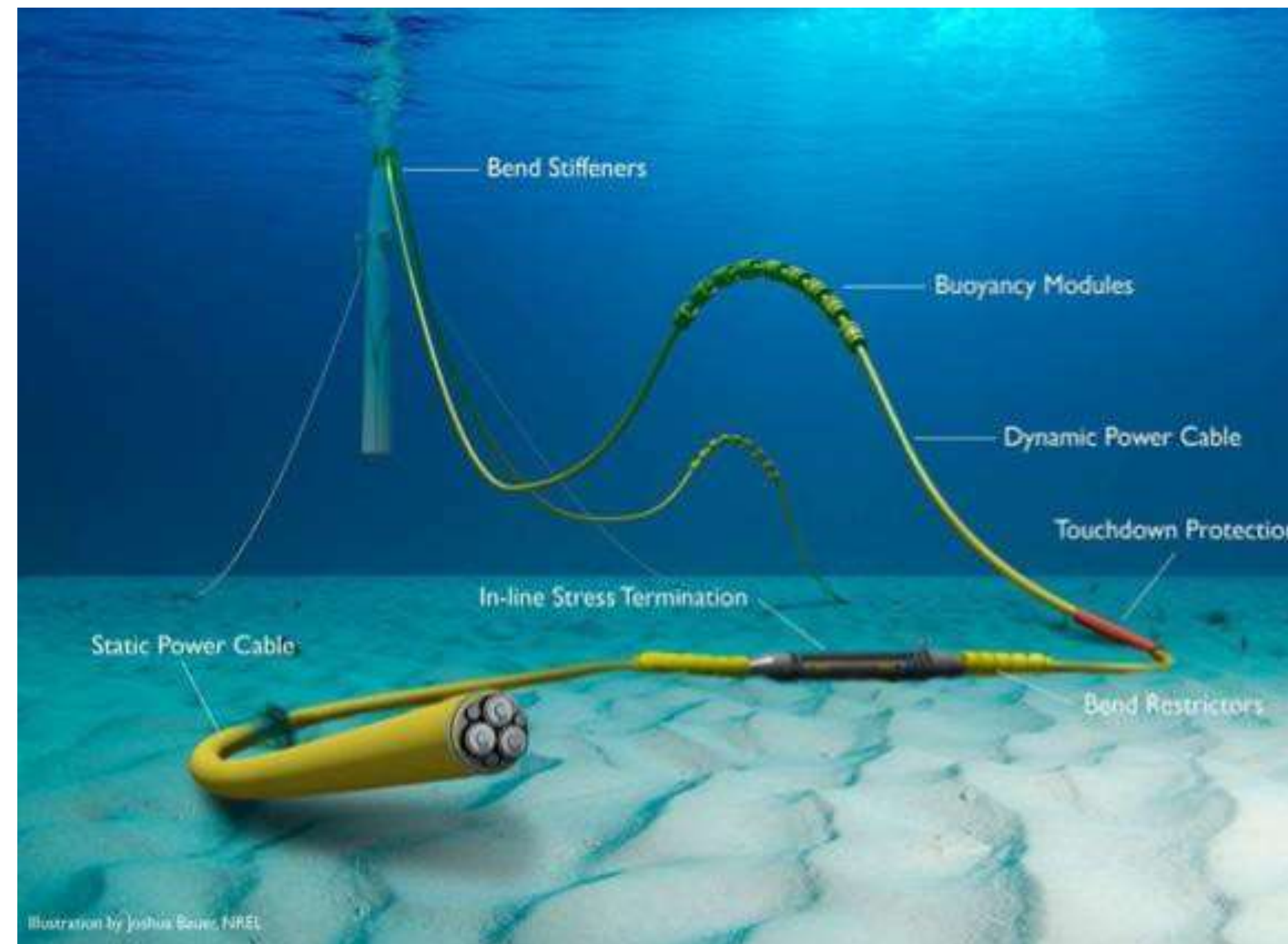
Shared Moorings

Market Perceived Risk - Dynamic Cables

Collision Risk

Long term integrity management and monitoring (e.g. FO)

Larger dynamic cables need further development.



Fatigue from floating motions.

Connector durability and storage.

Touchdown cable protection system and abrasion from seabed.

Market Perceived Risk - Construction & Operations

Contractual Terms

Supply chain constraints

Port infrastructure



Tow to Port/Shore

Crane/Vessel Availability

Disconnection procedures

Example Underwriter Questions

- “What are your **monitoring regimes for cables** in particular?”
- “Is DTS installed on the IAC or export cable?”
- “How regularly do you inspect moorings and anchors?”
- “Are there any fishing exclusion zones?” “What is your business continuity plan?”
- “Does the floater have an active ballast system? If so, how does it work and how is it powered?”
- “What **port options** do you have in the event of a major component failure/replacement?”
- “Have you experienced any resonance or roll between the WTG and the floater? How is this monitored?”
- “Does your preferred O&M port have a **permanent crane** installed capable of large component lifts? If not, what is your strategy to access this and suitable vessels?”
- “What is the cable and mooring disconnection and storage procedure?”
- “Do you have a fibre optic [or other] monitoring system for cable movements?”
- “**What warranties are in place for components?**”

Key Insurability Factors

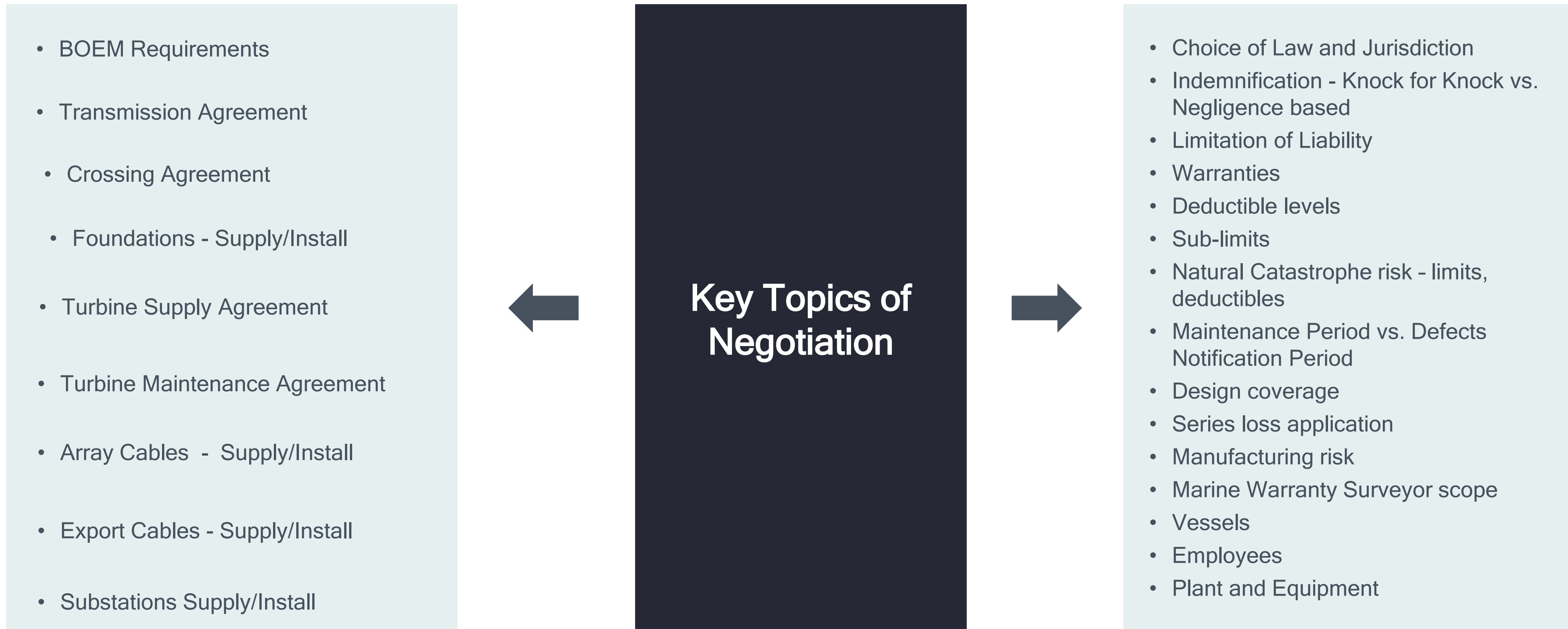


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Contractual Risk Allocation



Contracts - Key Insurance Discussions



Risk allocation is crucial for successful placement

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Promoting the Insurability of New Technology



Technological Risk

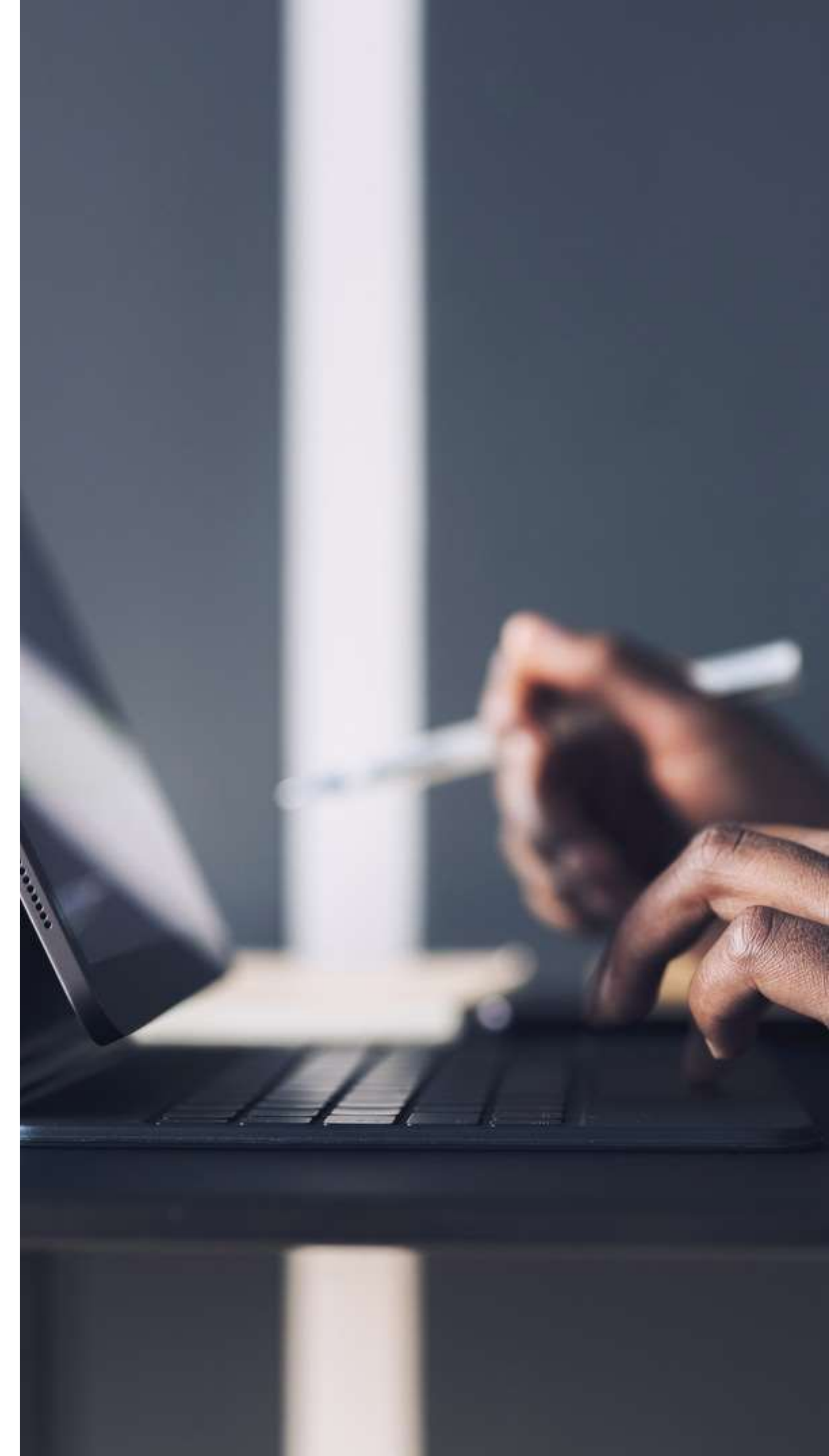
Wind Turbines have experienced exponential growth in recent years, in 40 Years WTGs have gone from 15 Kw to 16.000 kW!

In parallel, new cranes, vessels, cables...are developed and procedures are being updated periodically.

Prototypical/Unproven Floating Offshore Wind adds additional concerns.

Obtaining the support of the insurance sector, which can ultimately be reflected in an Insurability Letter, will be crucial for the commercialization of any technology.

Promoting new technology before the insurance market is becoming the norm in this industry.



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Recap

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Key Take Aways

- Offshore claims are ten times larger than onshore.
- Technological risk and lack of data remains as one of the main insurance market concerns.
- **Legal Teams** strong knowledge of Indemnity and Warranty provisions but limited of Insurance and **Insurers** are familiar about insurance clauses but no about contractual language.
- Balanced risk allocation important to successful insurance placement.

- Risk transfer is important to protect balance sheet.
- Promoting the Technology is crucial.
- Early engagement of your Risk Partner is crucial.
- Your Risk Partner is ready to close the gap.
- Support of your risk partner in contract negotiation

From pure transactional broker to your Risk Partner

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