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# An Introduction to F.O.W.T. (Floating Offshore Wind Turbines)



## Lillehammer Energy Claims Conference

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8 March 2018

**Charles**  
**Taylor**  
ADJUSTING

# OVERVIEW

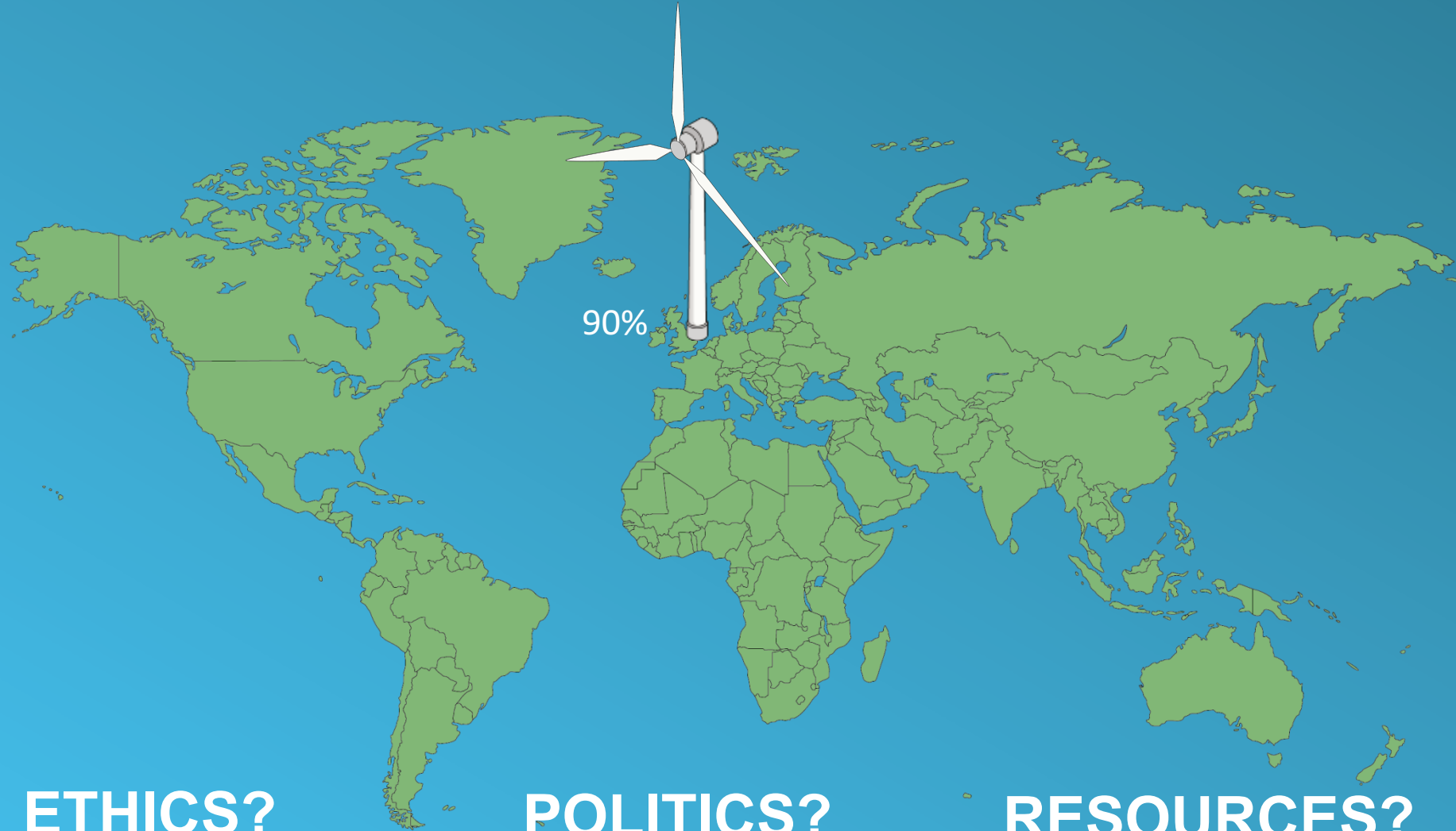
- PRACTICAL MATTERS
  - DESIGN
  - CONSTRUCTION

...but first...



# OFFSHORE WIND

15 GW INSTALLED CAPACITY

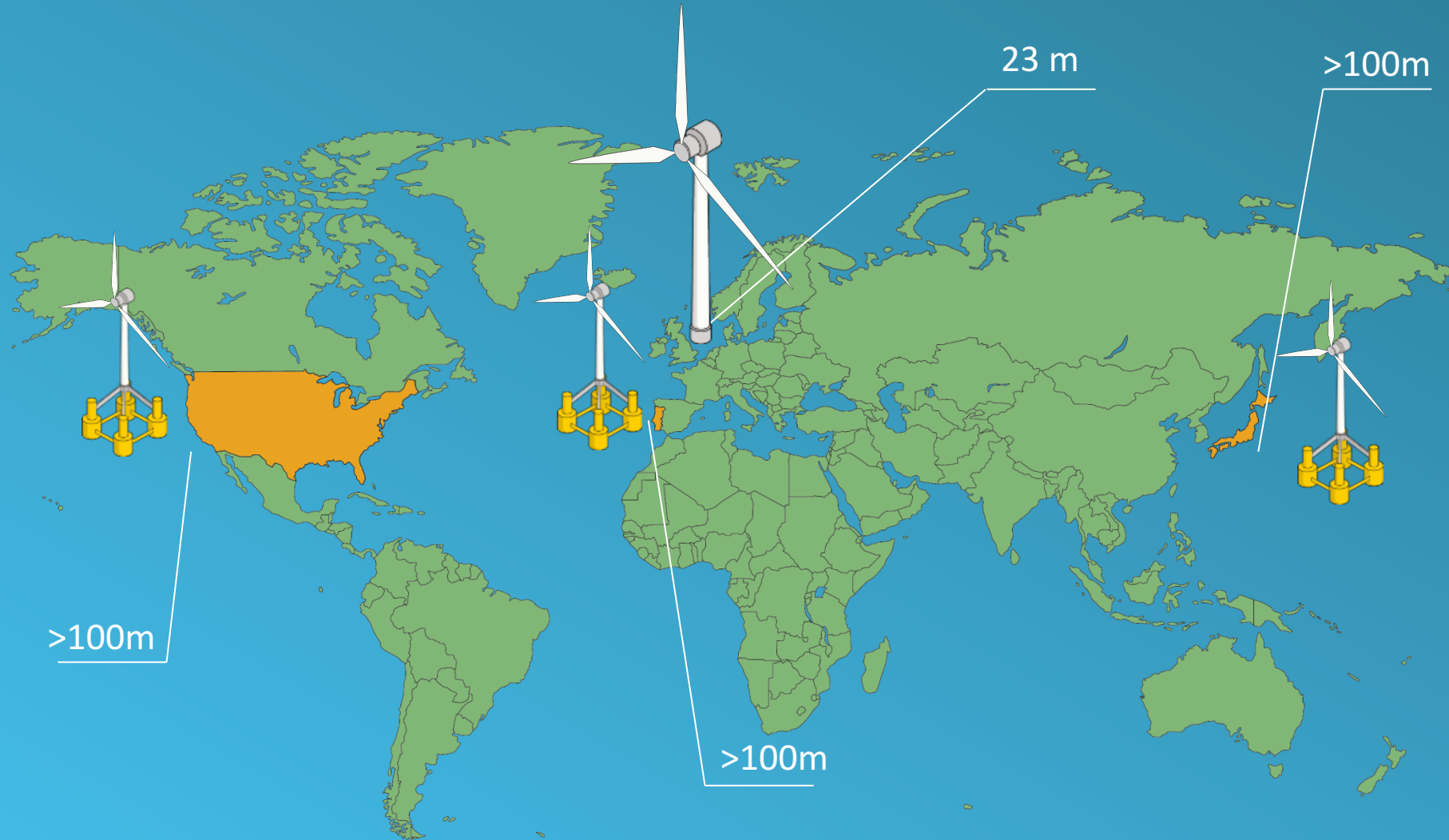


ETHICS?

POLITICS?

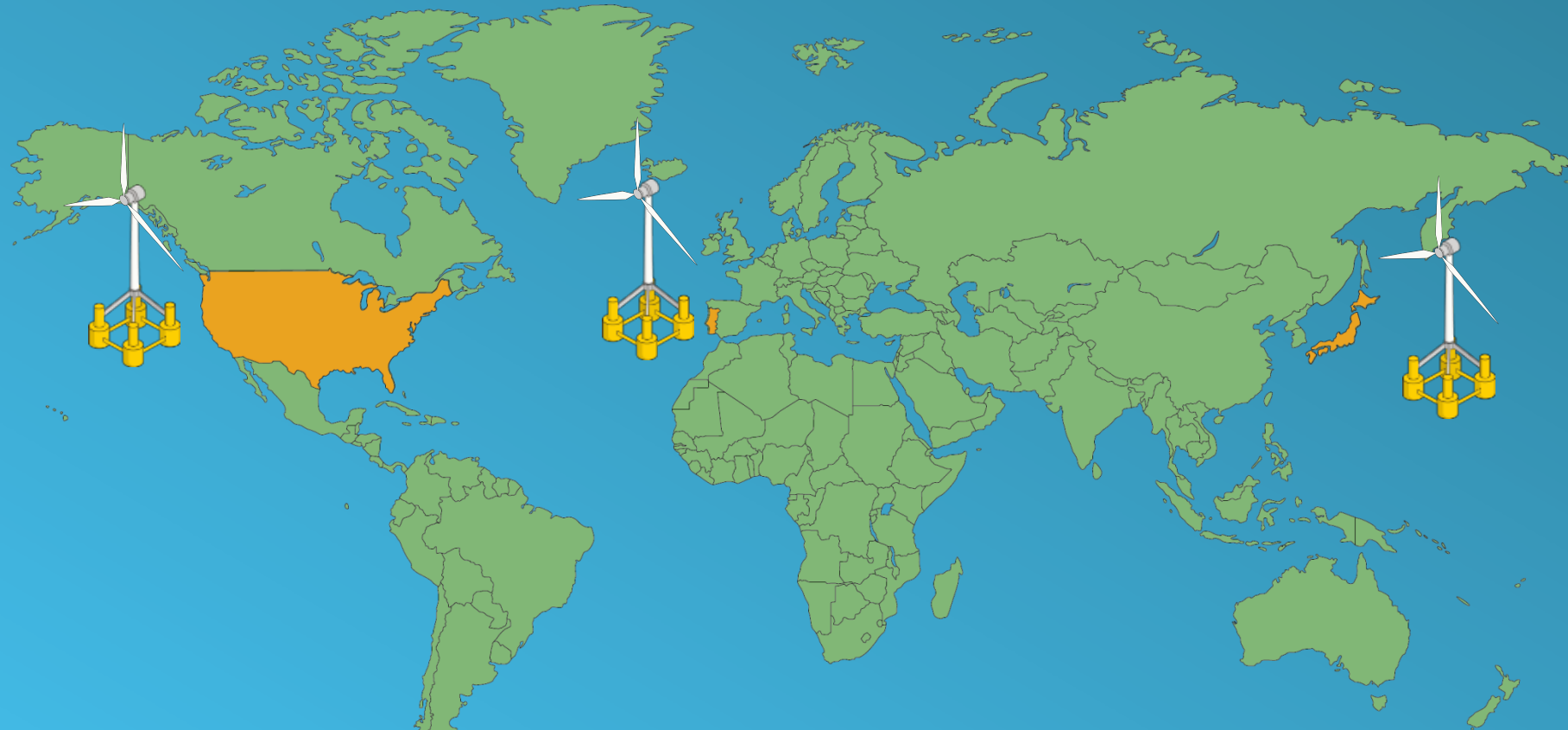
RESOURCES?

# PRACTICAL MATTERS



# FLOATING SOLUTIONS

>25 TEST PROJECTS



**TENSION LEG (TLP)**

**SPAR**

**SEMI-SUB**

# QUESTION

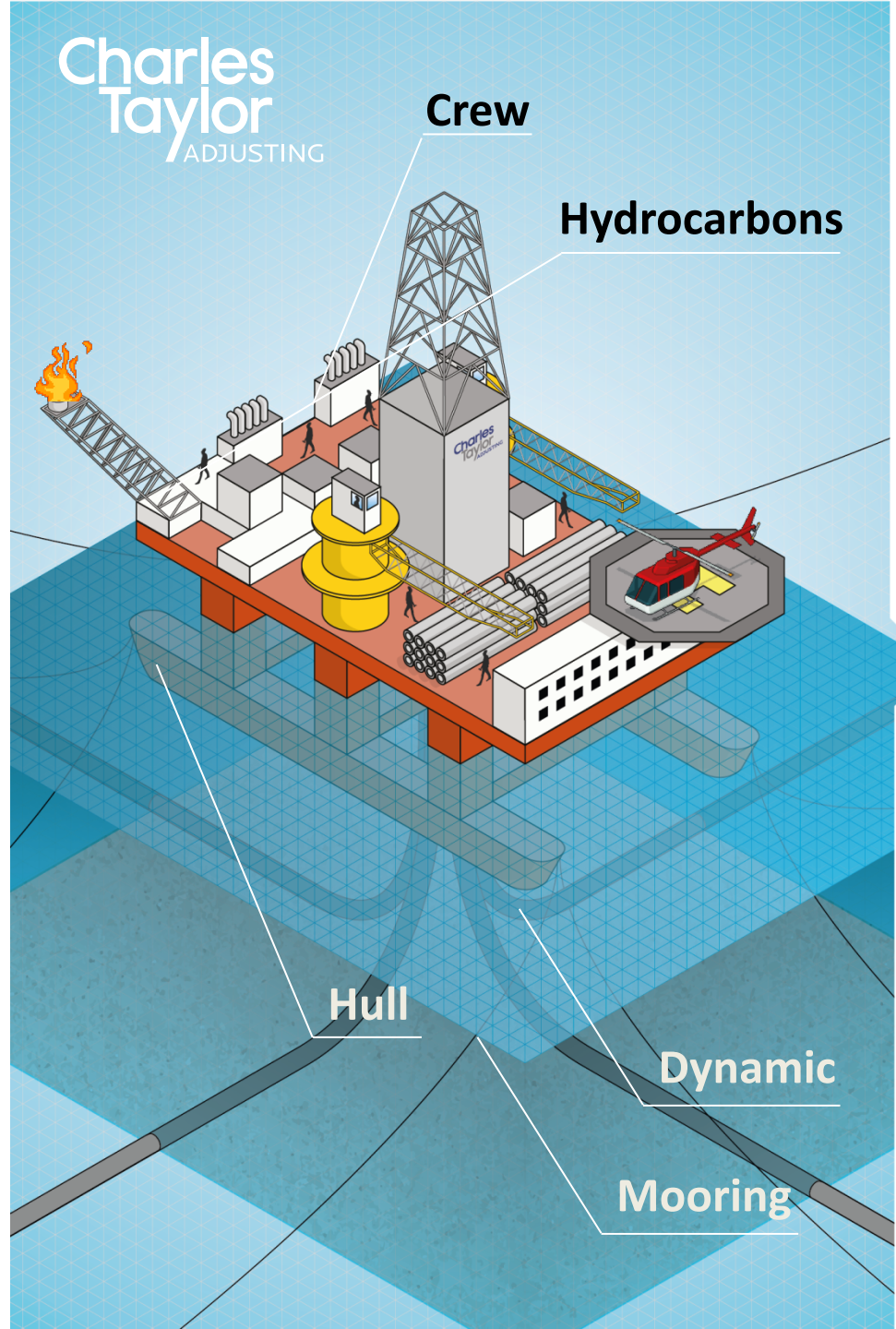
EXCLUDING FPSOs, HOW MANY FLOATING PRODUCTION SYSTEMS ARE PRESENTLY IN OPERATION GLOBALLY?

- A. ABOUT 100
- B. BETWEEN 100 AND 300
- C. BETWEEN 300 AND 500
- D. OVER 500

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Crew

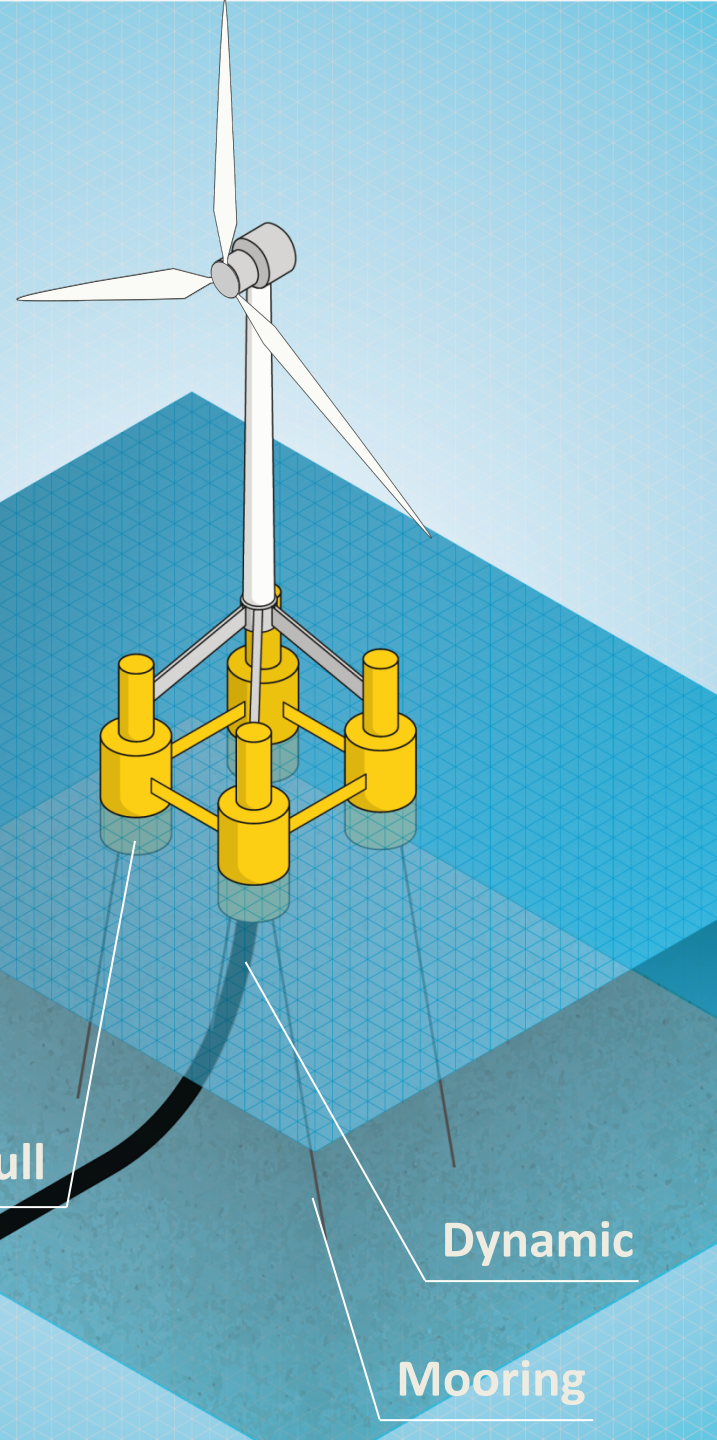
Hydrocarbons



Hull

Dynamic

Mooring

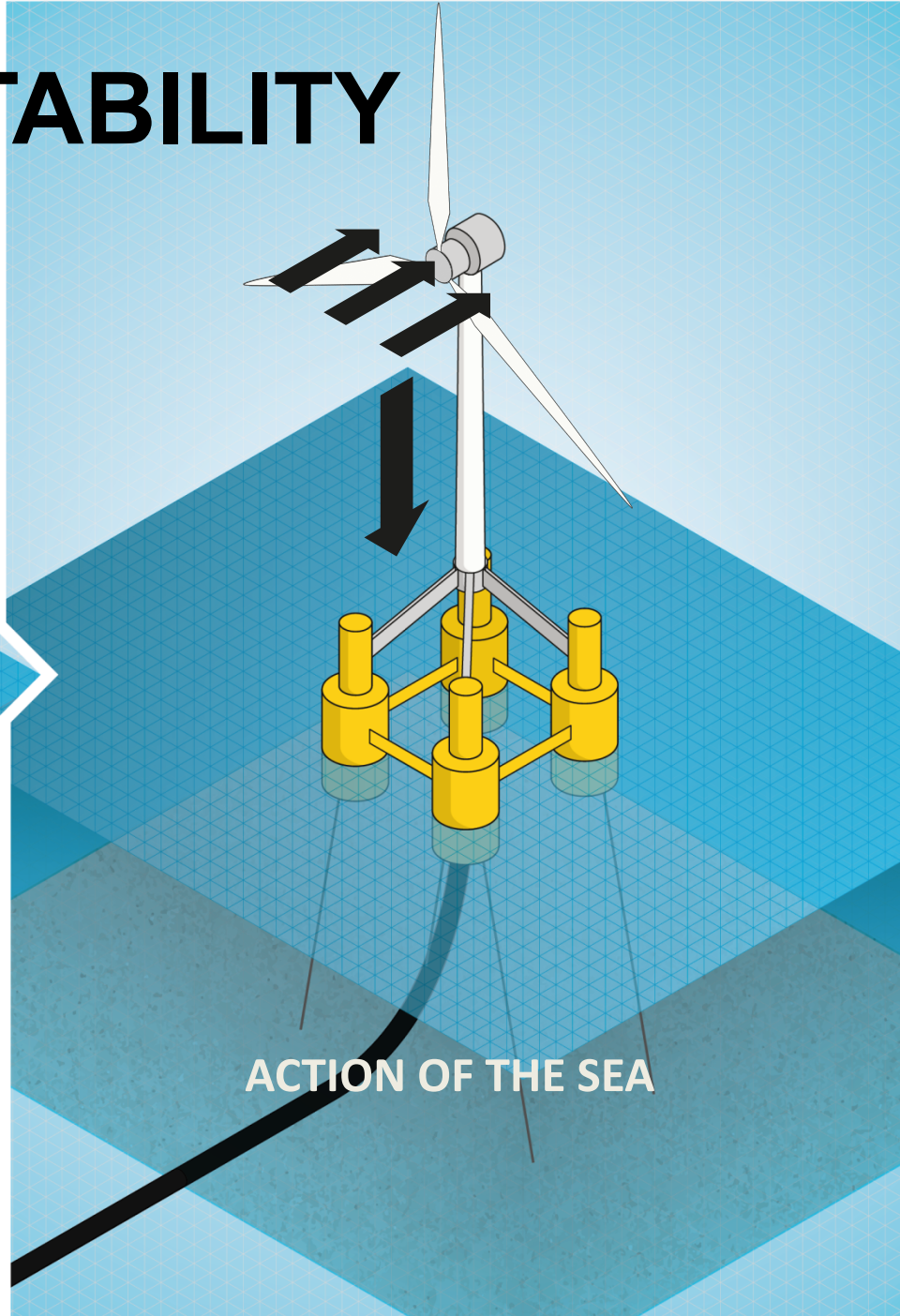
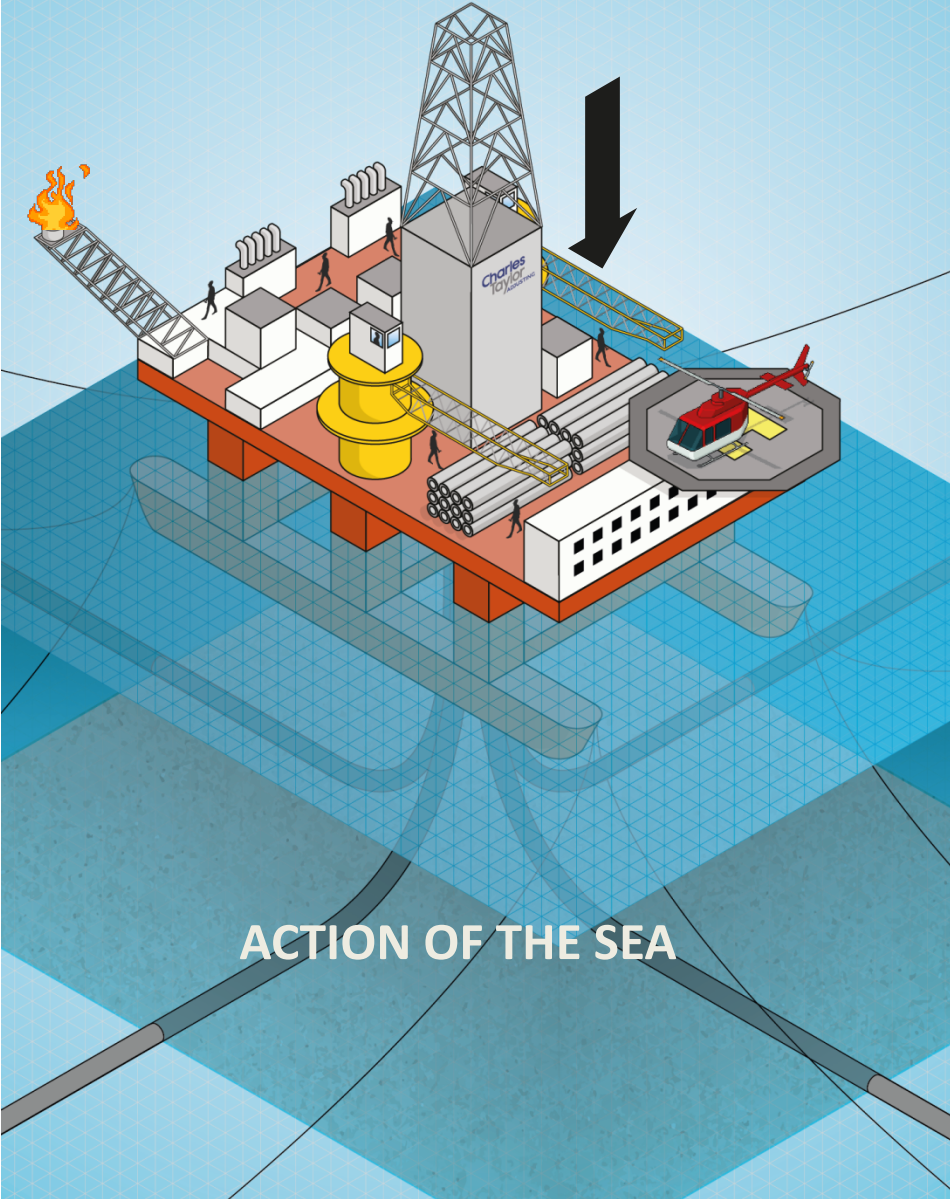


Hull

Dynamic

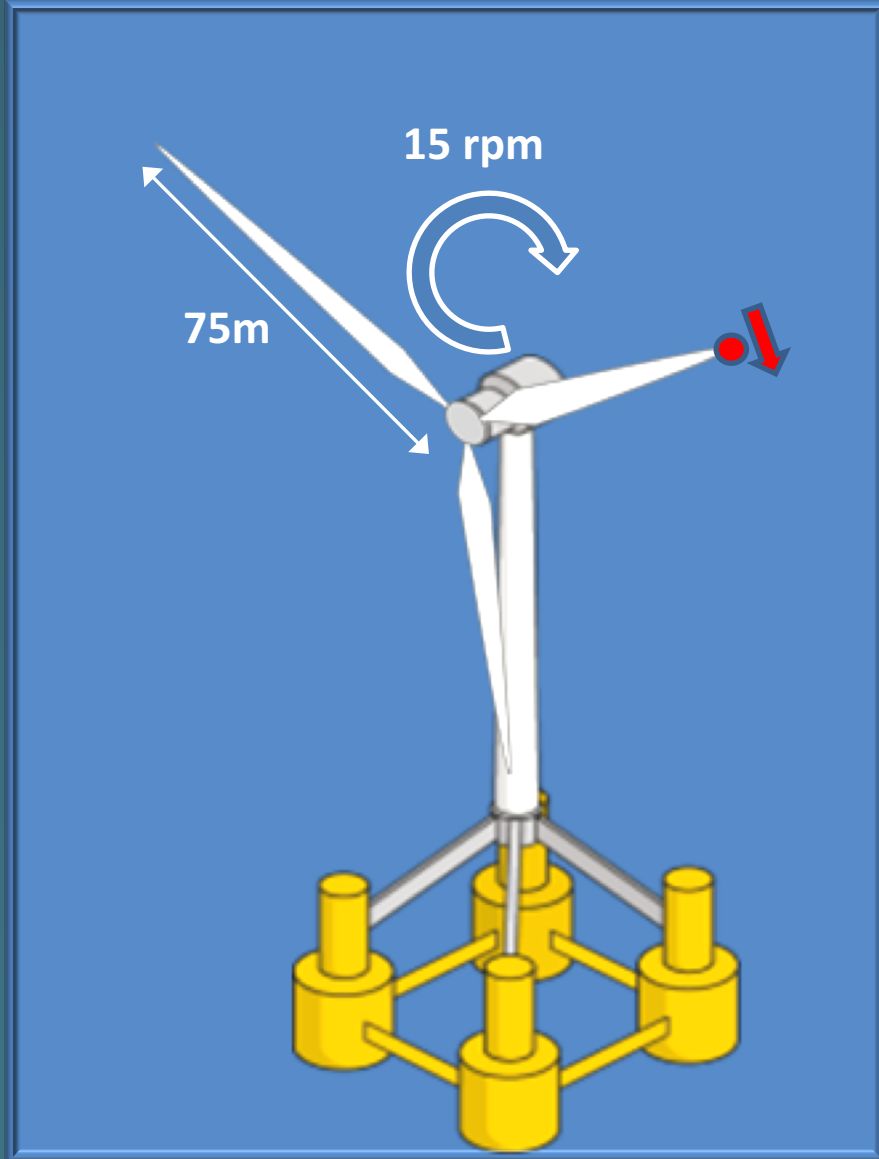
Mooring

# INTACT STABILITY





# QUESTION



WHAT SPEED IS THE BLADE TIP TRAVELLING AT?

- A. ABOUT 50 KPH
- B. BETWEEN 100 AND 200 KPH
- C. BETWEEN 200 AND 400 KPH
- D. OVER 400 KPH

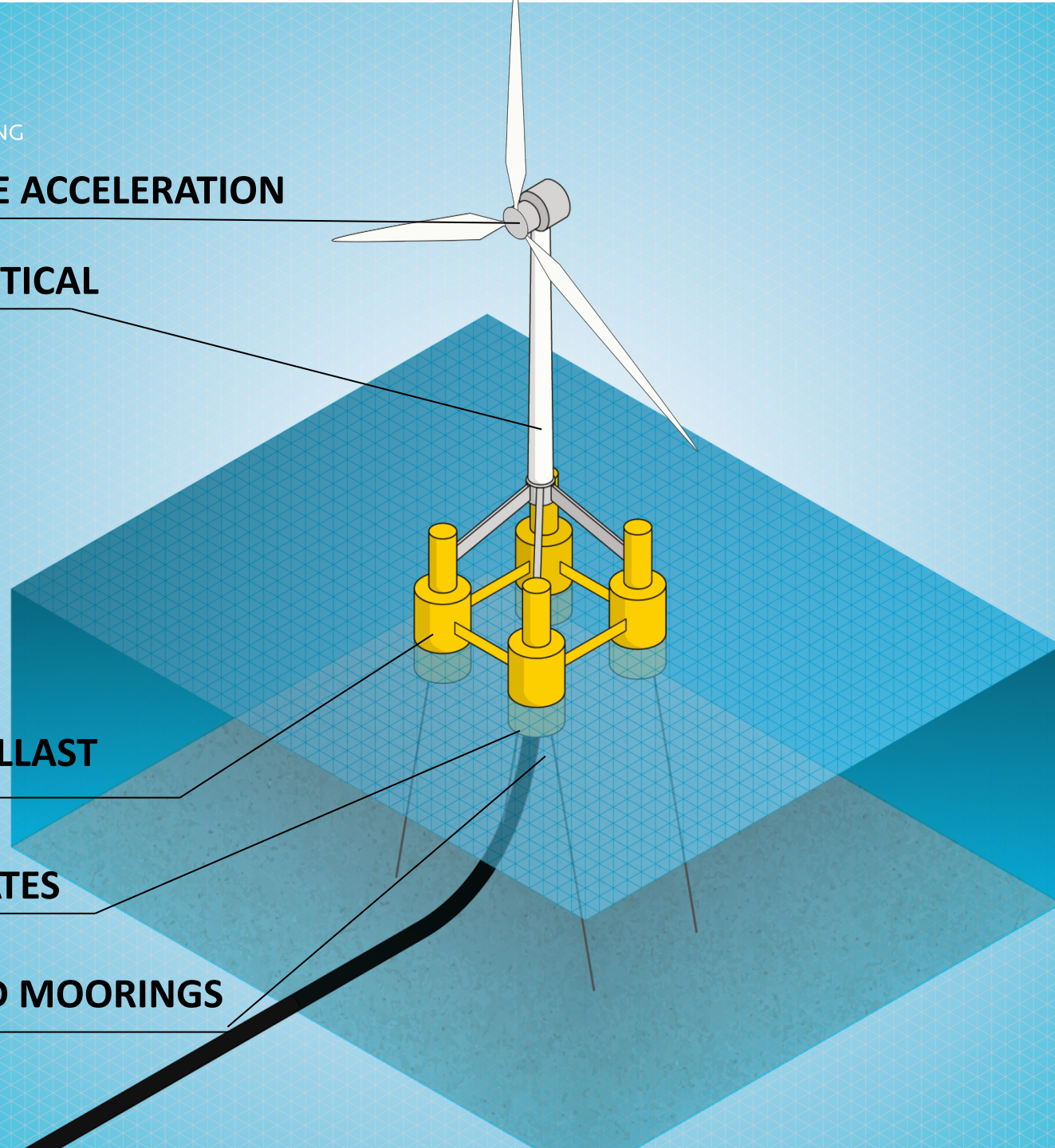
**MINIMISE ACCELERATION**

**KEEP VERTICAL**

**ACTIVE BALLAST**

**HEAVE PLATES**

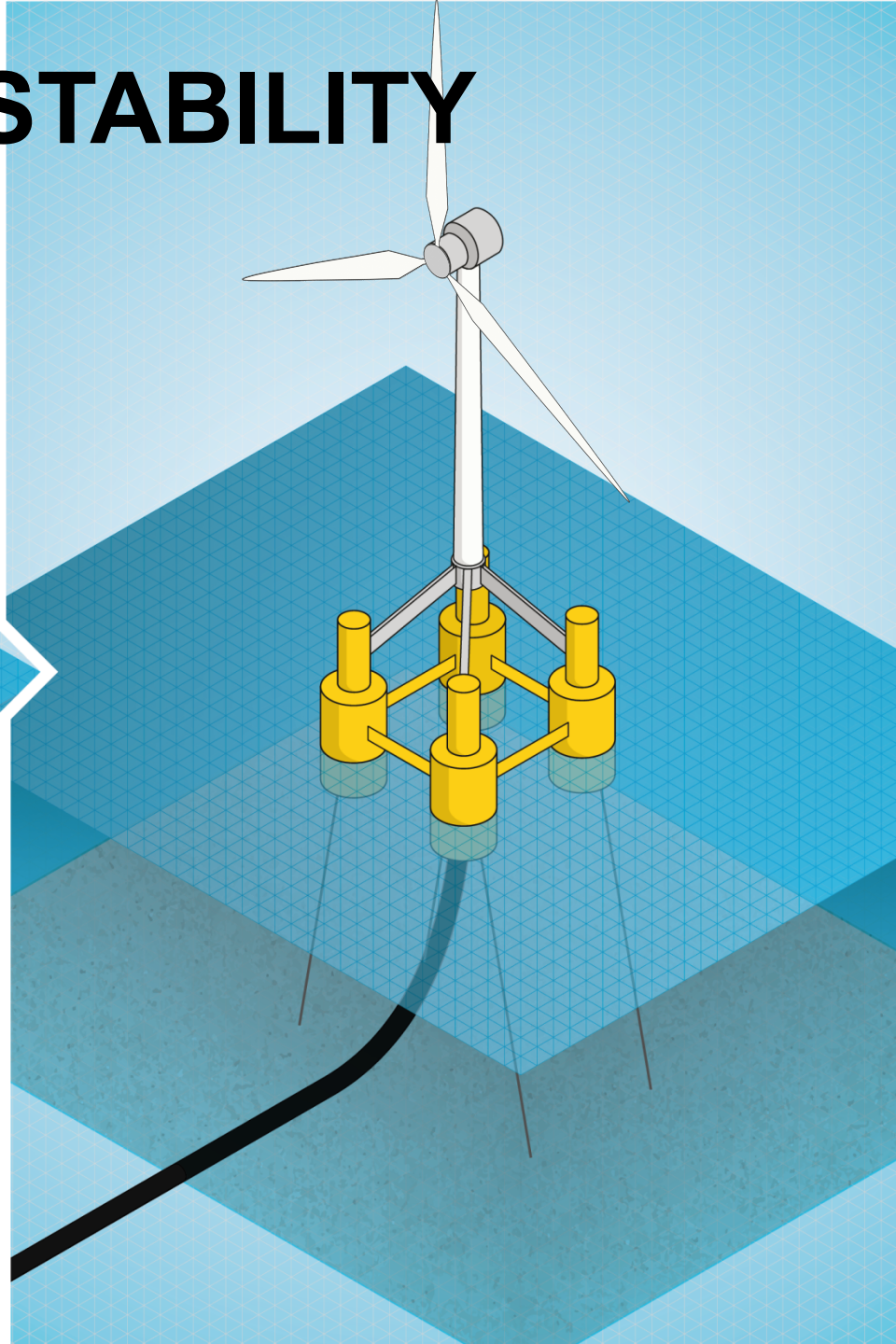
**ENHANCED MOORINGS**



# DAMAGE STABILITY

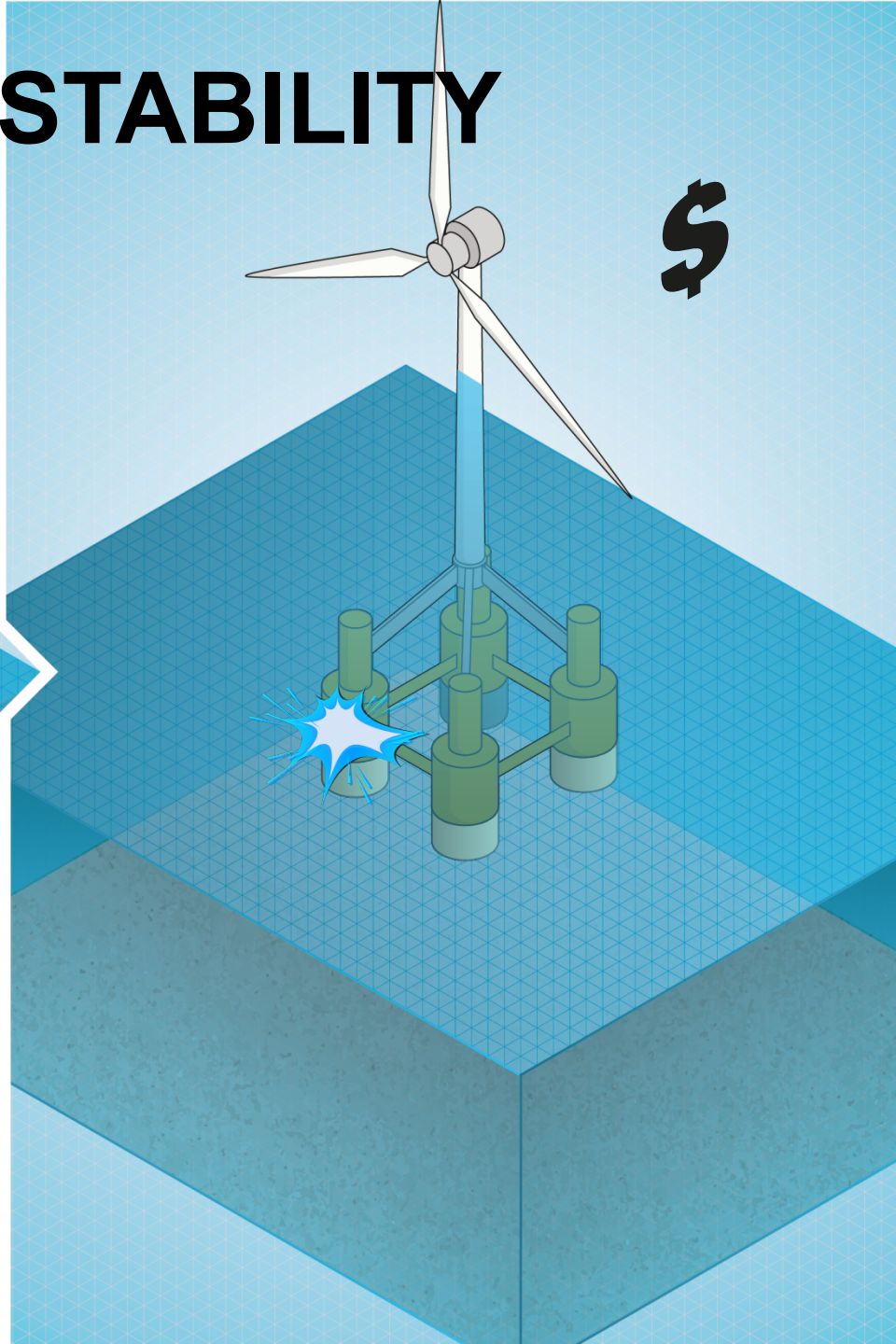


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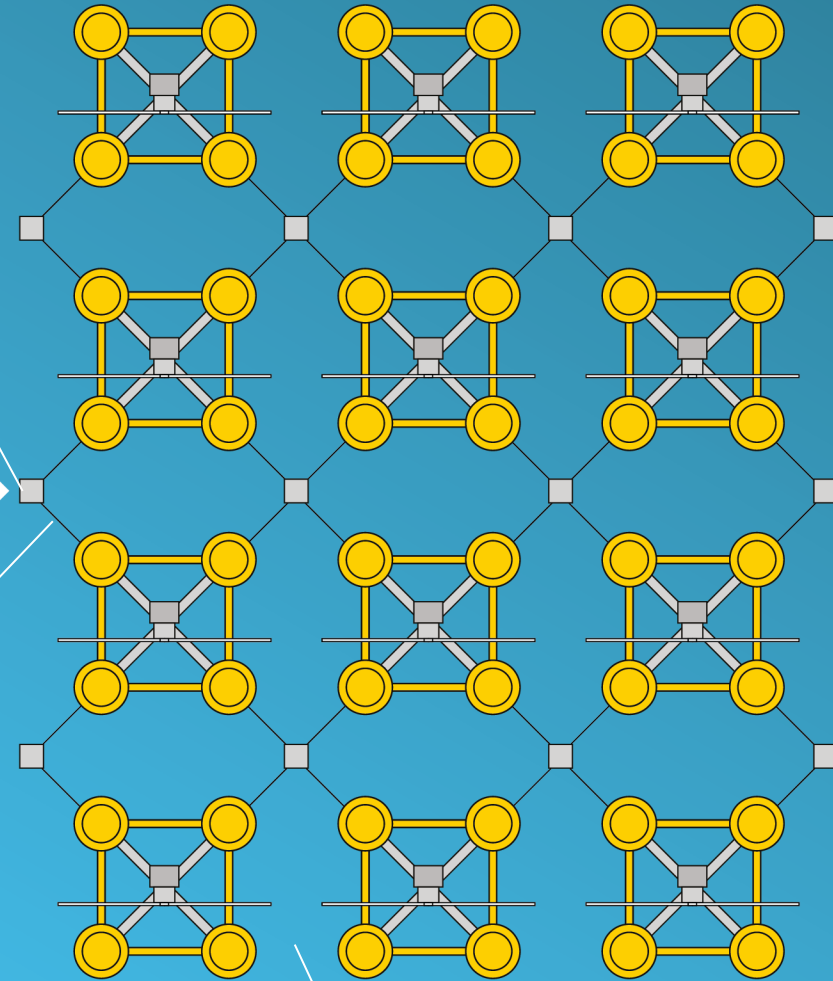
# DAMAGE STABILITY



Shared  
Anchors

Mooring

500MW : 50 to 100 Foundations



10 x Rotor Ø

# CONSTRUCTION

## FPS

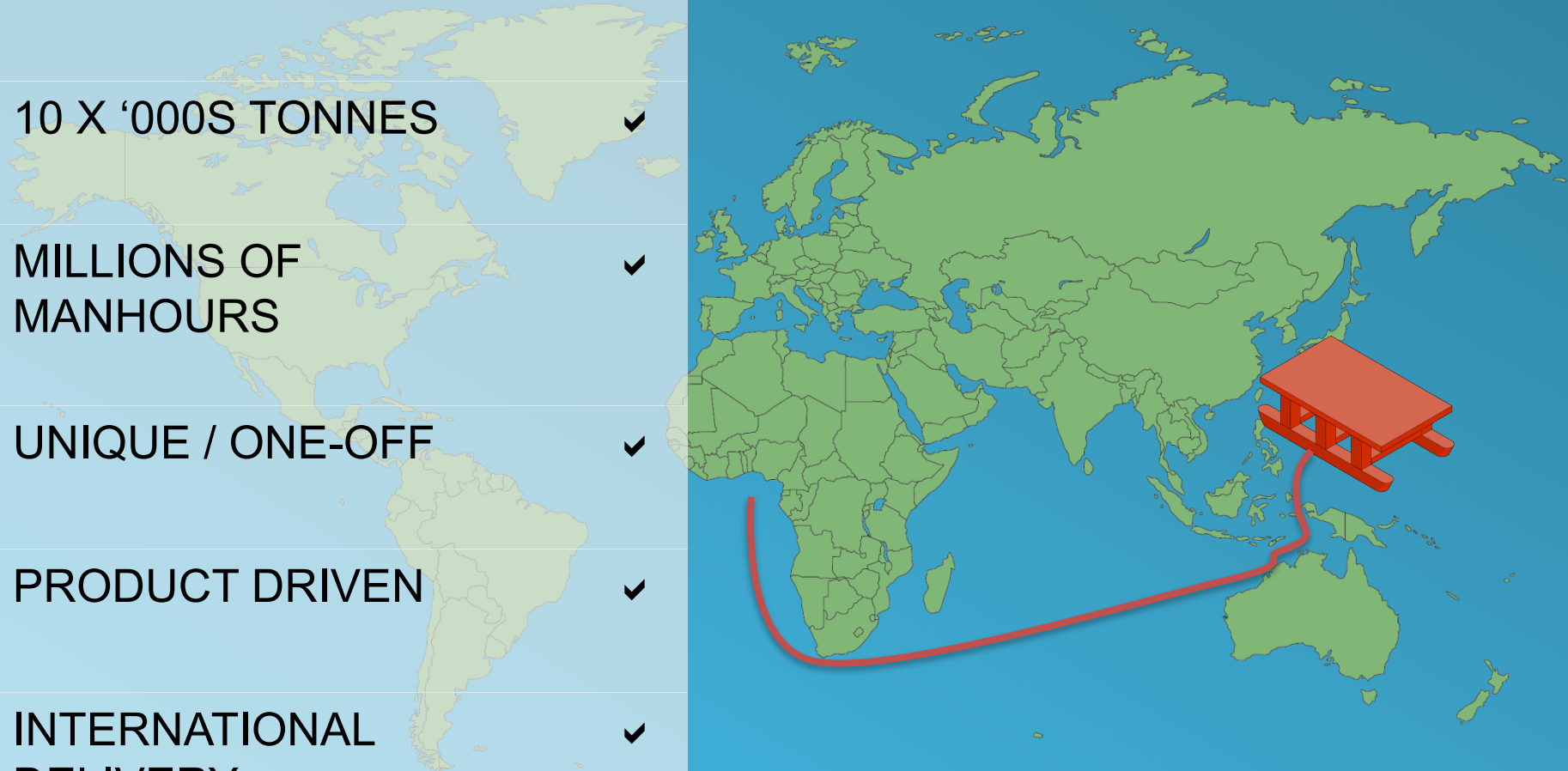
10 X '000S TONNES ✓

MILLIONS OF  
MANHOURS ✓

UNIQUE / ONE-OFF ✓

PRODUCT DRIVEN ✓

INTERNATIONAL  
DELIVERY ✓



# CONSTRUCTION

## FOWT

10 X '000S TONNES



MILLIONS OF  
MANHOURS



UNIQUE / ONE-OFF



PRODUCT DRIVEN



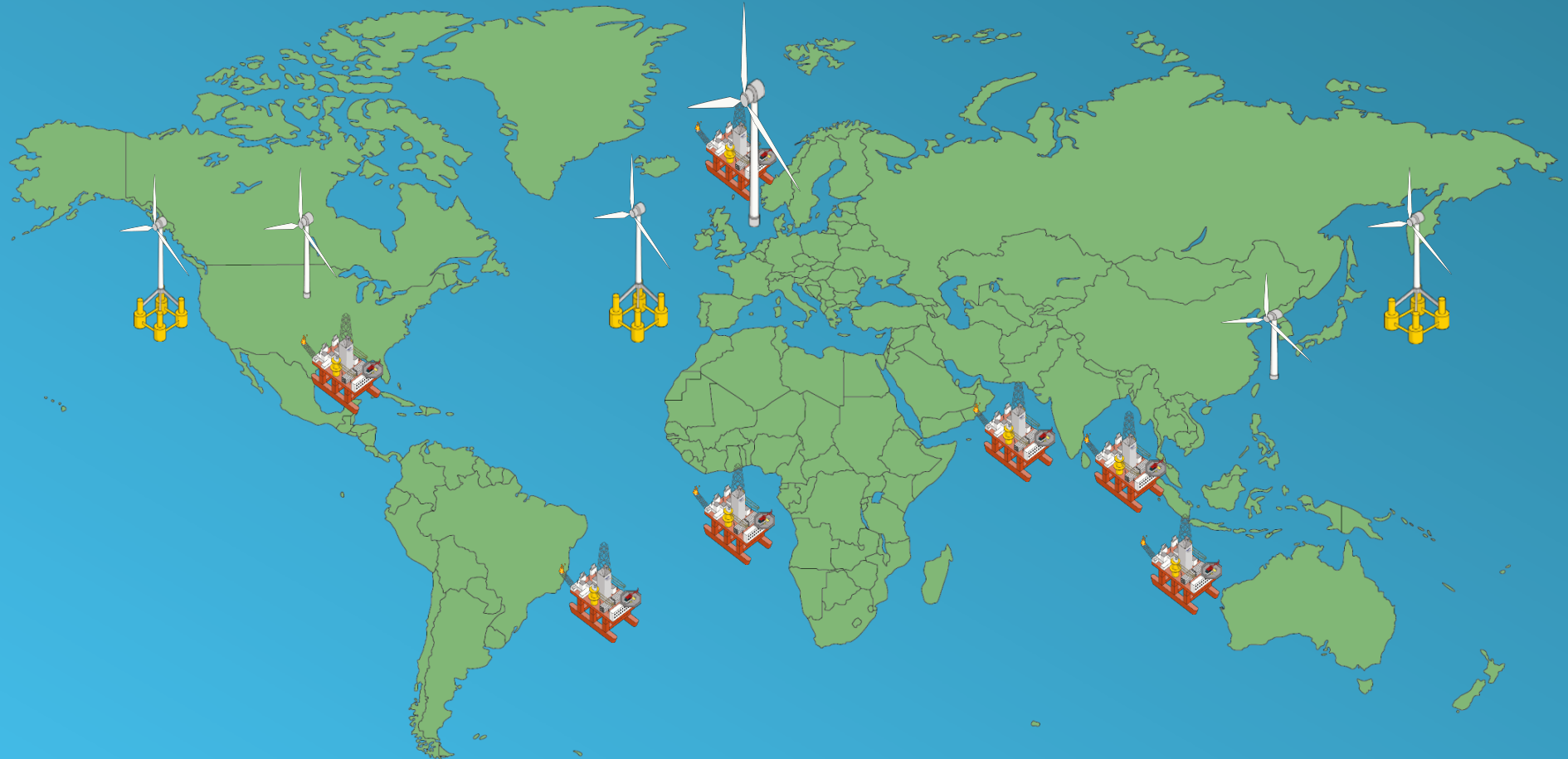
INTERNATIONAL  
DELIVERY



# IN SUMMARY

HARNESSING WIND POWER

DEEPWATER CHALLENGES





# THANK YOU

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