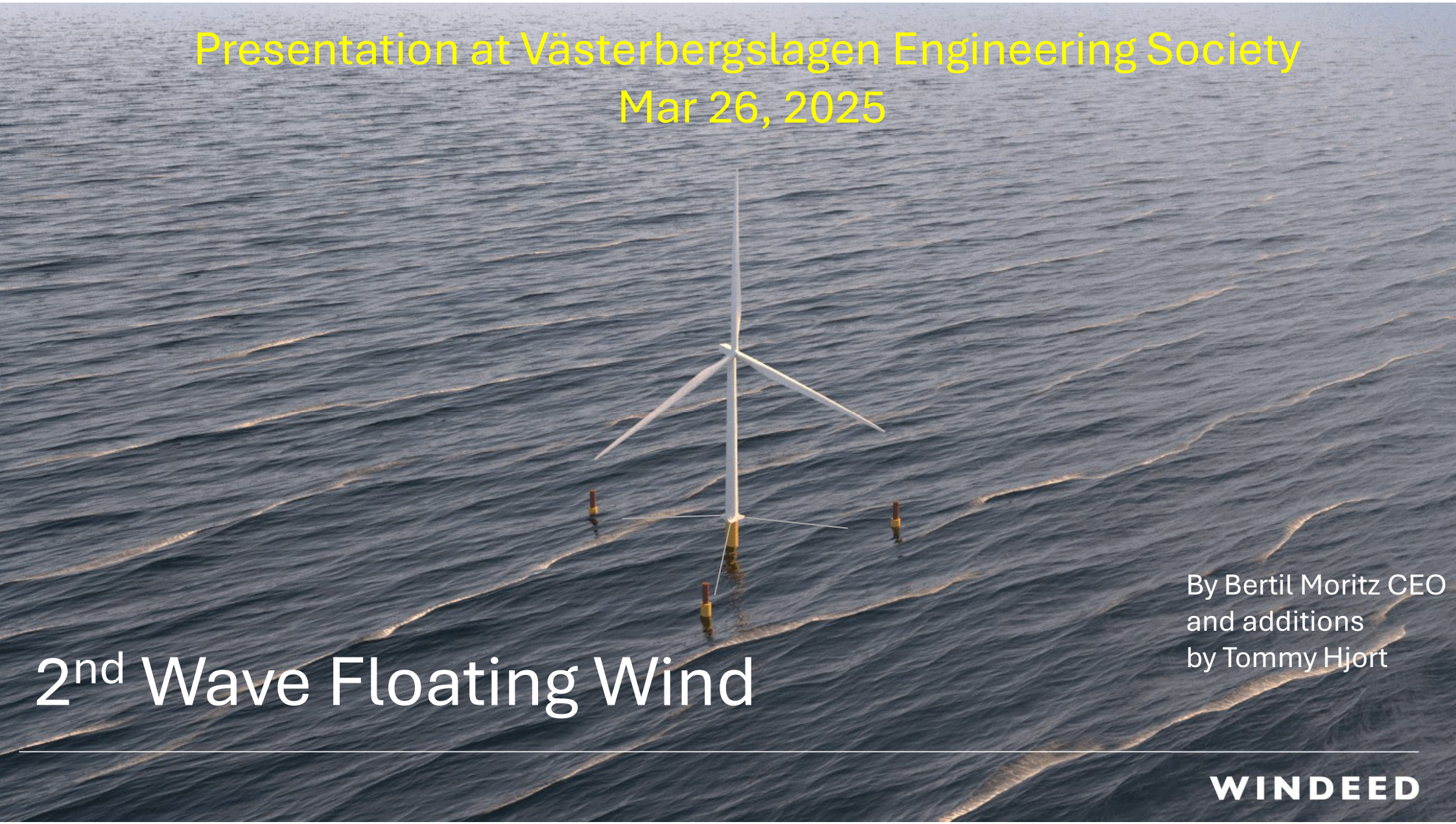
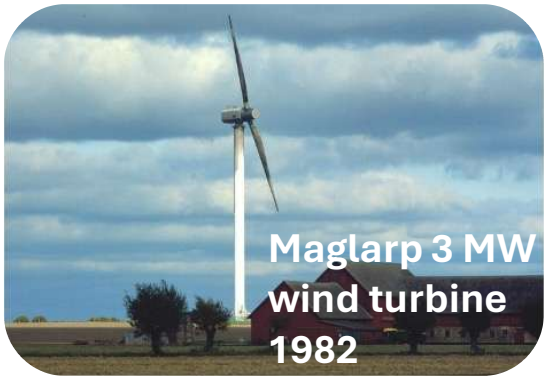


Presentation at Västerbergslagen Engineering Society
Mar 26, 2025

2nd Wave Floating Wind

By Bertil Moritz CEO
and additions
by Tommy Hjort

WINDEED



Origins of Windeed

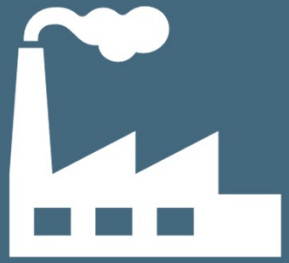
Swedish Expertise - Strong history in aerodynamics & naval technology (Wind + Water)

Wind Power Pioneer - Early innovations in the 1980s, floating wind since 2008.

Proven Design - 25,000+ hours over 20+ years systematically evaluating floating wind design options against key requirements.

Expert Collaboration - Deep partnerships in hydrodynamics, aerodynamics, marine & offshore engineering.

Founded in 2021 - Led by serial entrepreneur Bertil Moritz & four co-founders.



60%*

17 000 TWh*

260 000 floaters

**International Energy Agency (IEA) 2019 World Energy Balances*

WINDEED

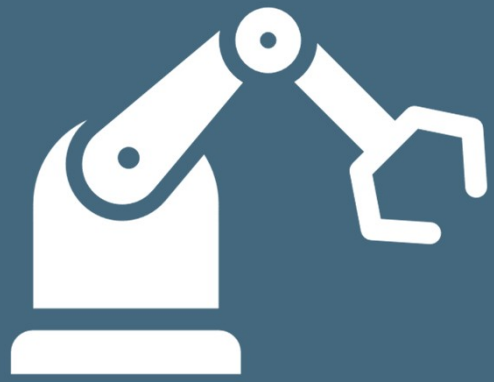
1st Wave of Floating Wind comes from O&G

	Oil and Gas	Floating Wind
Units globally	1X	1000X
CAPEX	30X	1X
OPEX/year	100X	1X
Revenue/year	100X	1X

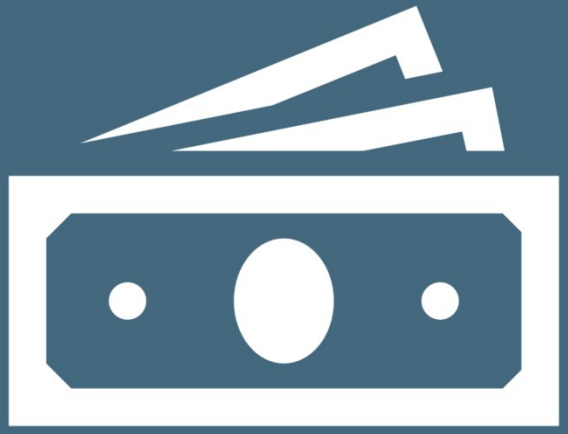
2 different extremes

WINDEED

Enablers



Mass production



Lower Cost

Common claims

“Ready for mass production with a standardized floating foundation.”

“Industrialization and large-scale deployment, enabled by full modularity with individual components that can be fabricated and transported efficiently.”

“Industrial-scale modular fabrication enables global supply chains.”

“Fabricated and assembled in a fully industrial manner, maximizing the flexibility to use local and global supply chains.”

“The floating structure can essentially be made as one size fits all.”

“Prefabricated modular elements allow for rapid production and fast deployment.”

“Floater can be assembled portside and towed out to sea without the need for an installation vessel.”

“Minimum offshore work reduces risk and cost, products are fully assembled at port and simply towed to the deployment site.”

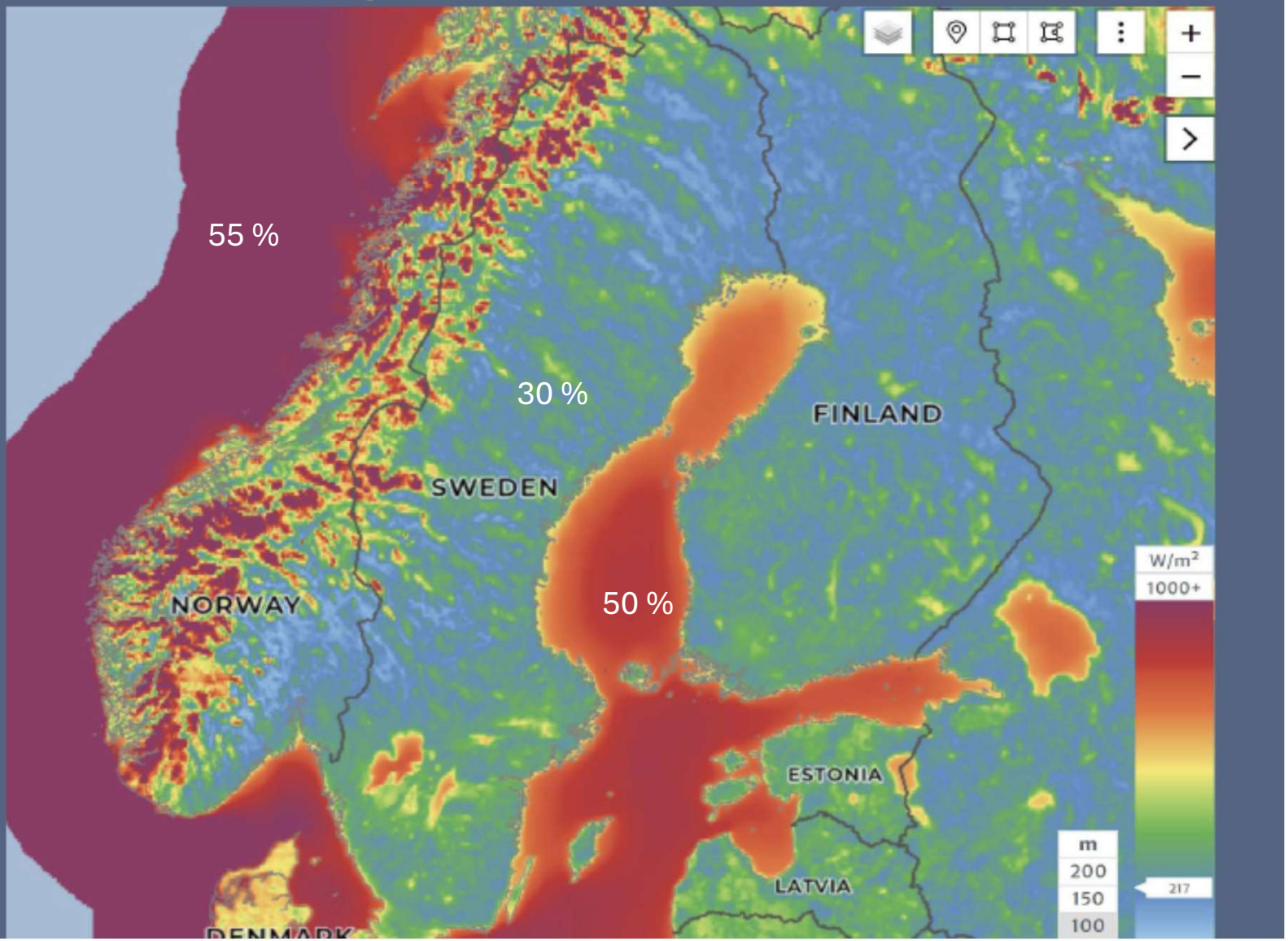
“Lower structural weight and simplified logistics ensure cost efficiency.”

Advantages of floating wind power

- Horizon 5 – 7 km from shore @ 2m eyeheight, thus fewer parties concerned during permitting process
- No hammering to seafloor during installation
- No infrasound during operation
- Great conditions for fish sanctuaries
- Better wind-utilization factor than land-based

Wind power density W/m2

Utilization factors



Requirement categories

- Floater design and performance
- Mooring
- Supply / infrastructure
- Maintenance and robustness
- Serial production and fast deployment

Lowest amount of material

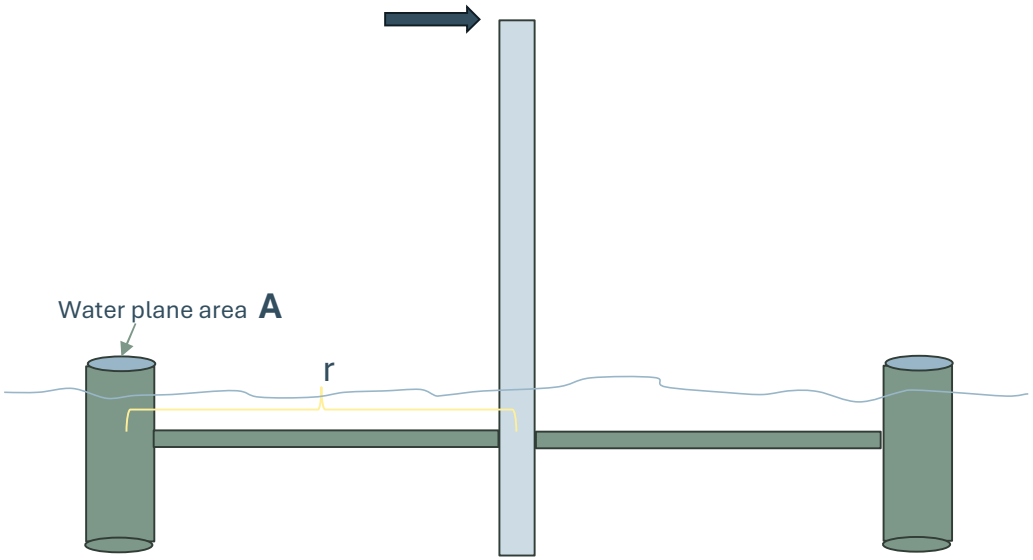
Conflict between low mass and low frequency outside wave spectra

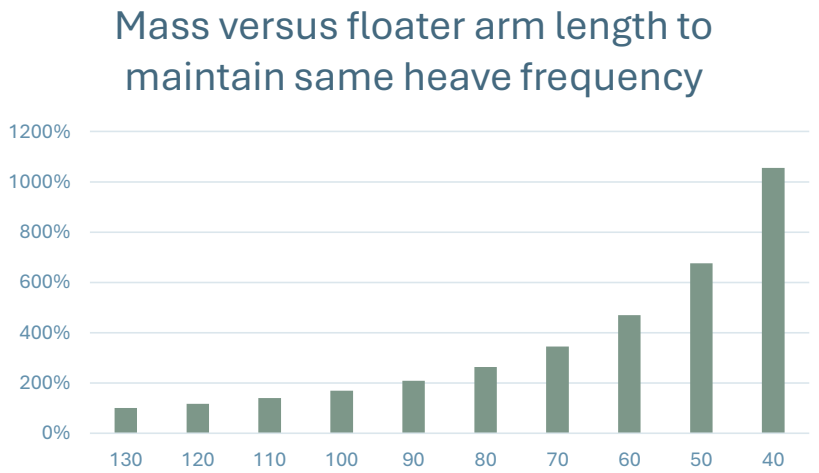
$$\omega = \sqrt{\frac{k}{m}}$$

How to solve it while lowering mass?

k , *the water plane area, has to be lower*

Longer arms and small water plane area is key to lower weight

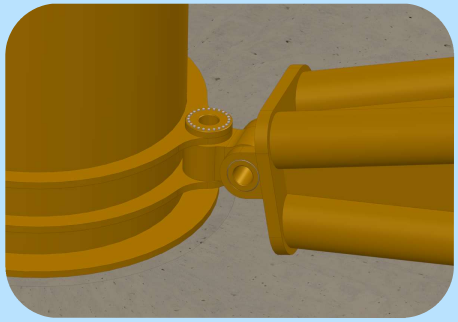




Example: 50 meter arm requires 676 % more mass than a floater with 130 meter arm

WINDEED

Low exposure
to forces



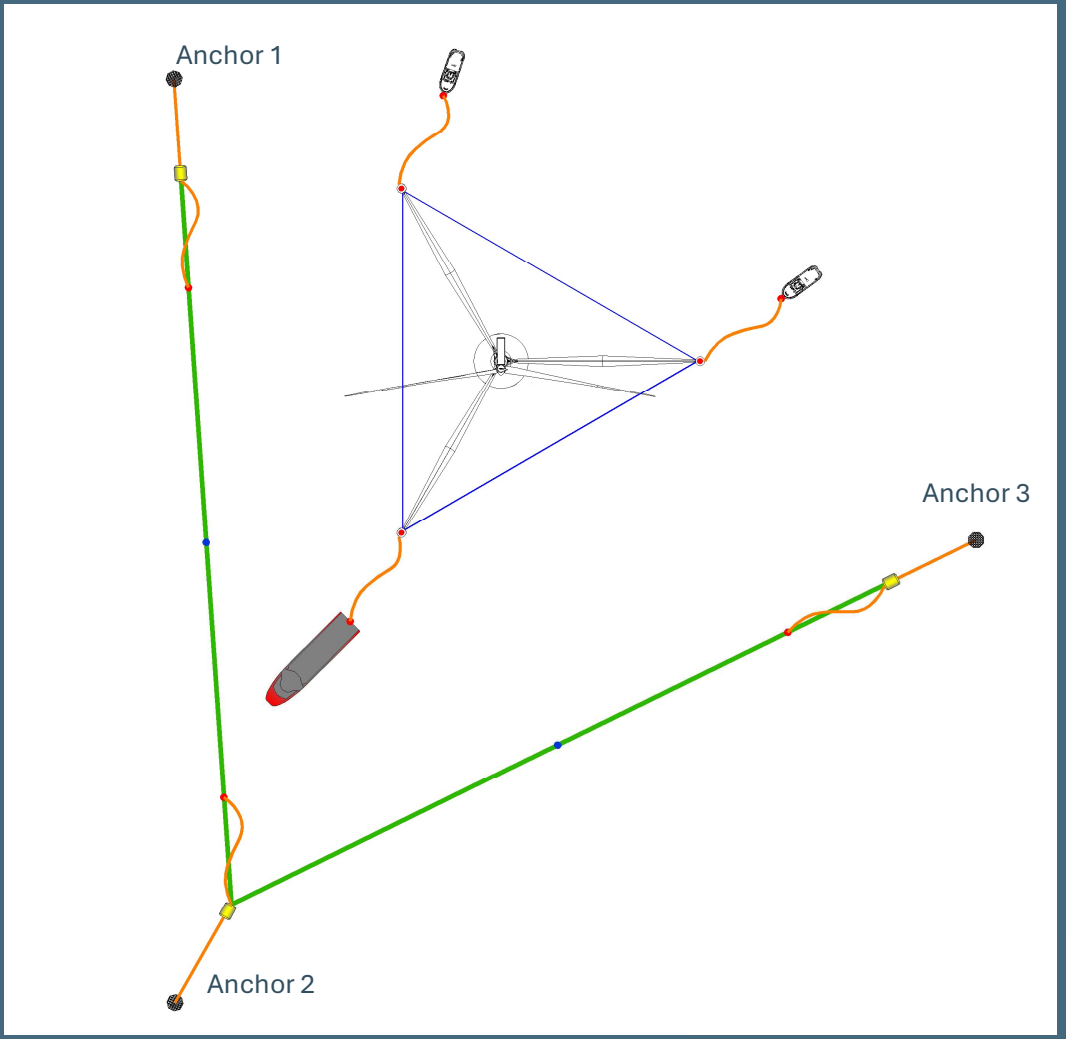
Best utilization of material

Mooring requirements

- Fast deployment
- No failure
- Minimized damage to seabed
- Solutions for very deep water
- Small footprint

Mooring system

- Preinstalled parking lot
- Fast Plug & Play
- No chains
- Tensioned mooring lines
- Small footprint/deep waters

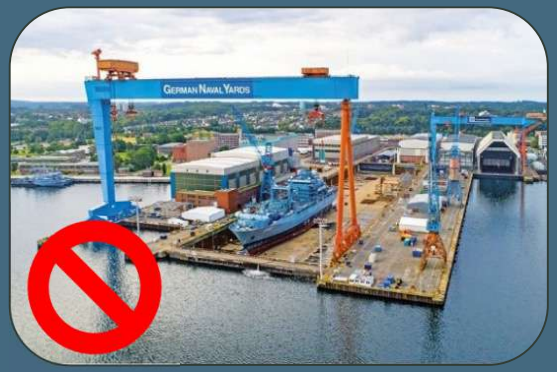


Supply chain requirements

Avoid constraints

- Shipyards
- Port investments
- Chains
- Extreme cranes on quay
- Manual welding

Avoid scarce resources



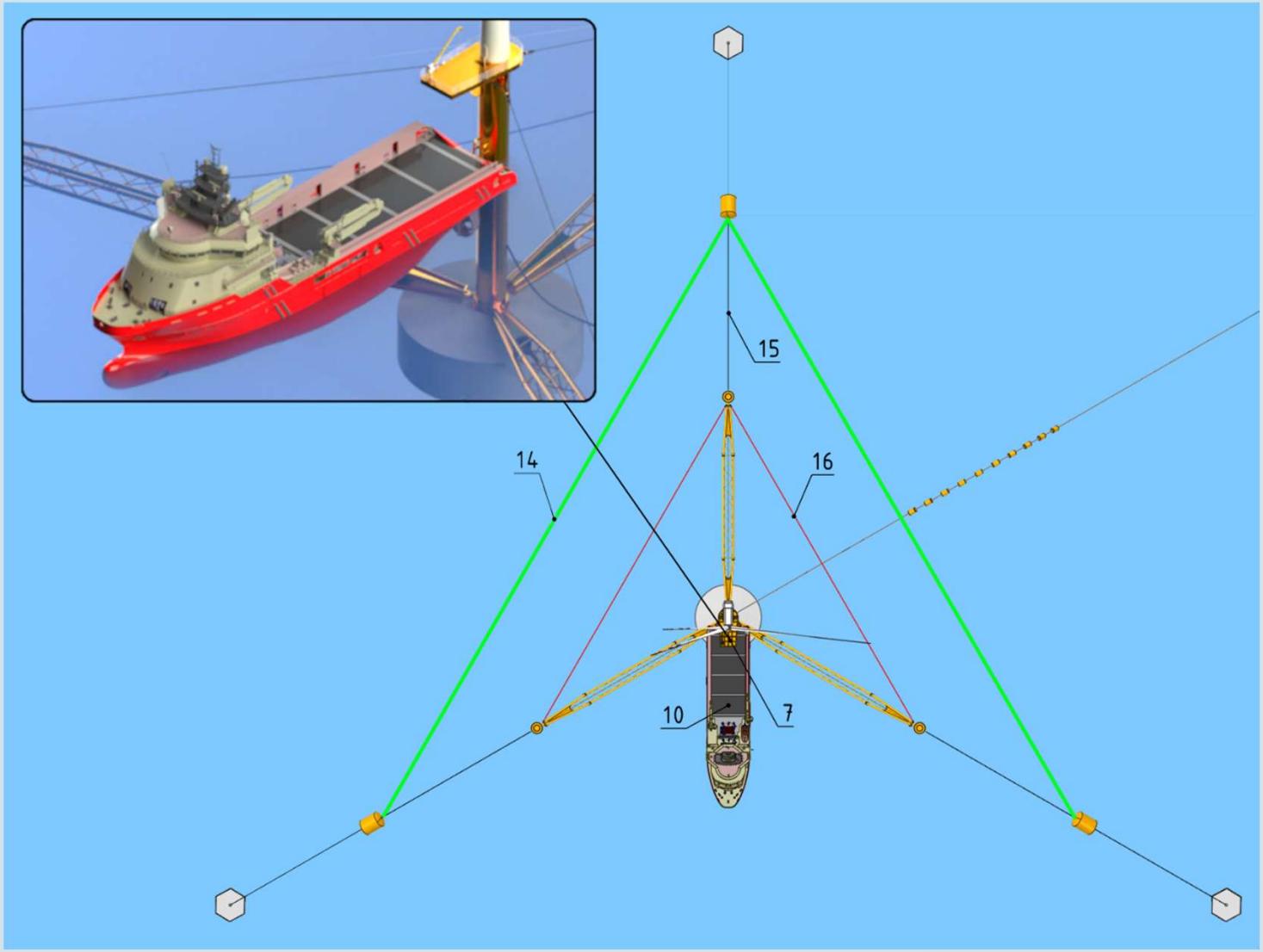
Use available resources

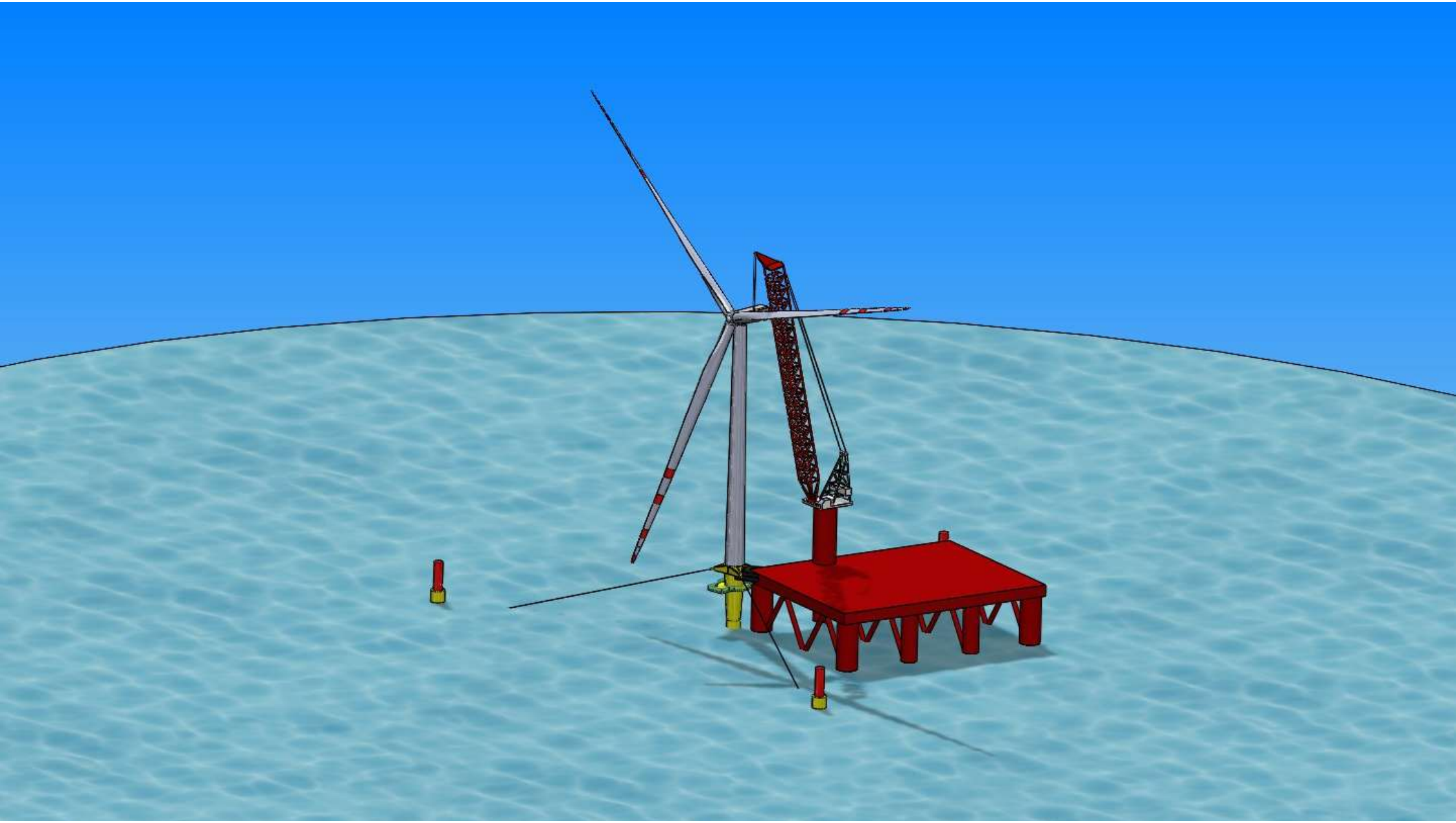
Maintenance requirements

- In situ replacement of heavy parts
- Plug and play allows also for tow to port
- Easy service access irrespective of wind and wave direction
- Small motions - benign to WTG

Access to central tower

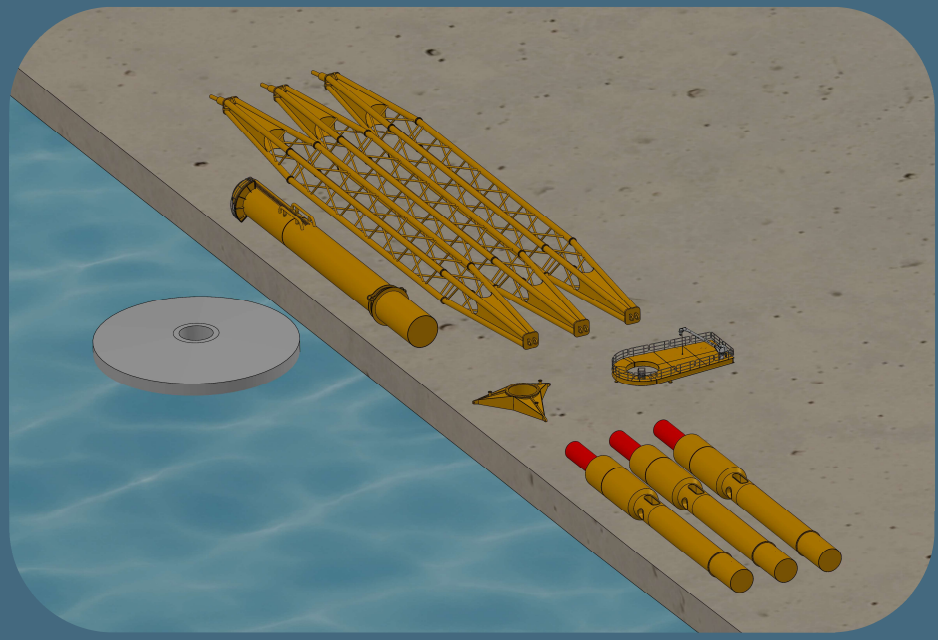
from any direction





Serial Production

- Modules, efficiently produced
- Automation, no manual welding
- Fast assembly with a few pins
- Individual components, limited weight
- Proven components



Result: 2 units per week

It works! Protected and verified by external parties

Digital simulations

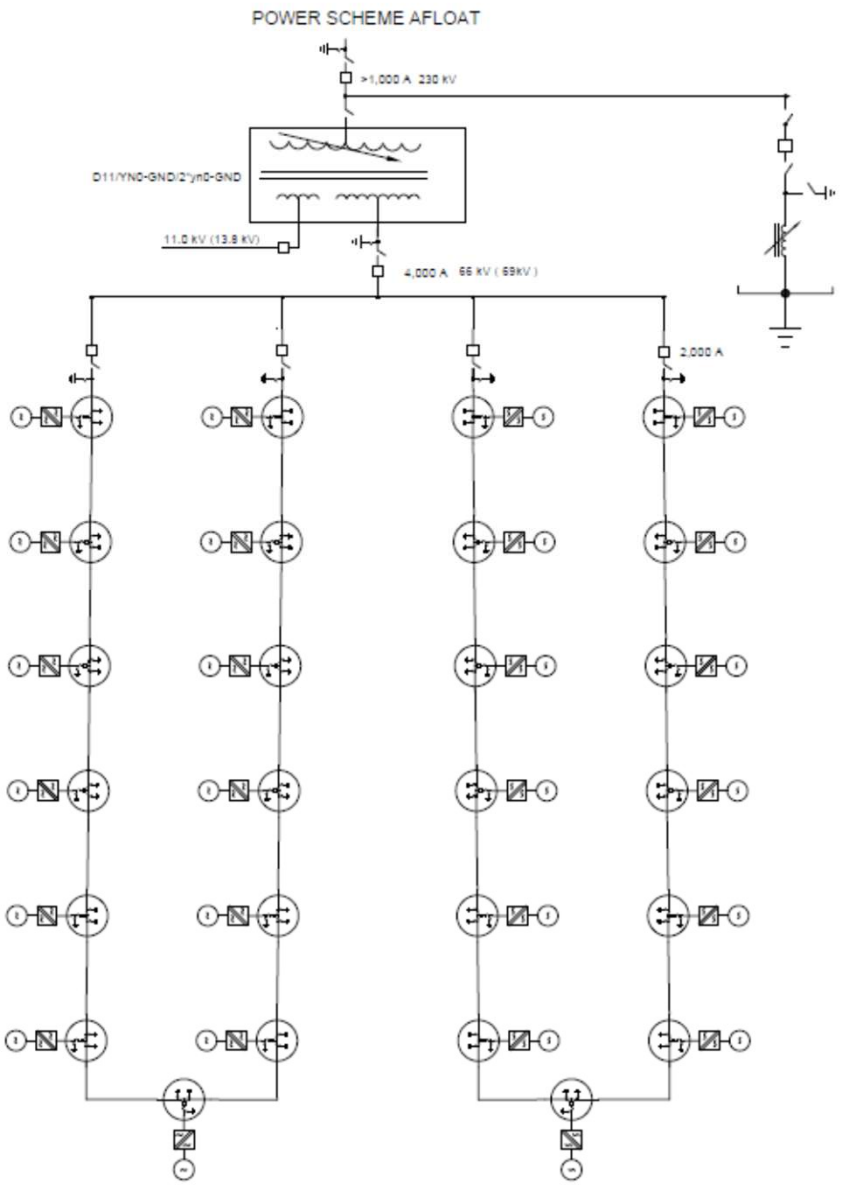
Bureau Veritas Approval in Principle

Third Party University Tank Test

10 Patents


Mass produced light floater system
Fast deployment
1 GW
farm in only one season

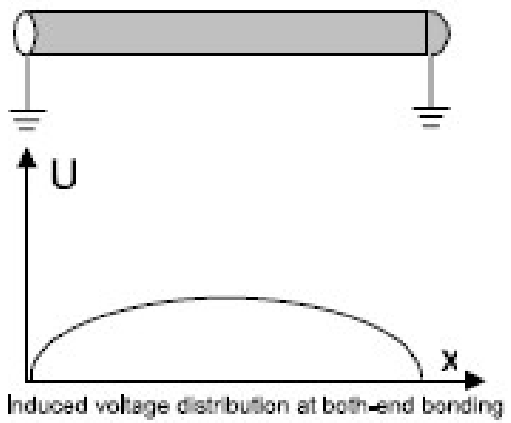
Sketch 1



Transformer and shunt reactor filled with biodegradable esters able to insulate 245 kV

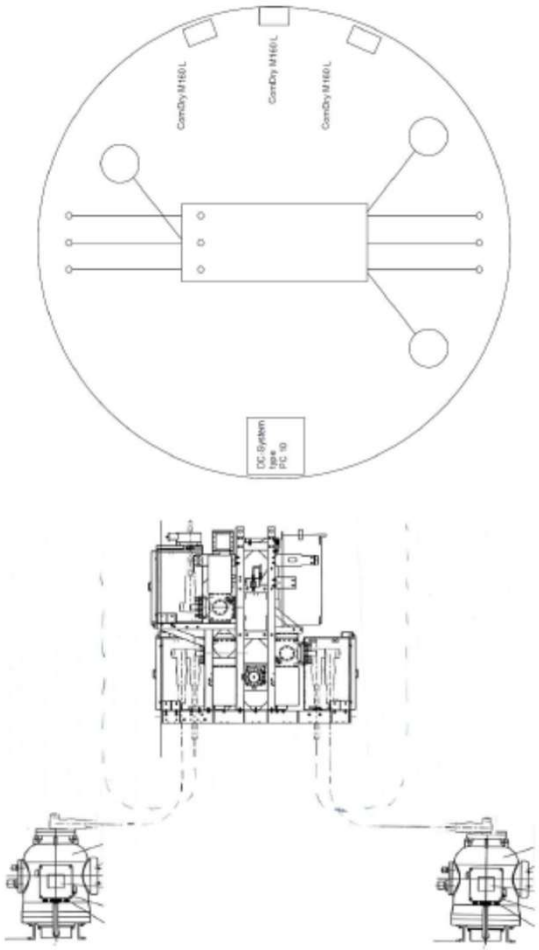
Wind towers separated approximately 8 rotor diameters making the loop-cable segments approximately 50 % longer due to sag

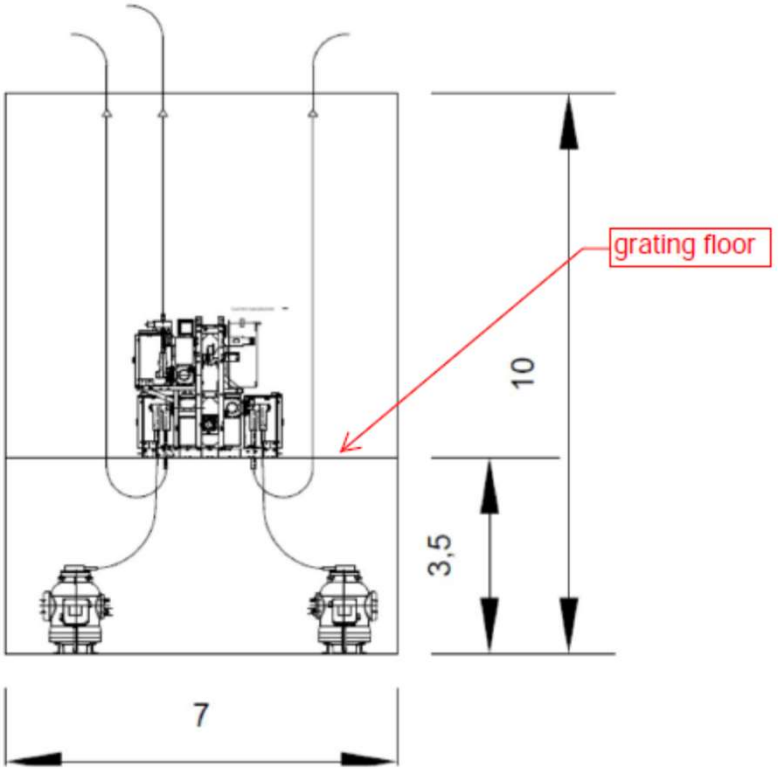
All power cables with fiber-optic cables incorporated



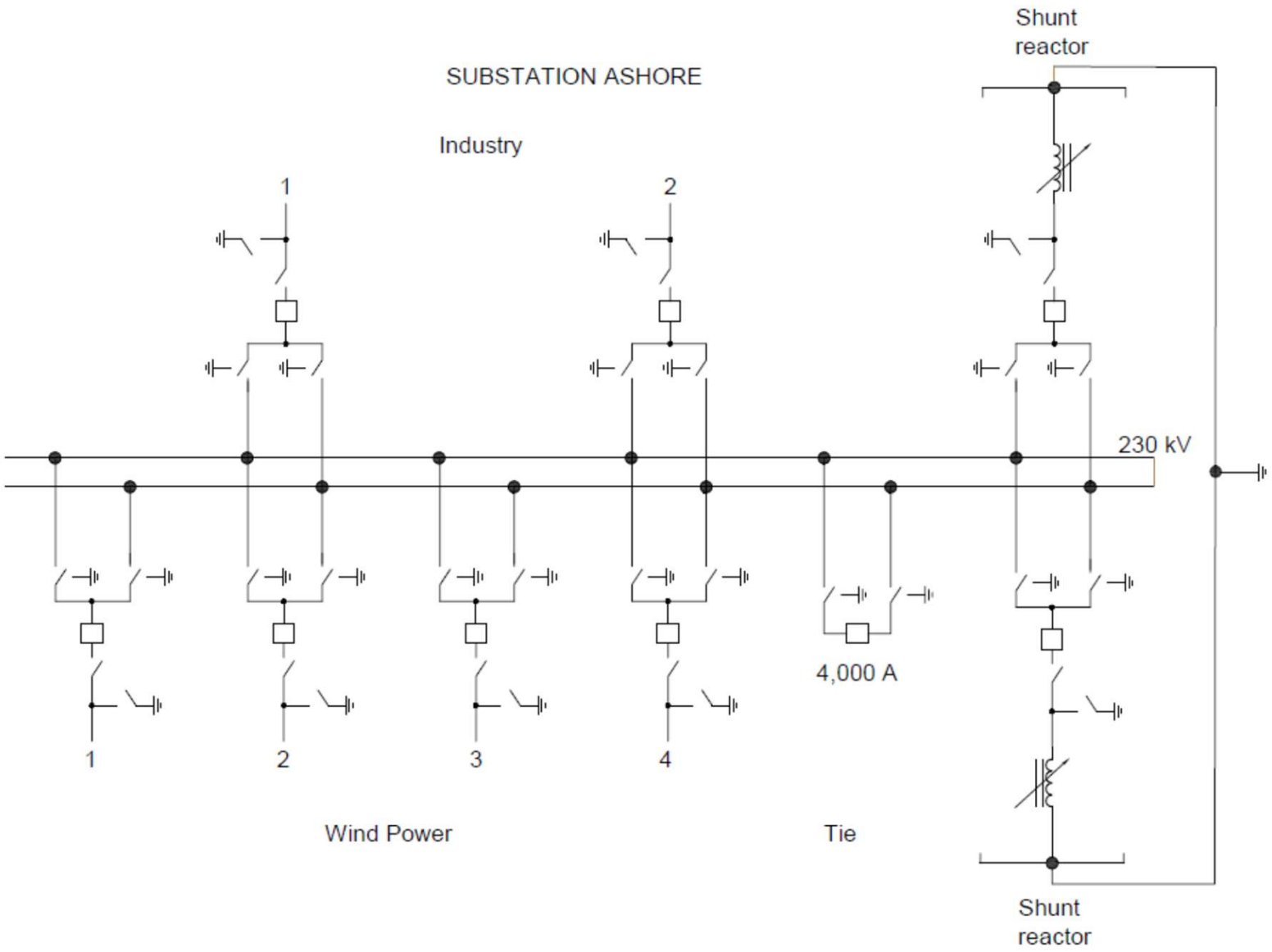
Induced voltage distribution at both-end bonding

Sketch 2





Sketch 3


Shunt
reactor
SUBSTATION ASHORE
Industry
1
2
230 kV
4,000 A
1
2
3
4
Wind Power
Tie
Shunt
reactor