

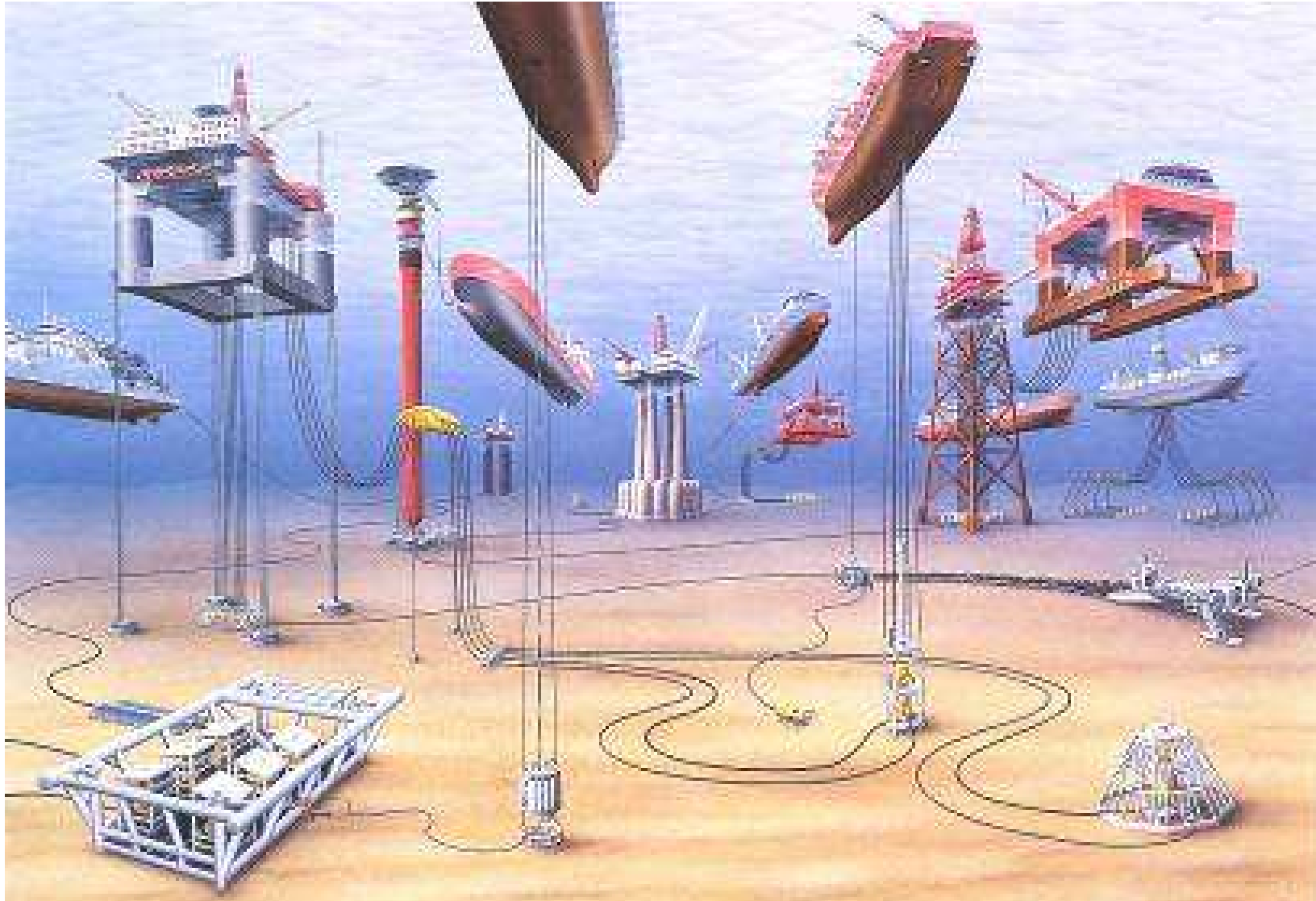
# SWAY LIGHTWEIGHT FLOATING FOUNDATION



*Michal Forland*  
CEO

**SWAY**

**Sway experince is from the Norwegian subsea technology.**  
**- A stepping stone for Offshore Wind industry**



**SWAY**

# SWAY LIGHTWEIGHT FLOATING PROTOTYPE



**Overall length: 29,0m**

**Hub height: 13,0m**

**Draft: 16,5m**

**Rotor diameter: 12,9m**

**Water depth: 23-30,0m**

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## Major owners:

- Statoil
- Statkraft

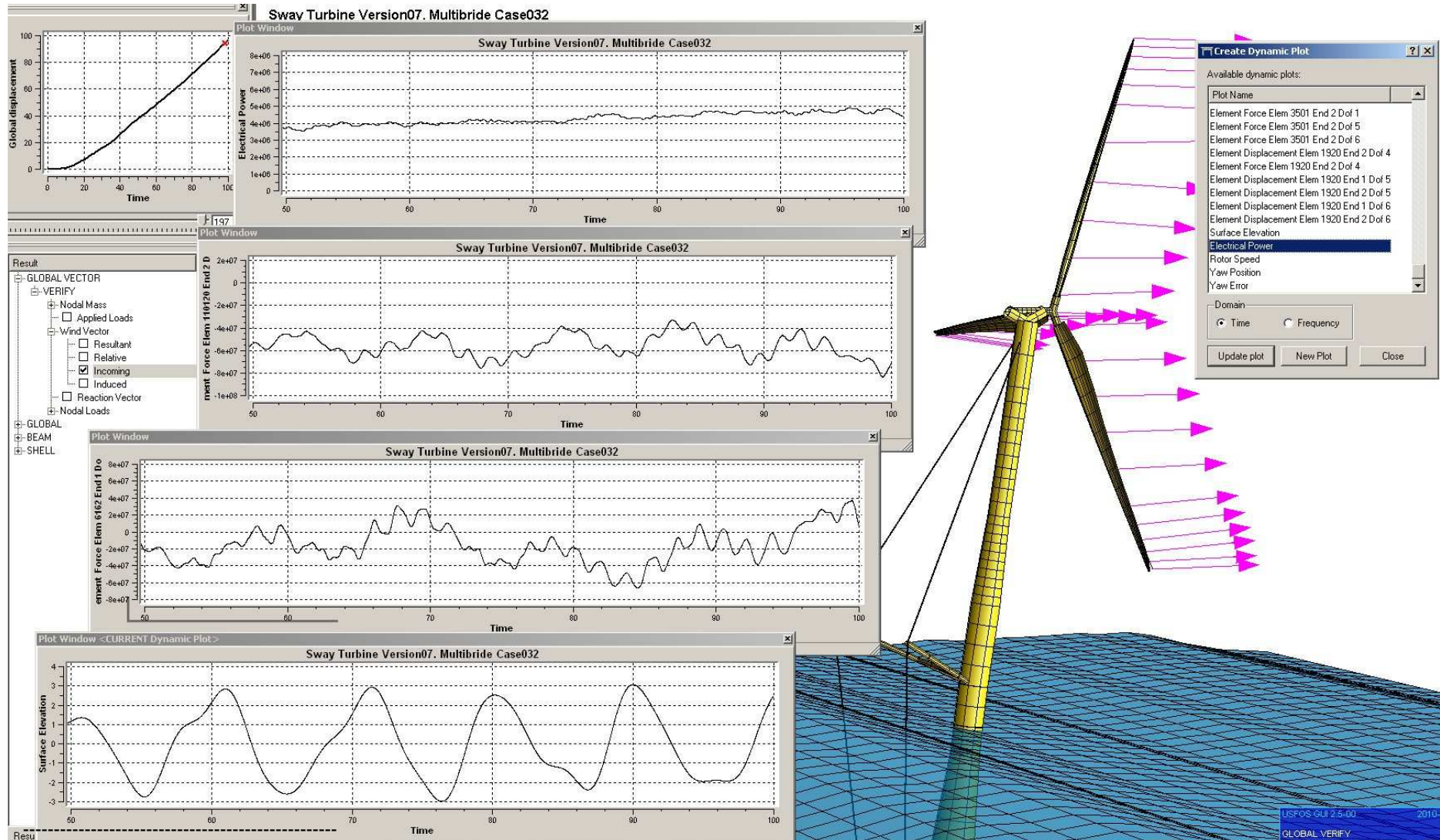
## Full scale data:

- Turbine size 5MW
- Water depth 60 – 300m+
- Designed for extreme weather conditions (North Sea).
- 100 year significant wave height  $H_s=17\text{m}$
- Max single wave  $H=30\text{m}$
- 20 years service fatigue life (60 years actual life)

***“Our vision is to harvest the abundant deep water offshore wind resources without the need of public subsidies”***

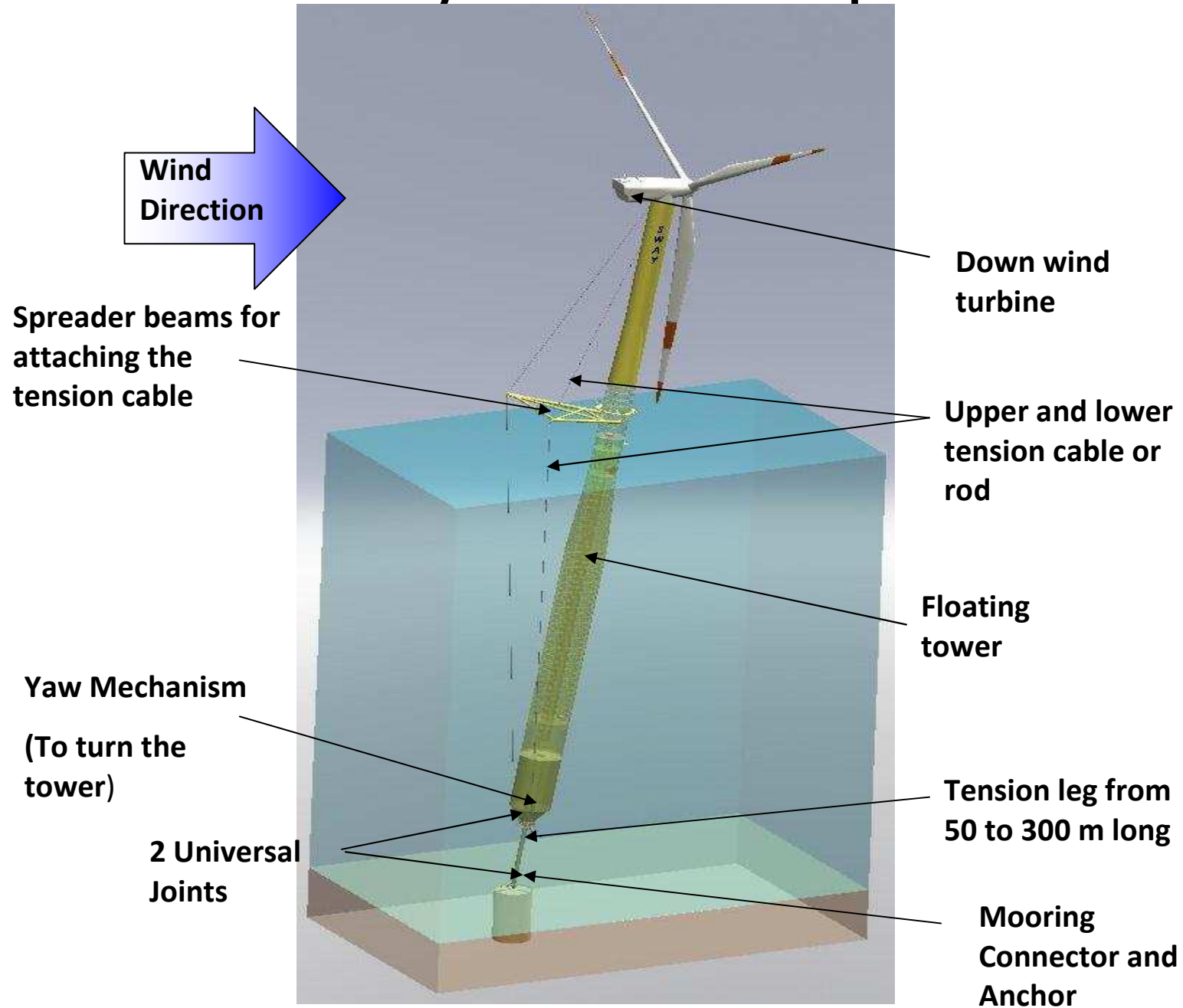
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# Snapshot from simulation

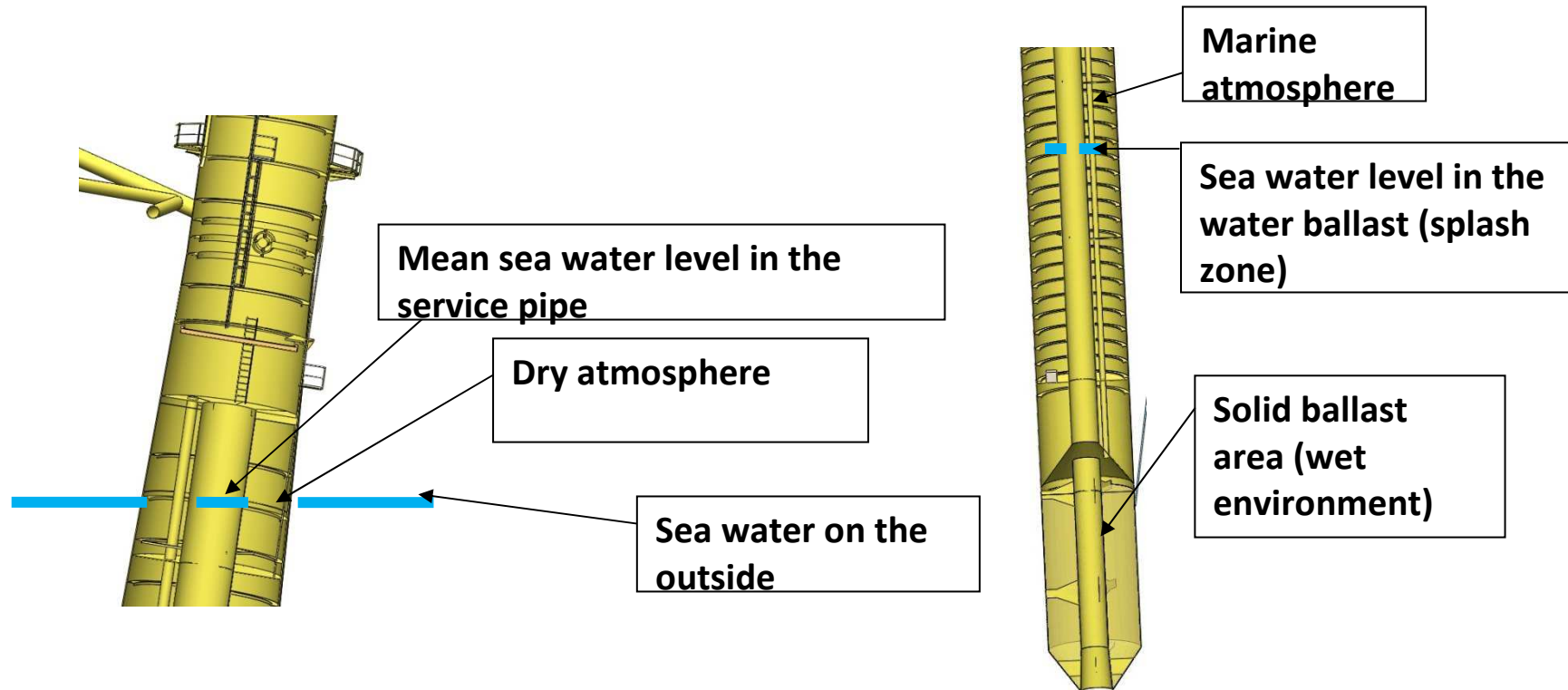


USFOS GUI 2.5-00 2010-08-08  
GLOBAL VERIFY  
SWAY

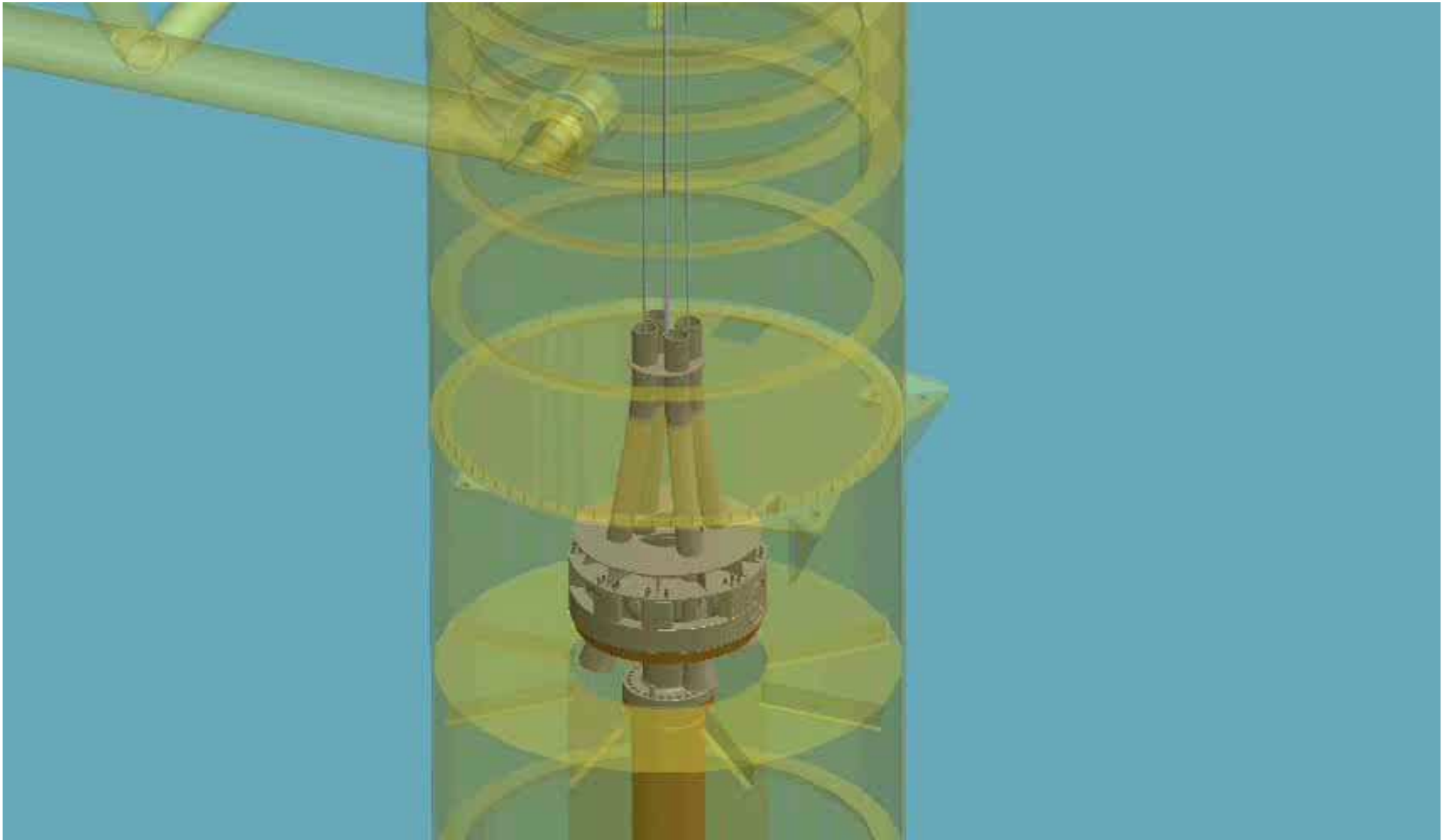
# System description



# Tower mid and lower section

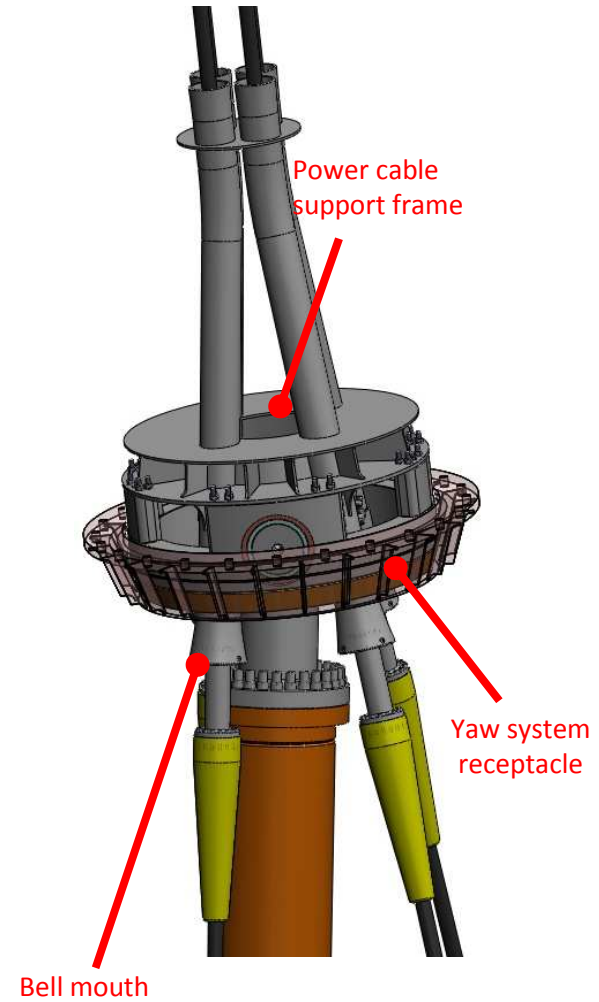
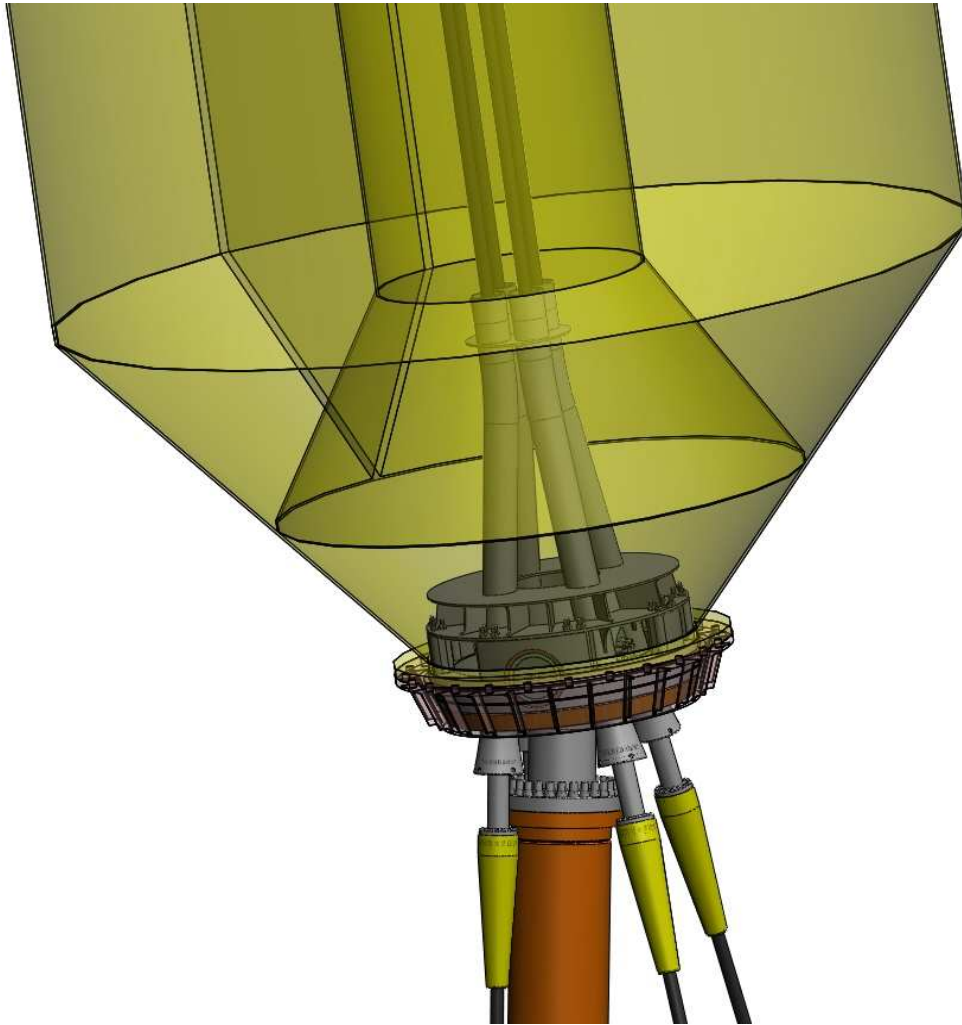


# Yaw and tension leg installation



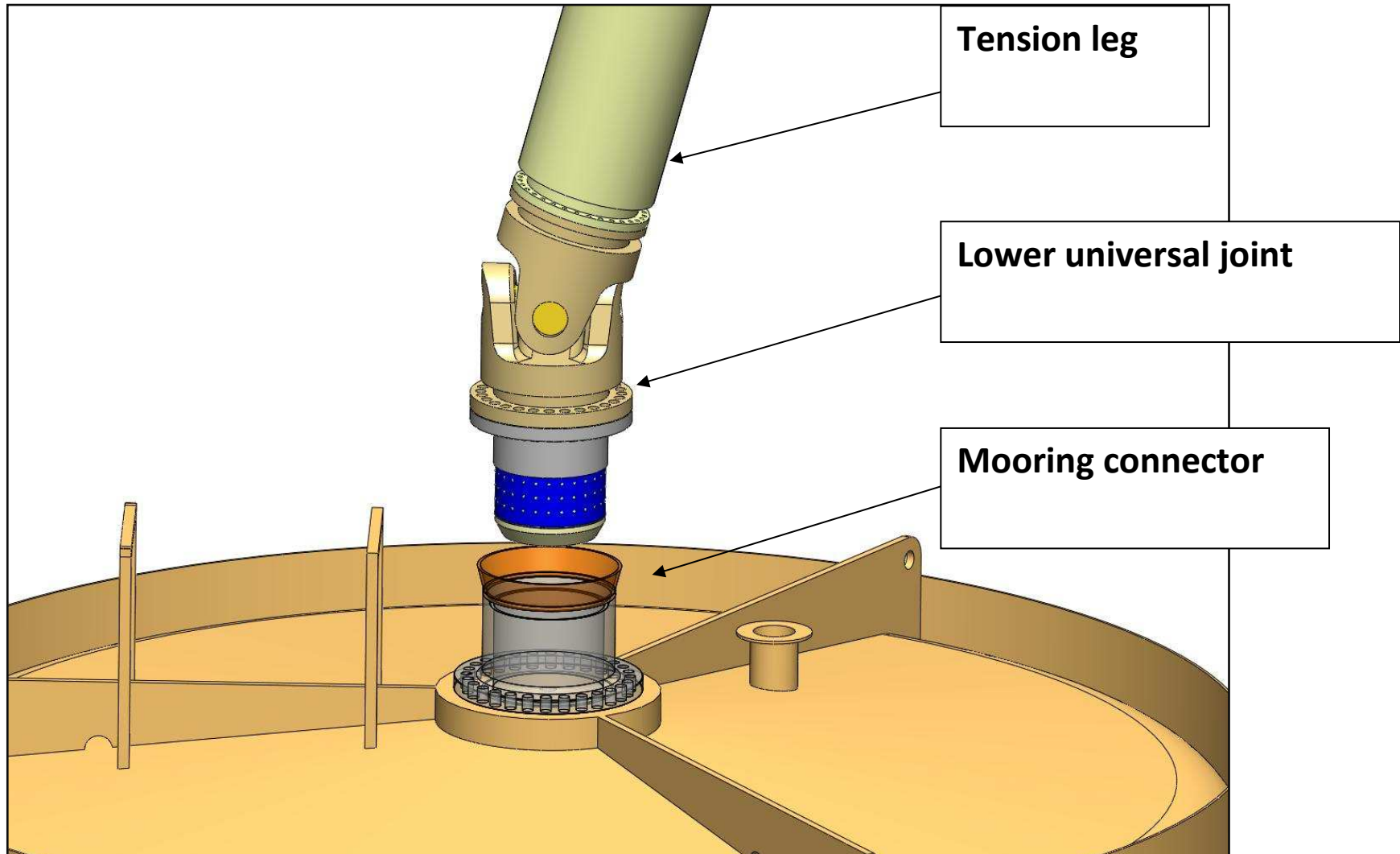
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# Yaw mechanism



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# Lower universal joint and anchor



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# Scientific co-operation with National Renewable Energy Laboratory (NREL)



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## Benchmarking with other offshore wind technology.

	Jacket – 30m	Sway floater – 120m	Upwind spar – 120m	Multiple tension– 120m	Tri-floater – 120m
Turbine	5 MW	5 MW	3,2-5 MW	~5 MW	~5 MW
Tower	210t/ 0,53M€	1050t/ 2,63M€	1800t/ 4,50M€	300t/ 0,75M€	300t/ 0,75M€
Foundation	500t/ 2,90M€	-	-	650t/ 3,77M€	2000t/ 10,00M€
Anchor wires	-	50t/ 0,25M€	40t/0,20M€	150t/ 0,75M€	-
Anchor w/ clump weights	-	-	180t/ 0,36M€	-	260t/ 0,52M€
Anchor/ piles	315t/ 0,63M€	90t/ 0,18M€	150t/ 0,30M€	600t/ 1,20M€	200t/0,40M€
Misc anch syst	-	50t/ 0,50M€	-/ 0,40M€	-/ 0,80M€	-/ 0,40M€
Installation	0,40M€	0,40M€	0,60M€	0,70M€	0,30M€
<b>Total</b>	<b>1025t/ 4,46M€</b>	<b>1240t/ 3,96M€</b>	<b>2170t/ 6,36M€</b>	<b>1700t/ 7,97M€</b>	<b>2760t/ 12,37M€</b>
Relative	1,00	<u>0,89</u>	1,43	1,79	2,78



### Competitiveness with other technologies:

## Tower/foundation/anchor costs incl. installation

