DeepWind
Floating Offshore Wind Subgroup

UNIVERSAL FLOATING SOLUTION

Substructures – Industrialisation

Concrete Floating Substructures 2024
Ardoe House Hotel, Aberdeen, 8th of October

BW ideol

Table of contents

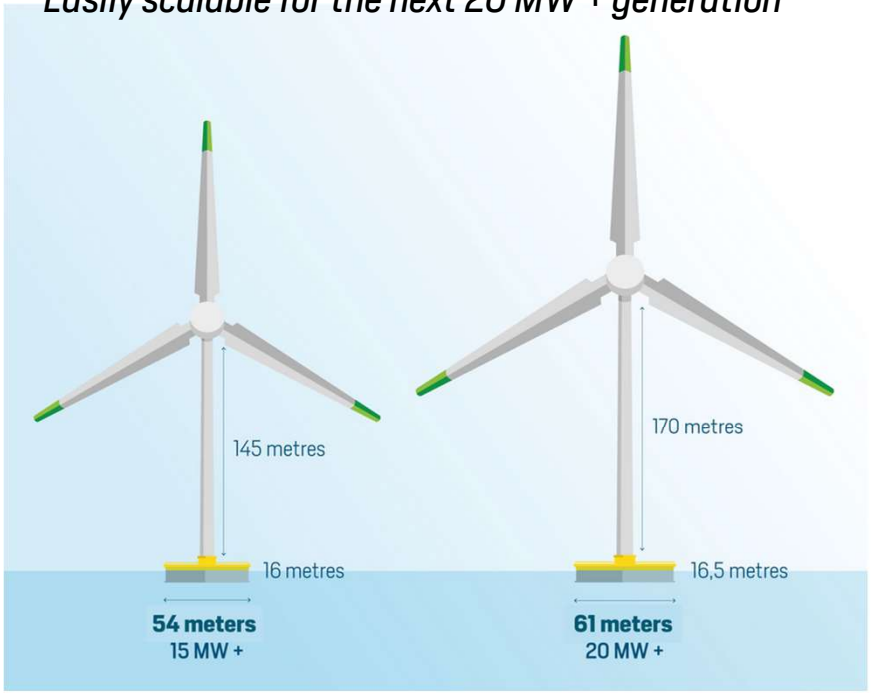
THE CONCEPT

A universal floating foundation...

- Compatible with all existing wind turbines
- Covering all main meteocean conditions
- Aiming for “type” certification
- Modular with site-specific configurations

The same optimized floating foundation for all current 15 MW+ wind turbines

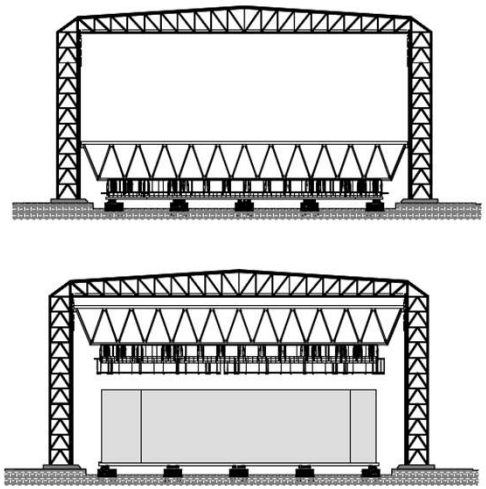
Easily scalable for the next 20 MW + generation

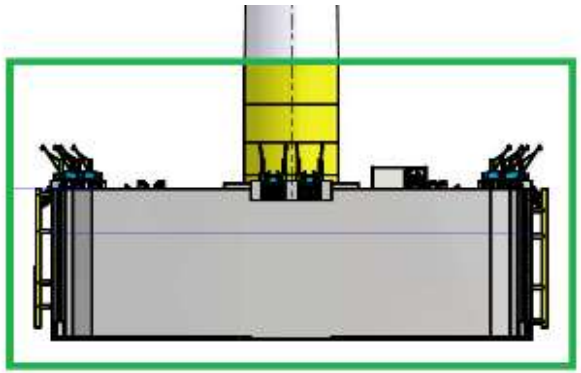


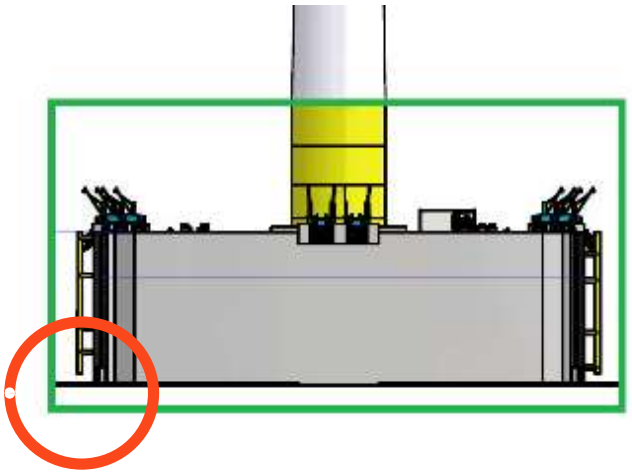
Substantial WT power boost with minimal floating foundation expansion

BW ideol

How ?







- Gantry Slipforming

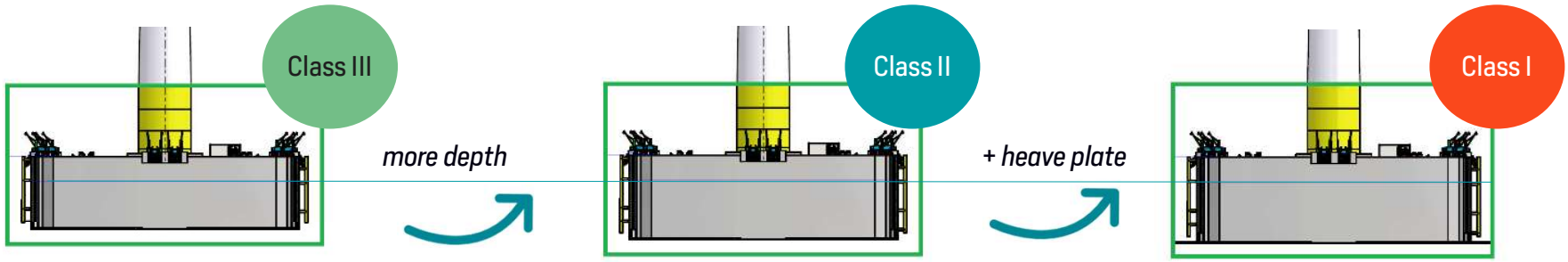
Hydraulic jacks take support on the trusses and continuously lift a complete formwork with work decks, with a climbing rate of 10–12 cm/hour, 24/7. As the concrete gradually cures, the slipform creates a seamless concrete structure in one pouring from the bottom to the top.

- Depth can be easily adapted to cope with acceleration constraints
  - increases in severe environment
  - decreases in moderate environment

- Heave plate can be added by increasing the bottom slab
  - damps the Roll & Pitch
  - reduces the Bending Moment @ deck connection

BW ideol

The same general arrangement for a range of classes



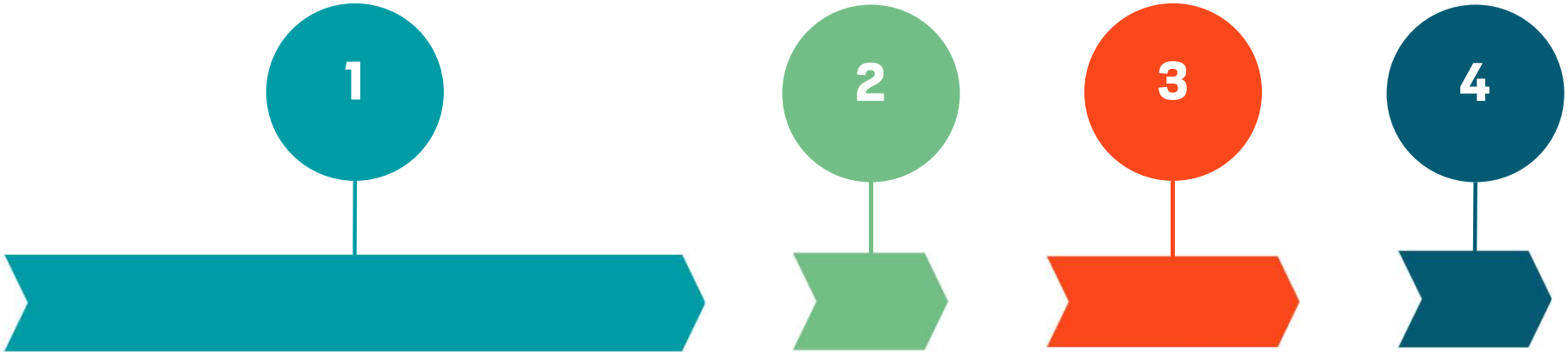
Moderate environments

Severe environments

Most severe environments

Towards a range of type-certified products

THE CONCEPT



Product development
- Floater Basic Design Approval
- Manufacturing evaluation

Type-certification

Project engineering
- Project environment & loads
- ILA (Integrated Load Analysis) with selected WT
- Design and certification of mooring systems & IAC

Project certification

BW ideol

THE CONCEPT

... unlocking mass-production

A holistic approach to propose the optimal trade-offs

- Same floating foundation for multiple projects
- Optimized for lean serial manufacturing
- Integrating in advance the whole supply chain
- Considering from start installation and maintenance requirements

BW ideol

THE TRADE OFF

BW ideol

Optimize... where it counts !

THE TRADE OFF

Before

Onerous & lengthy iterative “ad-hoc” design loops

Optimization of quantities are made to the planning’s expense

Critical path is the Floating Foundation Design, certification and construction

One-off Construction Site

After

Loads and strength verification of an already designed & certified FSS

Considered 100% optimized, subject to:
Heave plate, TP and Depth adaptation / optimization

100% Focus on productivity & time to delivery
Gains on time-related costs and amortization of production line prevail

Manufacturing lines serving multiple projects

BW ideol

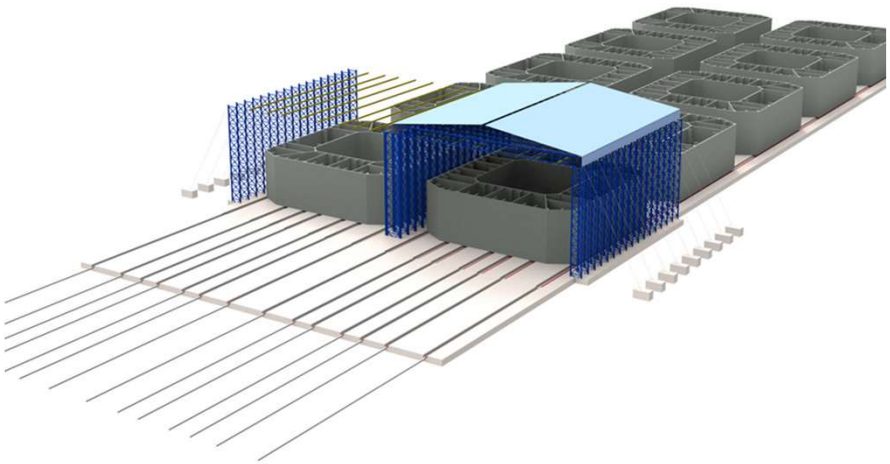
SCALABILITY

BW ideol

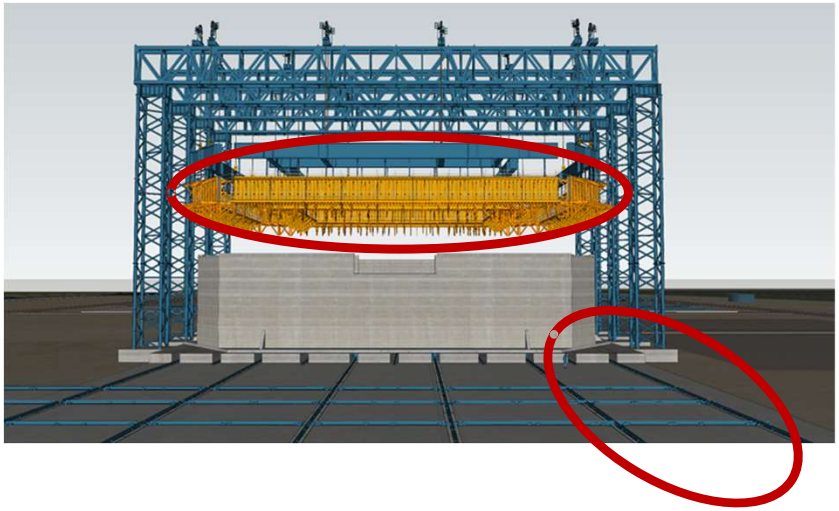
A scalable & replicable blueprint

SCALABILITY

- From 1 to 2 production lines



- From the 15MW+ platform to the 20MW+ platform



BW ideol


THANKYOU
bw-ideol.com