DeepWind
North of Scotland Offshore Wind Cluster

BOUYGUES TRAVAUX PUBLICS
BUILDING FOR LIFE

Deepwind Annual Concrete Floating Substructures Event
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Reconciling Design Performance, Sustainability, & Industrialisation Potential

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Safety Moment

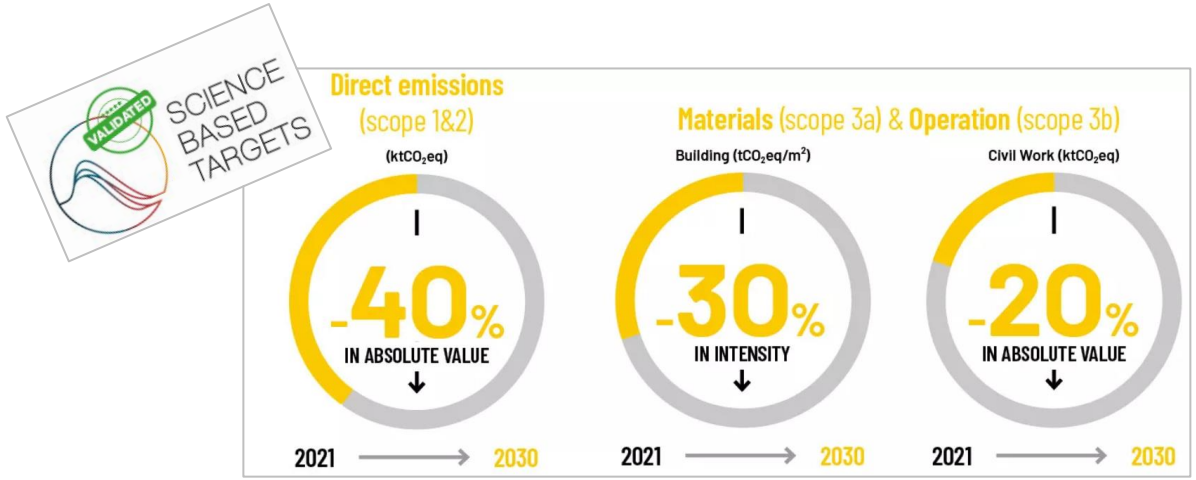
First things first…
Every workday at Bouygues starts with a warm-up session!

Bouygues = “BWEEG”!

Bouygues in a nutshell

› Part of **civil works division** within multiservice conglomerate Bouygues SA
› **Global reach** and permanent presence in UK, North Amercia, Australia, Hong-Kong,…
› Ambitious **CSR policy** including SBTI-approved CO_2 reduction targets by 2030

› **EPC(I) conctractor** for offshore wind concrete foundations



12,000

3bn€

650 Technical department staff

Offshore wind track-record…

Historical perspective on offshore concrete structures

1945
US Barge WWII

1970-80
Nordic GBS

1975
Ardjuna Barge

1978
Ninian Central Platform

1994
N'Kossa Barge

2008
Adriatic LNG

2016
Floatgen

2020
Hywind Tampen

2022
Arctic LNG2

Aiming for high design performance

Floating offshore wind demands stringent design performance:

- **Hydrodynamic** behaviour for optimised turbine performance
- **Strength**, also in the face of temporary construction load-cases
- **Watertightness**
- **Design life** and associated durability

But also…

- Compatibility with each project's **operational requirements** (draft, accessibility, O&M strategy…)

Site & project inputs

Developer's design criteria

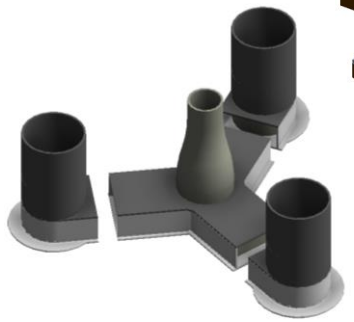
OO-STAR optioneering

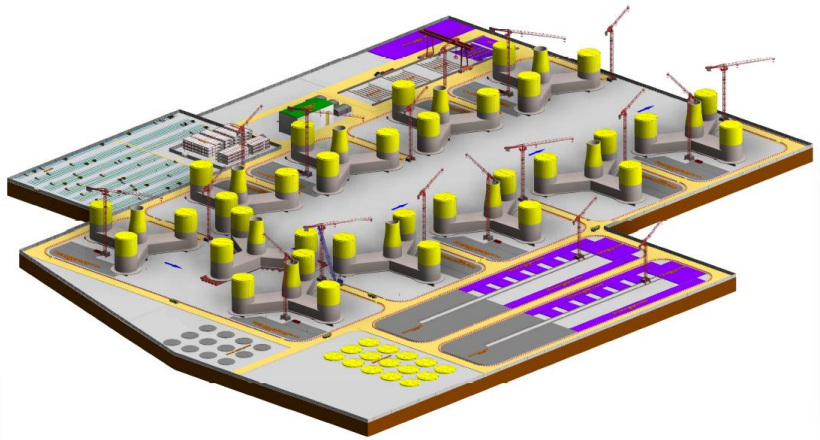
Striving to reduce costs through industrialisation

A double approach to CAPEX reduction through design optimisation & productivity gains:

› Optimising quantities

› Designing full-blow & robust industrialised production lines





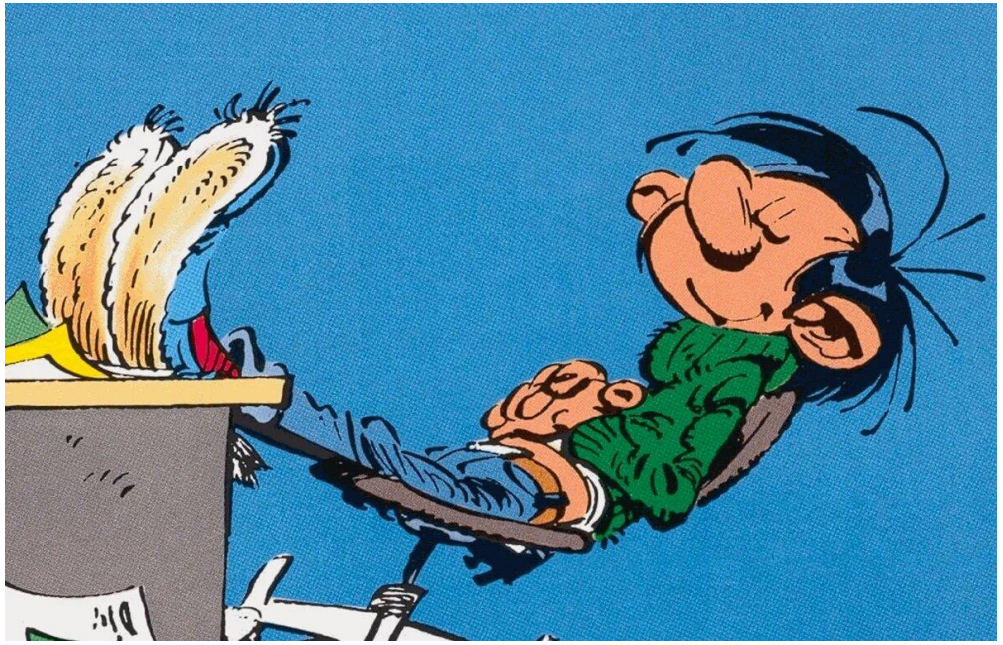
*On Fécamp, productivity gains stood for **30% lead time reduction** between last and first concrete gravity-based foundation produced.*

Our aim is not to standardize the product, but the workflow.

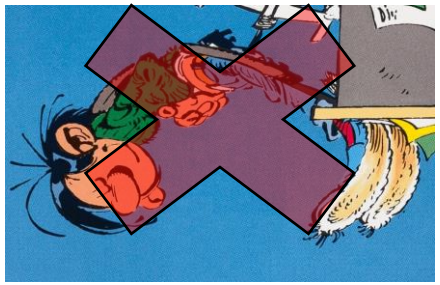
Committing to sustainable solutions

Offshore wind projects are by **essence virtuous**…

Especially when using concrete foundations which have a **carbon footprint 2 to 3 x lower** than steel equivalents !

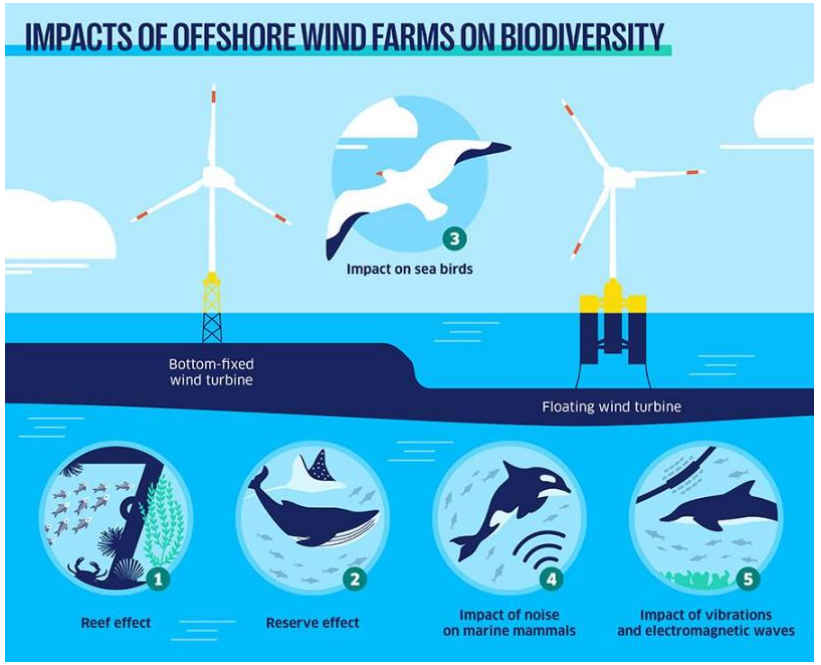


Committing to sustainable solutions



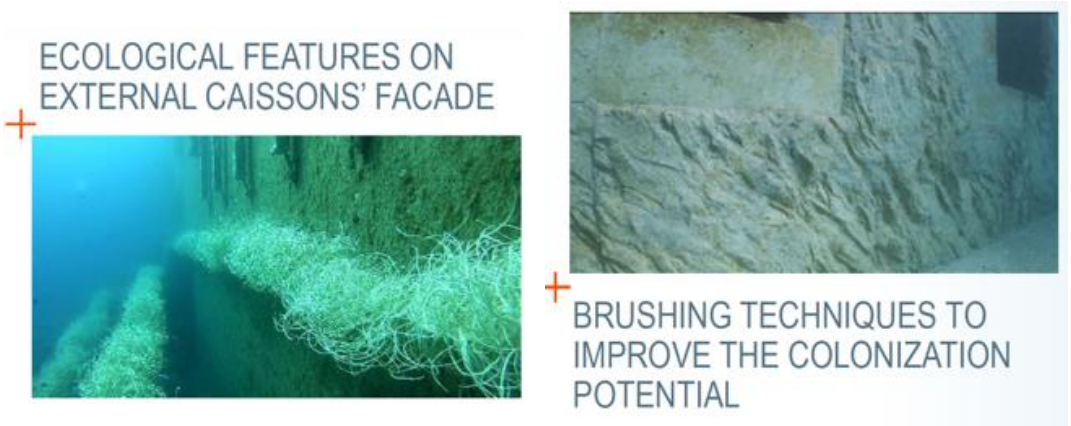
We must stay committed to reducing further the impact of our projects on the environment:

- Concrete production stands for **7% of global CO2 emissions** each year
- Blast-furnace slag (or GGBS) will progressively become **scarce** in Europe.
- Chemical **effects on the marine environment** (e.g. painting and cathodic protection)
- The **transport & installation phases** of FOW projects remain highly CO2 emissive



It’s been done before…

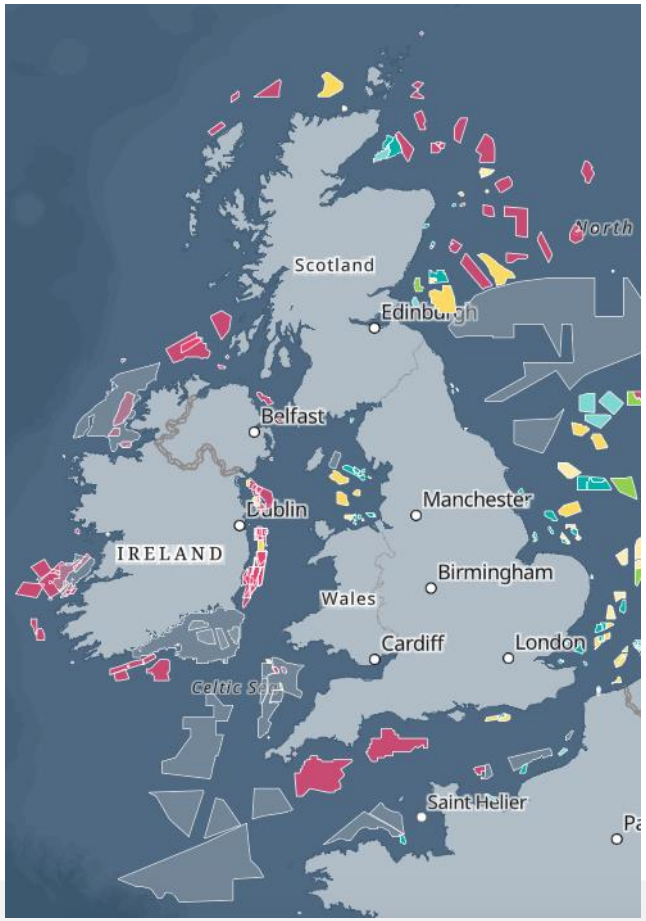
… and not just on offshore wind projects…

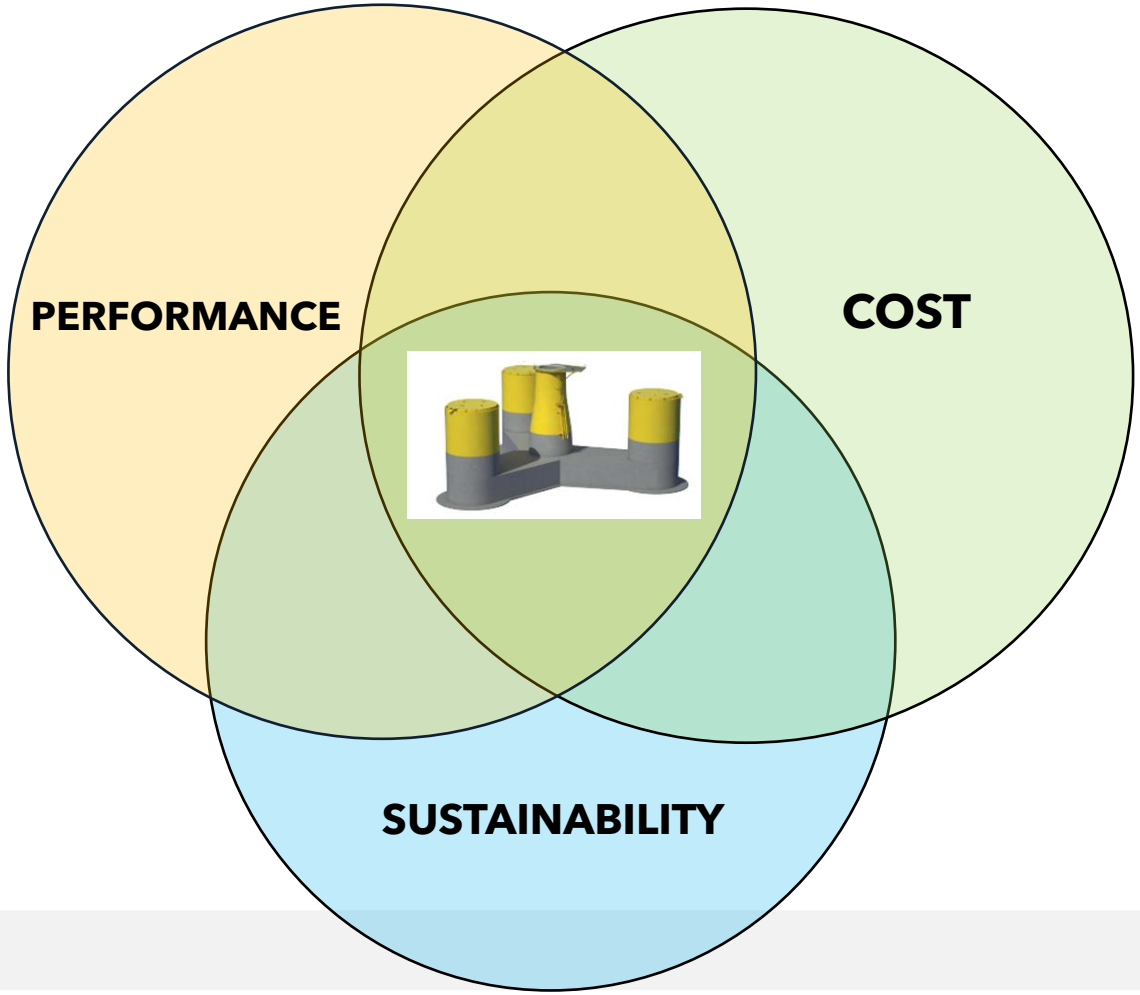


…but we can do better still!

Conclusion

In the UK, floating offshore wind is giving us a unique opportunity to dream big!





THANK YOU

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