

DOCKETED

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Document Title:	Industrialized Offshore Wind Foundations, The Tetra Concept
Description:	Presentation with information relevant to offshore wind costs from a conference at which Commissioners spoke.
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Industrialized Offshore Wind Foundations

The Tetra Concept

Henrik Stiesdal, 02.10.19

Offshore wind power is developing tremendously

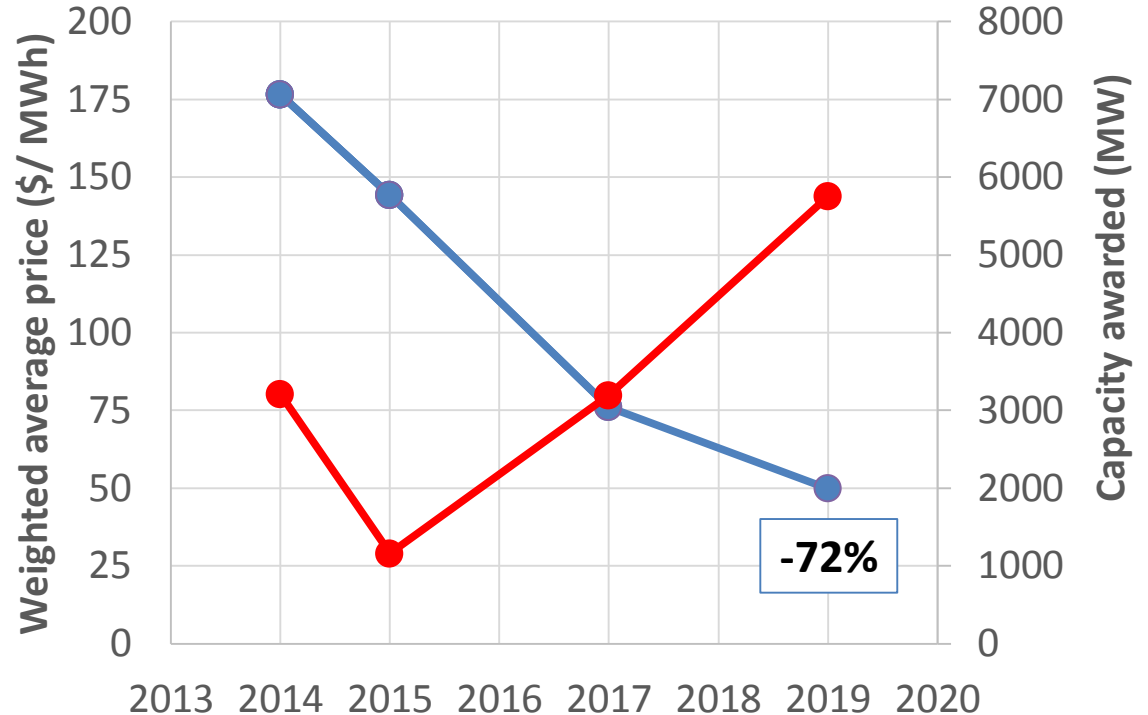
Cost development

- Offshore wind power has developed from a costly alternative to a competitive source of electricity

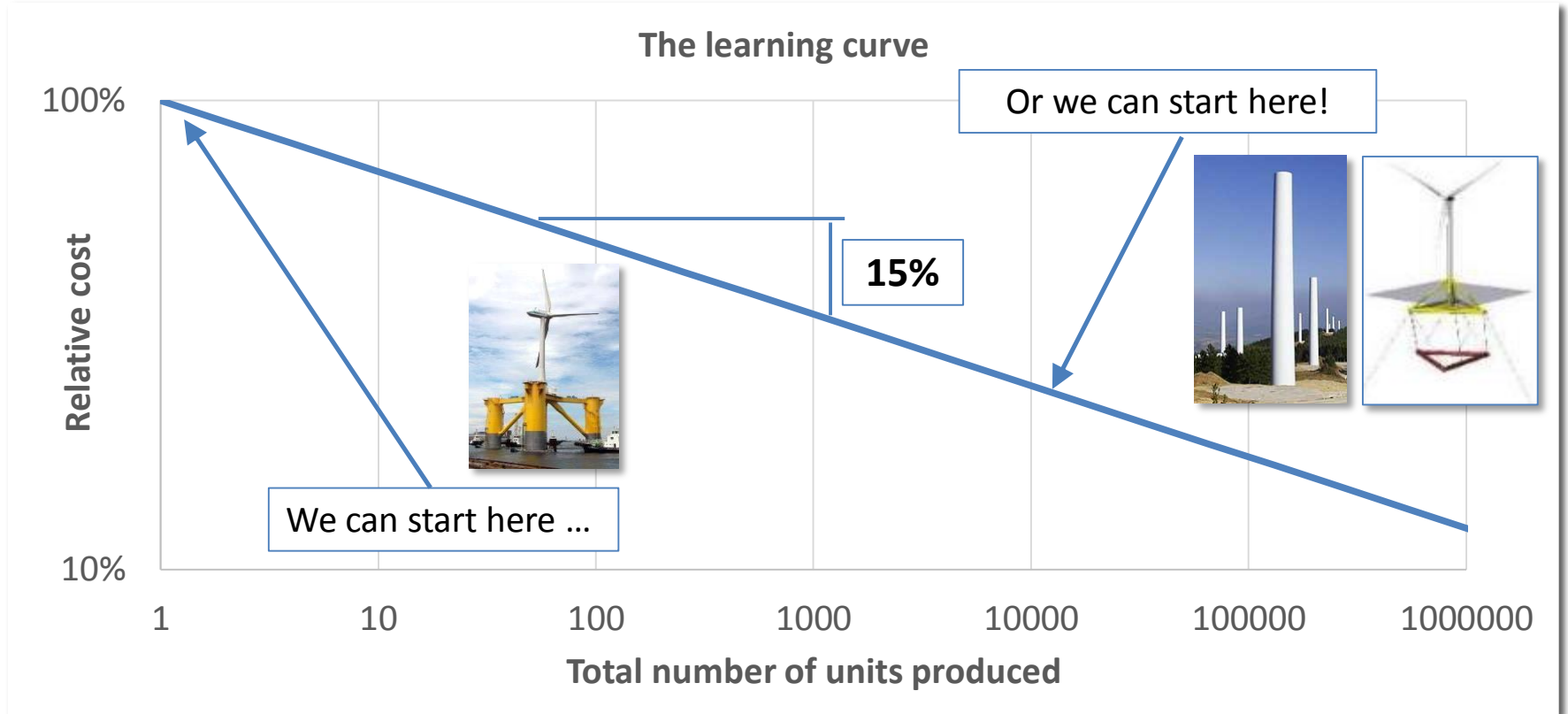
The reasons:

- Competition
- Industrialization
- Low cost of capital
- Low steel prices

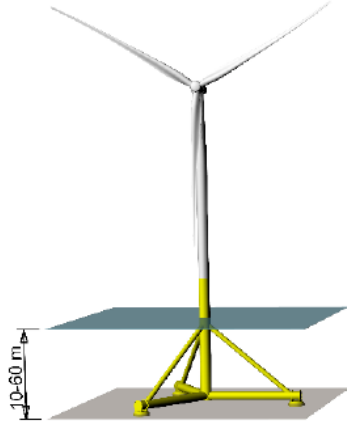
Energy Price, UK Offshore Wind



The fundamental choice regarding the supply chain

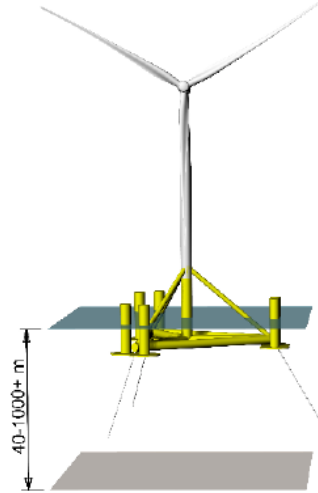


The Tetra product range



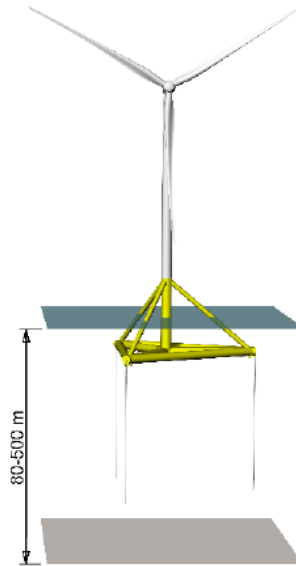
TetraBase® bottom-fixed foundation

Bottom-fixed foundation with crane-free off-shore installation. Suited for 10-60 m depth.



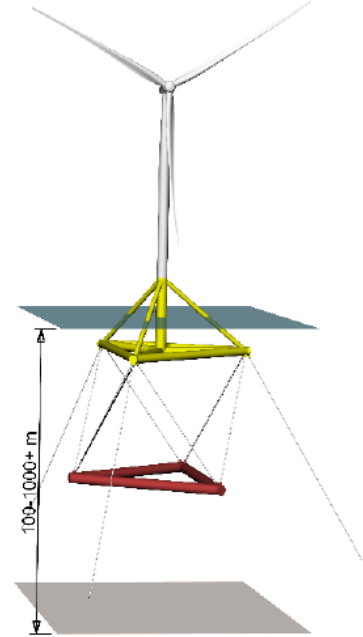
TetraSub® floating foundation

Floating foundation in semisubmersible configuration. Suited for 40-1000+ m depth.



TetraTLP® floating foundation

Floating foundation in tension-leg configuration. Suited for 80-500 m depth.



TetraSpar® floating foundation

Floating foundation in spar-buoy configuration. Suited for 100-1000+ m depth.

The TetraSpar Demonstrator

Stage 1 - 2016

- Concept
- Initial validation

€ 0.2m

Stage 2 - 2017

- Design
- Tank test OK

€ 18m

Stage 3 - 2020

- Prototype
- Full validation



Stage 4 - 2021

- Pilot project
- Release

Prototype

- Siemens SWT-3.6-130, 3.6 MW rated power, 130 m rotor diameter
- Status 30.05.19: Fabrication start June 2019, installation start scheduled for May, 2020
- Foundation contractor: Welcon



Assembly and installation

