

NOWITECH final event 22-23 August 2017

Story of a NOWITECH PhD

Lars Frøyd

Senior Engineer - Flexible Pipe Operations and Offshore Wind Technology

4Subsea AS

Lars.froyd@4subsea.com

NOWITECH

Norwegian Research Centre for Offshore Wind Technology

Why NOWITECH PhD

- 1) To have a (realistic) chance of working with floating wind turbines
- 2) To stay with the fabulous people at Water Power Lab a bit longer
- 3) The promise of a large community of NOWITECH colleagues and fellow PhD's



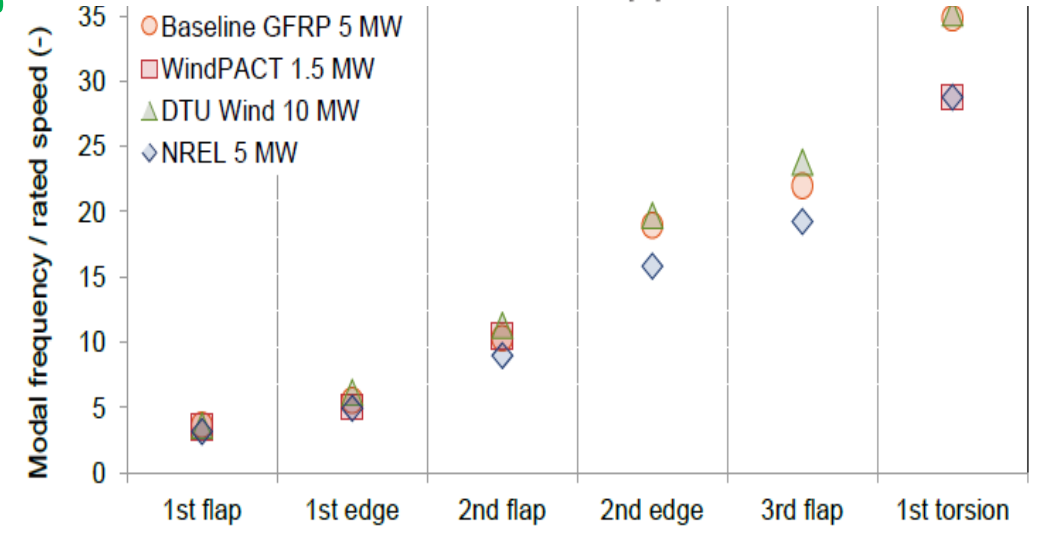
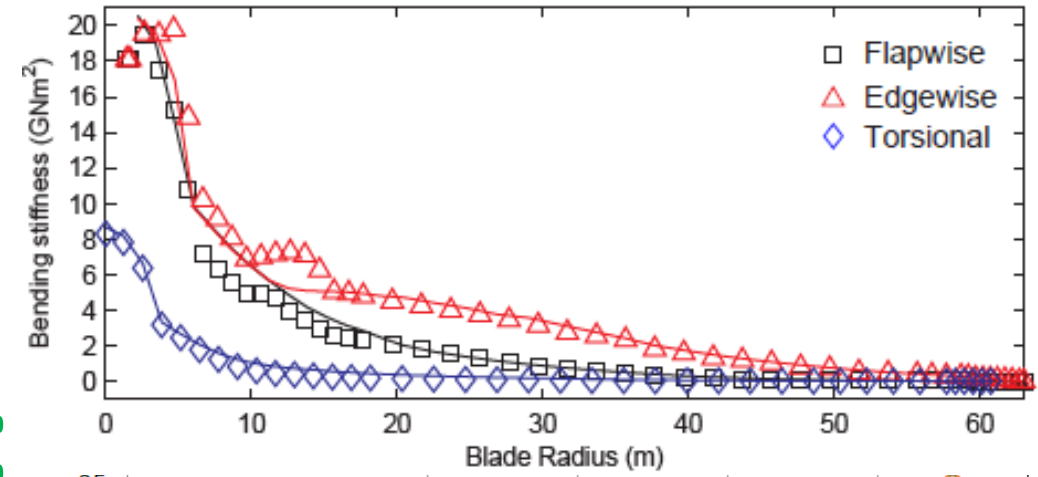
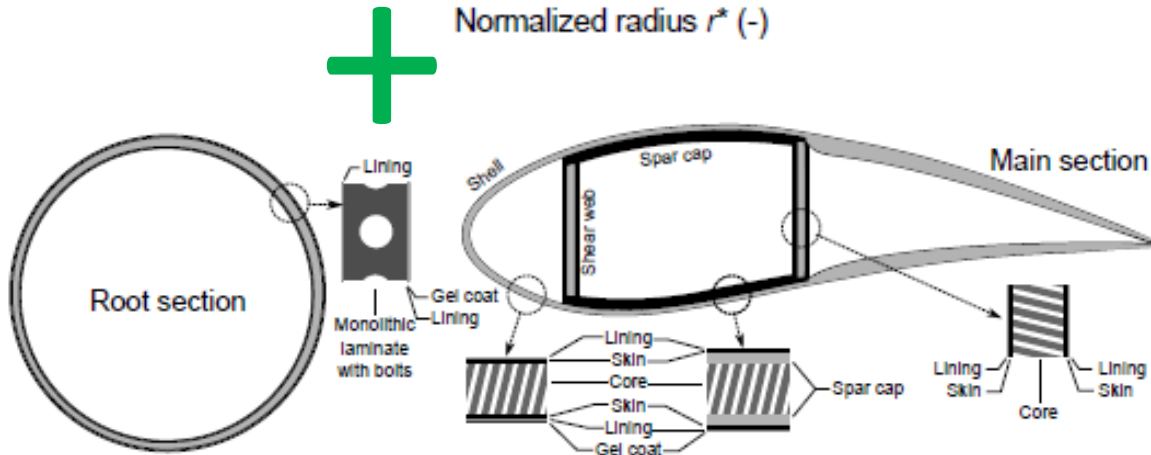
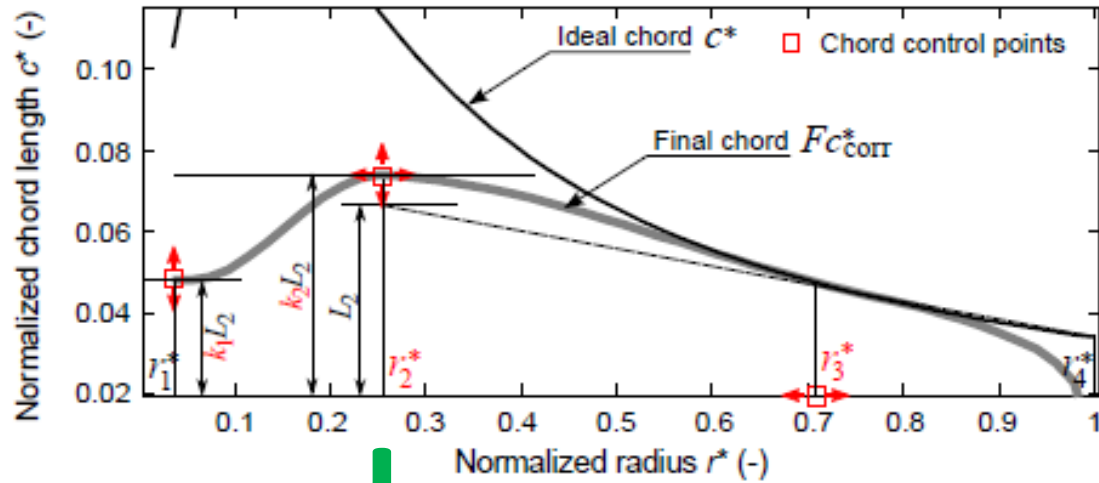
My Thesis:

Wind Turbine Design – Evaluation of Dynamic Loads on Large Offshore Wind Turbines

- 1) Develop a realistic parametric blade design model for turbines >> 3-5 MW
- 2) Use this design model to:
 - Investigate the design space for future large wind turbine rotors
 - Improve knowledge on loads and limitations for large rotors beyond ‘geometric scaling’

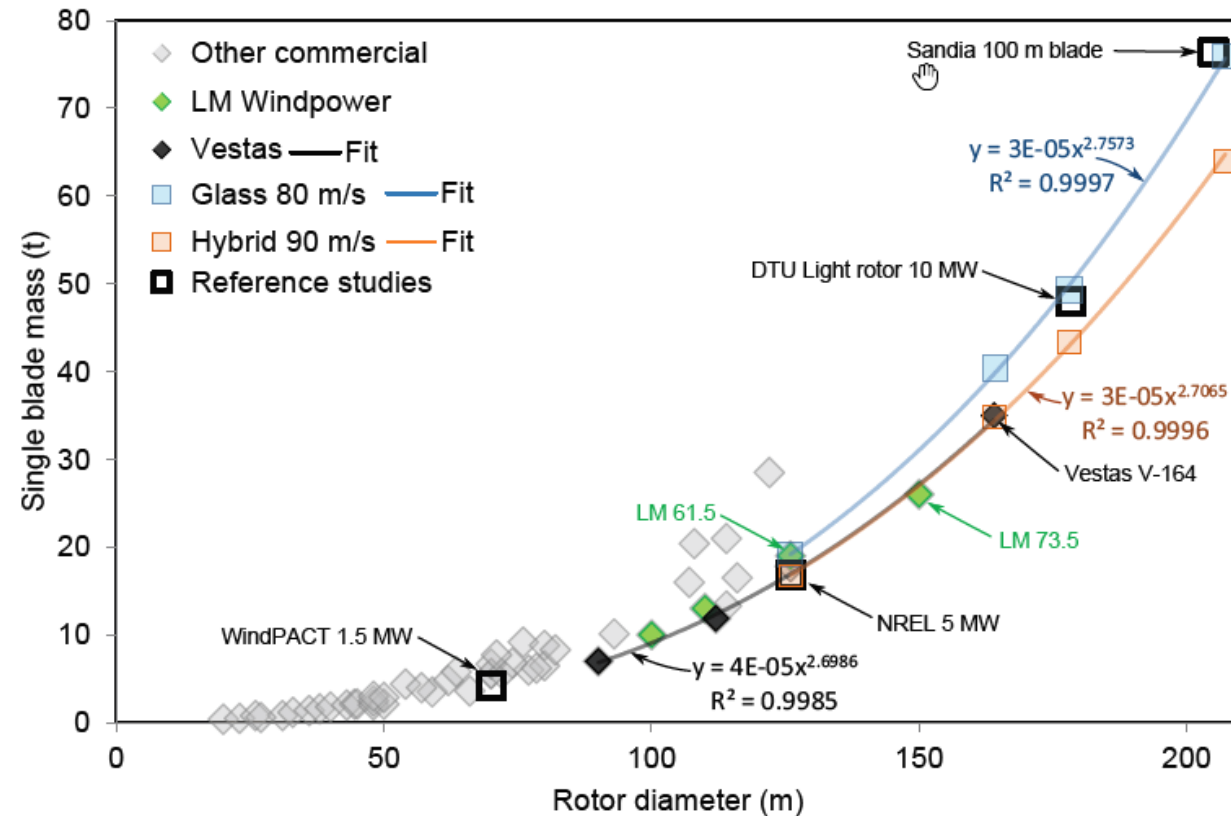
A simple blade model...

can accurately predict real blade characteristics



Providing some very interesting results...

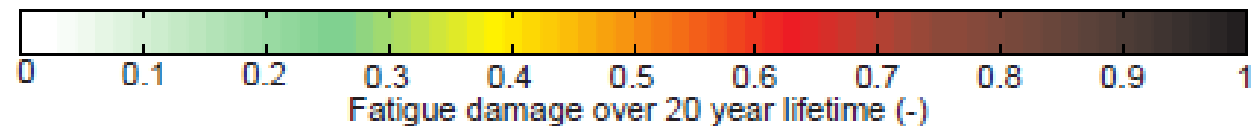
E.g. of GFRP and G/CFRP hybrid blades, their design loads and scaling



Very large GFRP blades will use most of their fatigue life carrying their own weight..

GFRP 5 MW

GFRP 13.5 MW



While hybrid blades are mostly governed by ULS

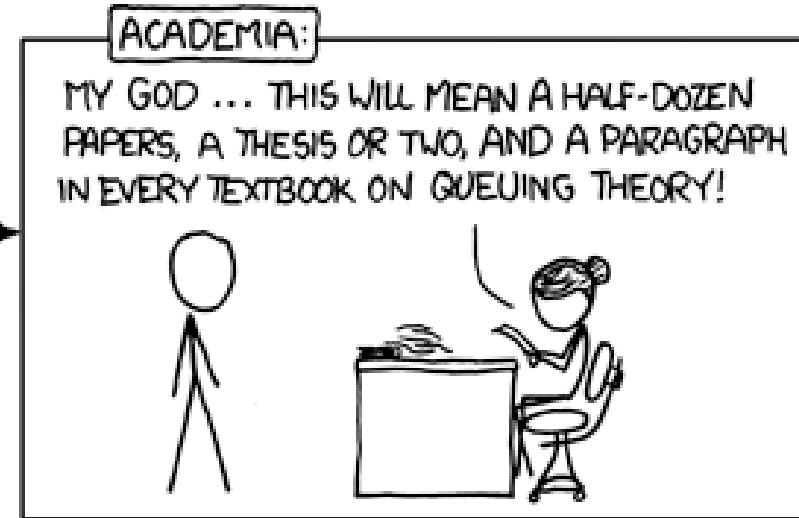
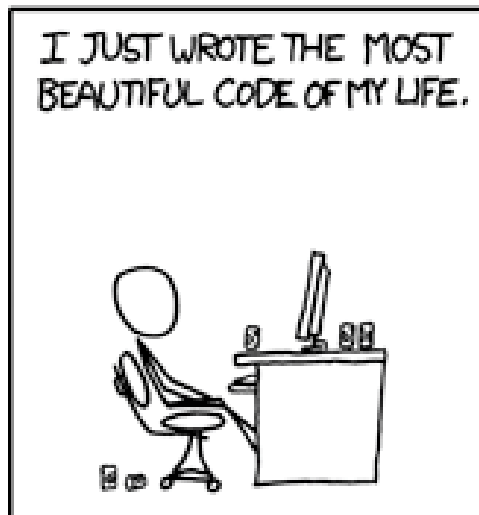
G/CFRP 5 MW:

Best experiences as NOWITECH PhD?

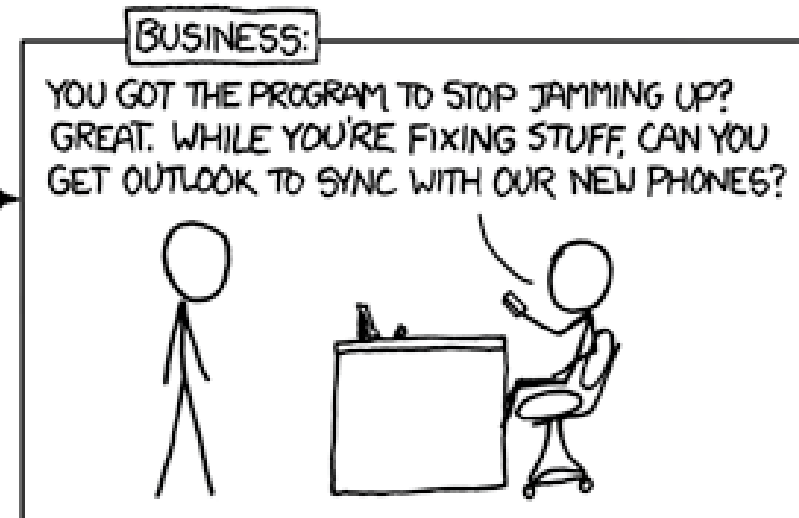
- Having a large network of colleagues
- PhD seminars and gatherings
 - NOWITECH, SOERP, INORE, EAWE
 - Informal PhD pizza gatherings
- DeepWind and other high quality conferences
 - And lesser quality conferences in exotic places (read Hawaii)
- The time to truly focus on a difficult task
 - .. and not having to go fix someone's phones in the meantime..

Best experiences as NOWITECH PhD?

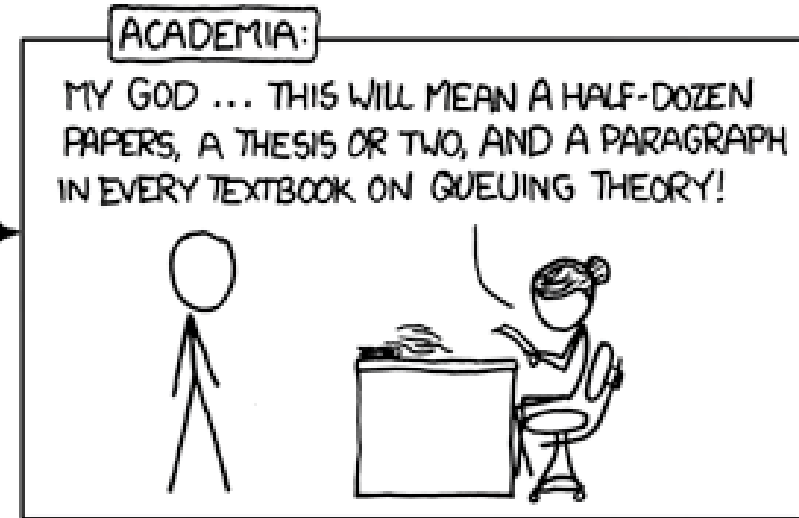
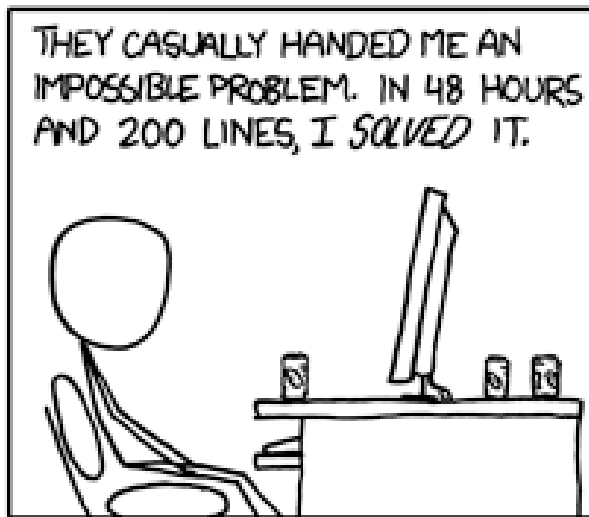
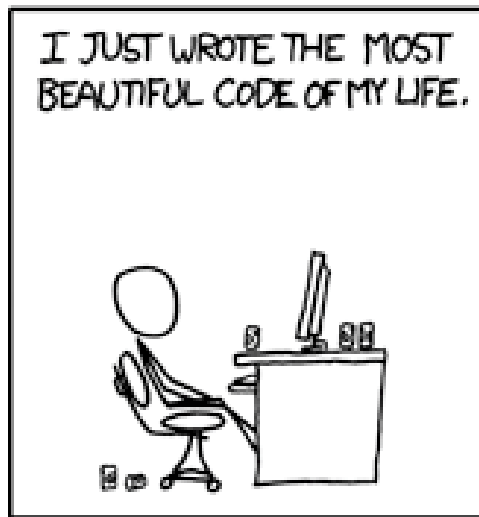
Academia vs Business:



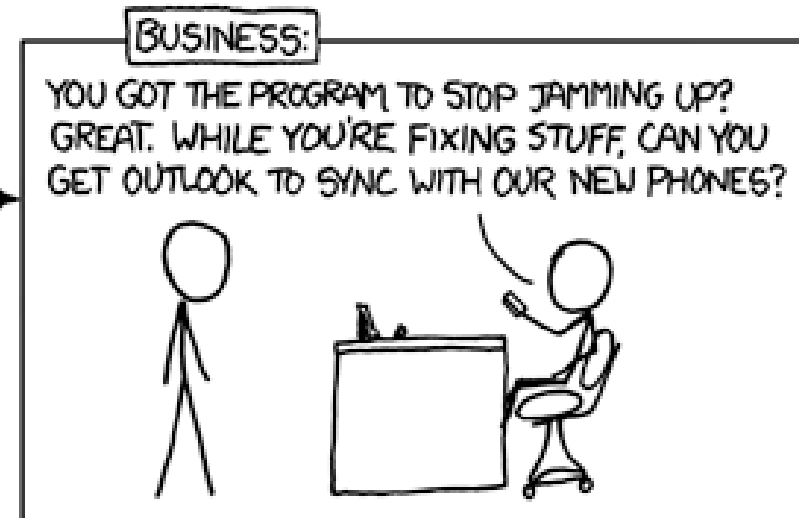
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How is life in industry after PhD?

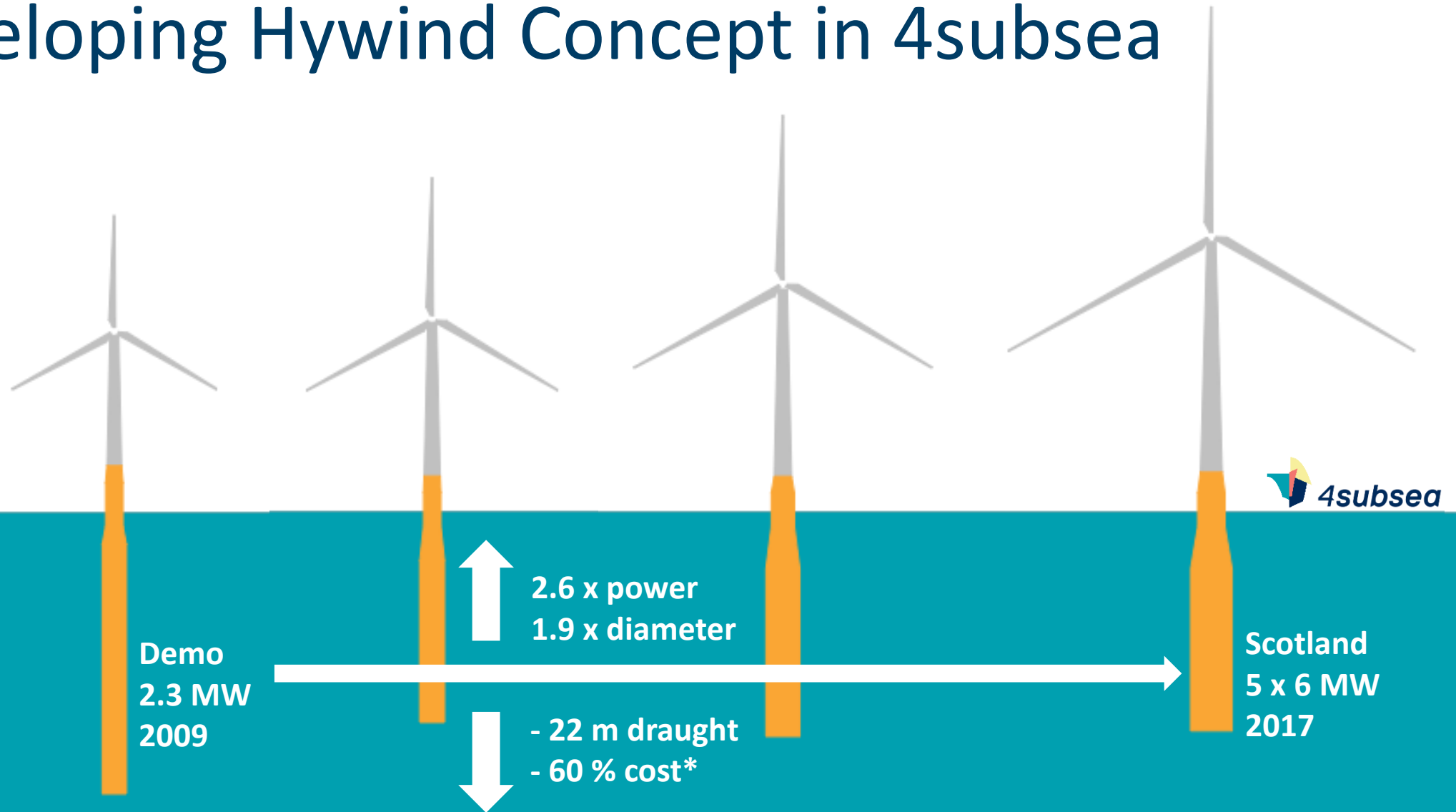


[HTTPS://XKCD.COM/664/](https://xkcd.com/664/)



Not quite like that =>

Developing Hywind Concept in 4subsea



* Statoil number

Teaching wind power in Nepal

While learning hydro power, culture, language, .. and altitude sickness



Assembling a floating wind farm in Statoil



*Share ideas,
move forward*



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