

Statoil Hywind oil & gas concept including battery storage

Norcowe Bergen 8th November

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Our strategy

SHORT TERM



Faster and deeper cost reductions

- Strict financial discipline
- Capturing the upturn in oil and gas prices

MEDIUM TERM



Build the next generation portfolio

- Maximizing value and seek opportunities
- Build renewables portfolio consistently towards a material scale

LONG TERM



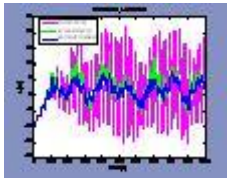
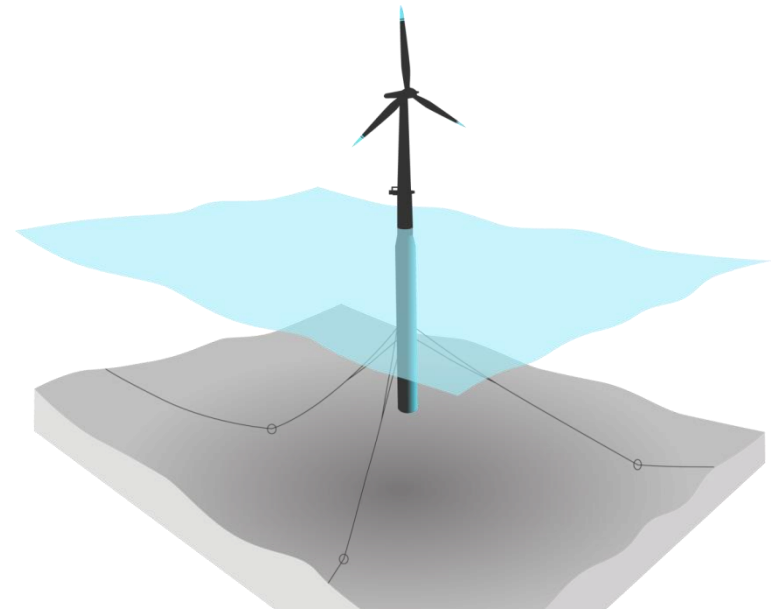
Provide energy for a low-carbon future

- A resilient upstream portfolio
- A material renewable energy portfolio



What is Hywind?

- Floating wind turbine (FWT)
- A standard offshore wind turbine placed on a ballasted vertical steel cylinder, anchored to the seabed
- Active motion controller
- Statoil-owned technology



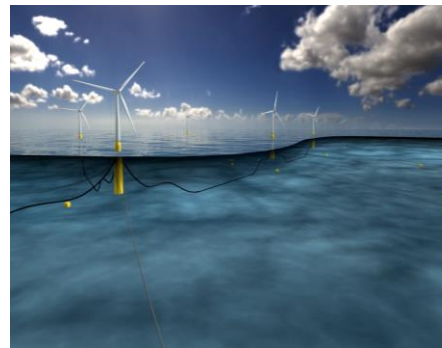
Concept
2001



Model test
2005



Full-scale
Hywind demo
2009



Scotland Pilot Park
2017



Utility scale Hywind
2020+

Hywind oil & gas concept Illustration



WIN WIN - Wind-powered water injection



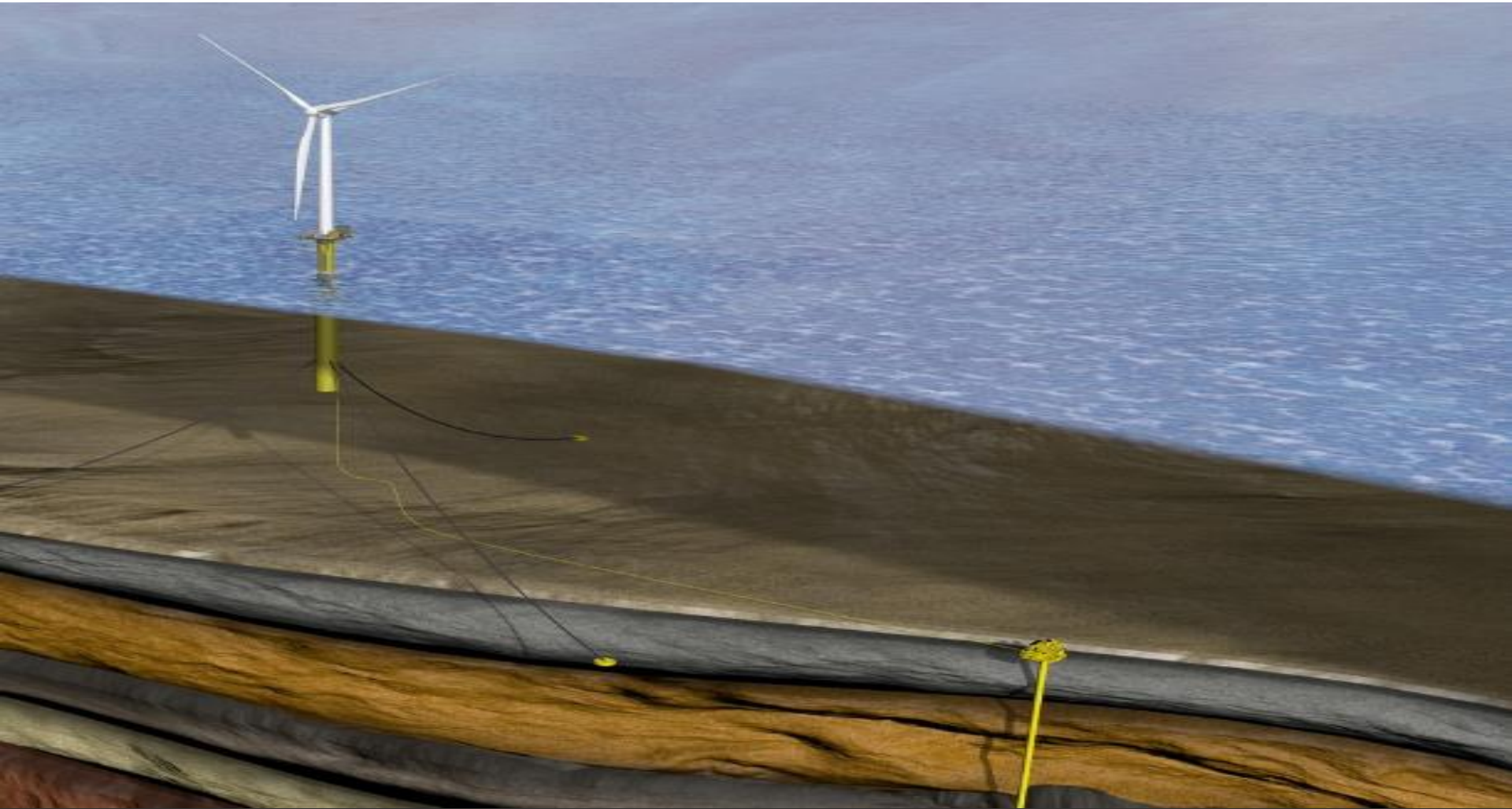
WIN WIN phase 1 main conclusions

1. Commercially competitive alternative in a range of cases

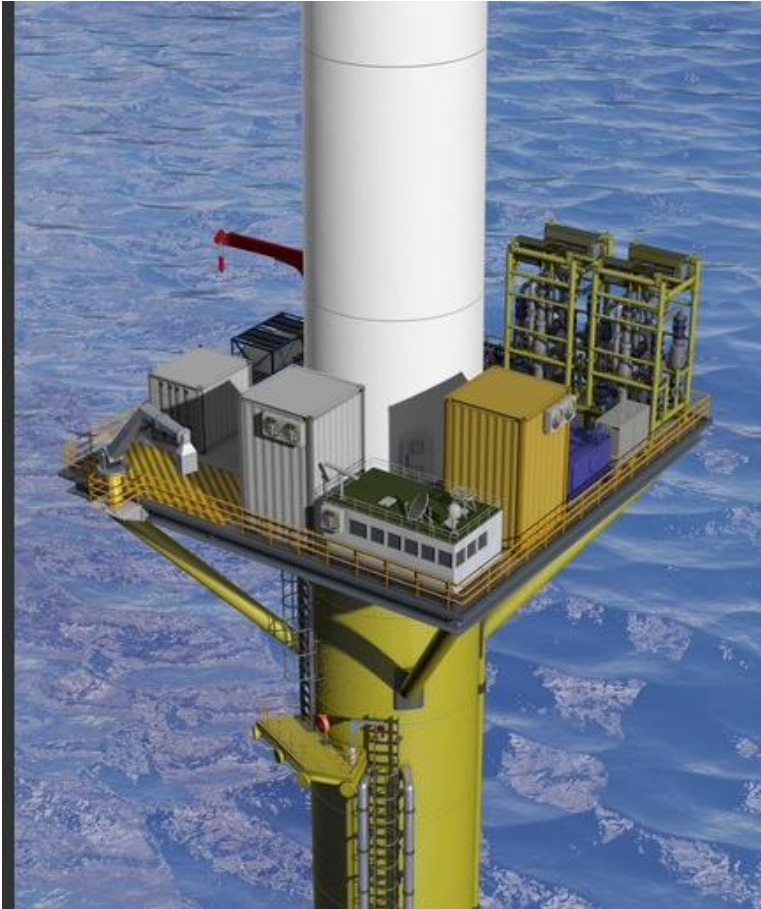
2. No technical showstoppers

3. Technically feasible

WIN WIN - Wind-powered water injection



WIN WIN - Wind-powered water injection



Piloting Batwind concept @ Hywind Scotland

Floating Wind + Storage + Grid

- ✓ *Increase the value of floating wind*
- ✓ *Start developing new business models around storage*



1
Capture wind overshoots
Ability to store excess electricity for sale when capacity is free

2
Reduce balancing cost
Introduce own regulation of power supply

3
Increase power market value
Capture price peaks through arbitrage

4
Deliver system services
Provide frequency regulation and other system services



Thank You !