Statoil’s journey in offshore wind

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EERA DeepWind'18

Statoil

Shaping the future of energy

Competitive at all times

Transforming the oil and gas industry

Providing energy for a low carbon future

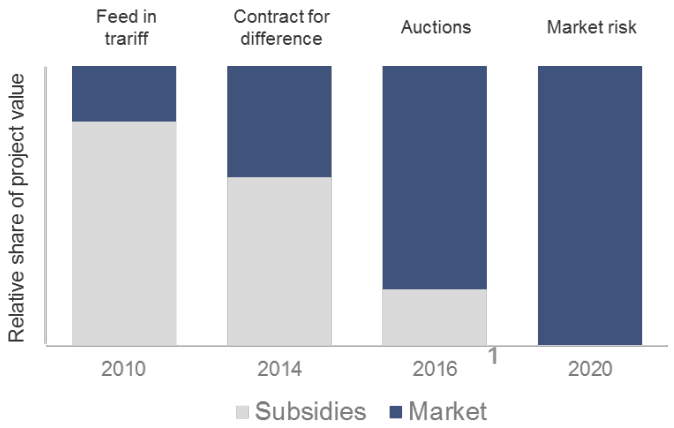


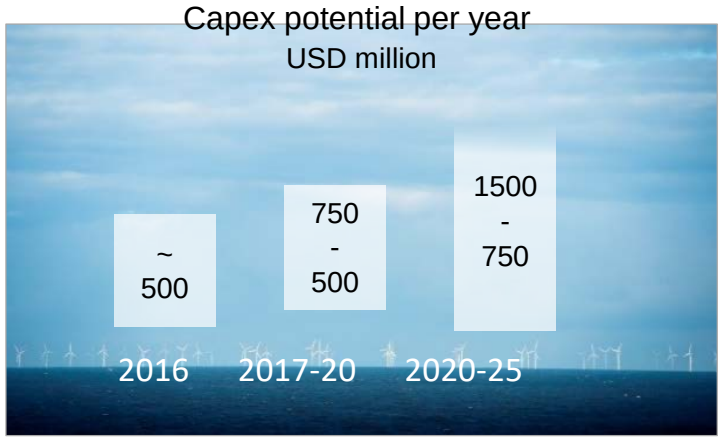


VIDEO

Energy transition is a journey…

Sharpened strategy: Building a profitable new energy business





INDUSTRIAL APPROACH

- Leverage core competence
- Scale & technology reduce costs
- Access to long-term projects

VALUE DRIVEN

- From subsidies to markets
- Cash flow resilience

GROWTH OPPORTUNITIES

- 15-20% of capex in 2030
- Offshore wind and other options
- Low-carbon solutions

Rapid expansion within offshore wind

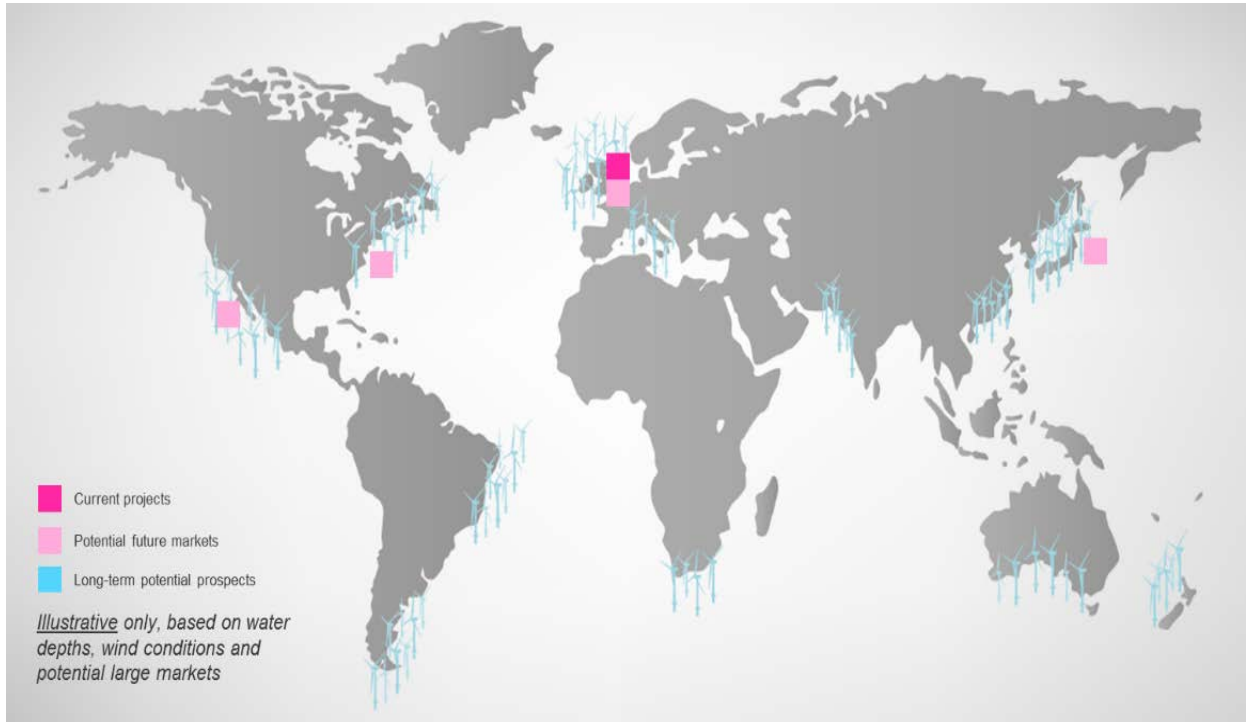
Playing to our strengths

Attractive market

Current projects in progress of providing renewable energy to over 1M European households

	Hywind demo	Sheringham Shoal	Dudgeon	Hywind pilot	Arkona	Dogger Bank	New York	Hywind large scale
						North West Europe	United States East Coast	Japan / US West Coast
								
	In operation	In operation	In operation	In operation	In development	Consented	Auction won	
	2.3 MW	317 MW	402 MW	30 MW	385 MW	3 x 1.2 GW	1-2 GW	
	2009	2012	2017	2017	2019	2020 +	2024 +	

Vast potential for floating offshore wind



Size of the prize

12 GW in 2030

Expected LCOE

40 – 60 €/MWH by 2030

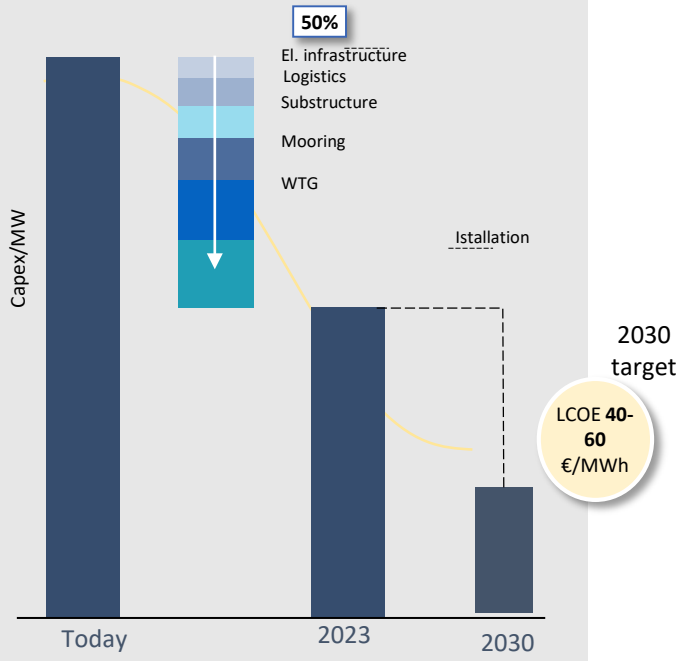
The big four

US West Coast
Japan
France
Scotland/Ireland

Next step for Hywind - lead floating wind to industrial scale

Cost

Hywind cost roadmap



Deployment

Scalability critical for market success

Concept development

Technology development focused on:

- Site selection and park layout
- Design for scale and weight
- Proprietary motion controller
- Installation and maintenance

Hywind Factory
- a systematic approach to Hywind industrialisation

1

Extract and systemise learnings from projects

Fabrication | Transportation | Upending | Mating | Tow to site | Installation

2

Leverage three pillars for Hywind cost reduction

Build on bottom fixed industry

1) Larger turbines
2) Standardised vessels
3) Operations and maintenance

Establish industry standards for floating wind

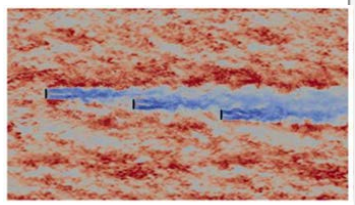
1) Mooring and anchoring
2) Cables and substations
3) Marine operations

Optimise Hywind technlogy

1) Low cost substructure
2) Site-independent installation method
3) Robust logistics

Targeted technology development to support a growing business

Wind resource

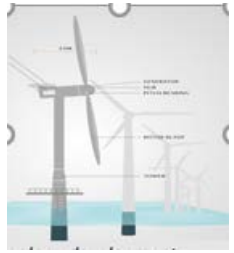


- Global wind resource models
- Measurement technologies
- Wind conditions, turbulence and wake

Energy harvesting

- Large WTG models
- Wind turbine controller
- Power and thrust curves
- Optimised park design and control

Structural design and production



- Methods and software for optimised design

WTG O&M

- Full scale measurements
- O&M data analysis
- Condition based maintenance

Marine operations and Logistics

- New concepts for assembly and heavy lift operation
- Grid systems, infrastructure and transmission

What colour do you dream in?