

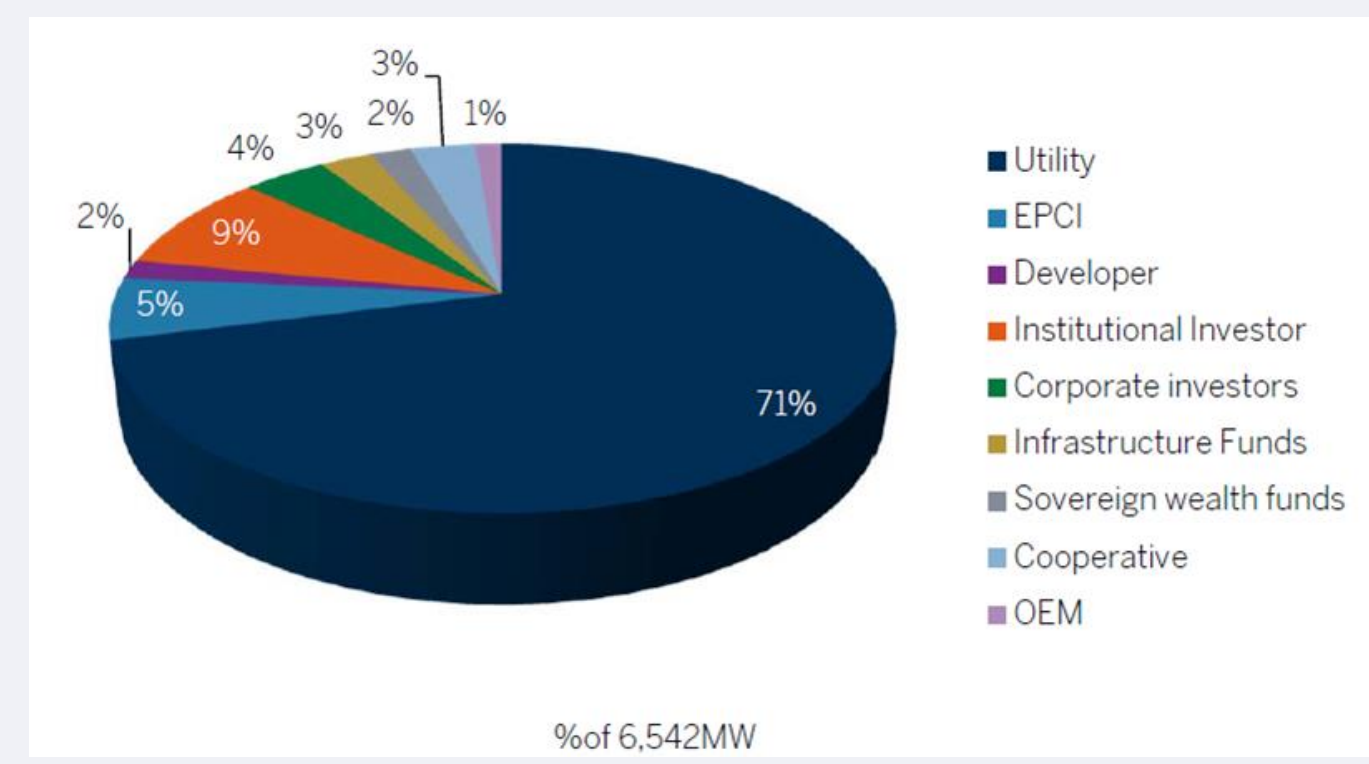
Introduction

With a market value in excess of €21bn, nearly 7 GW of offshore wind power capacity was operating globally by the end of 2013.

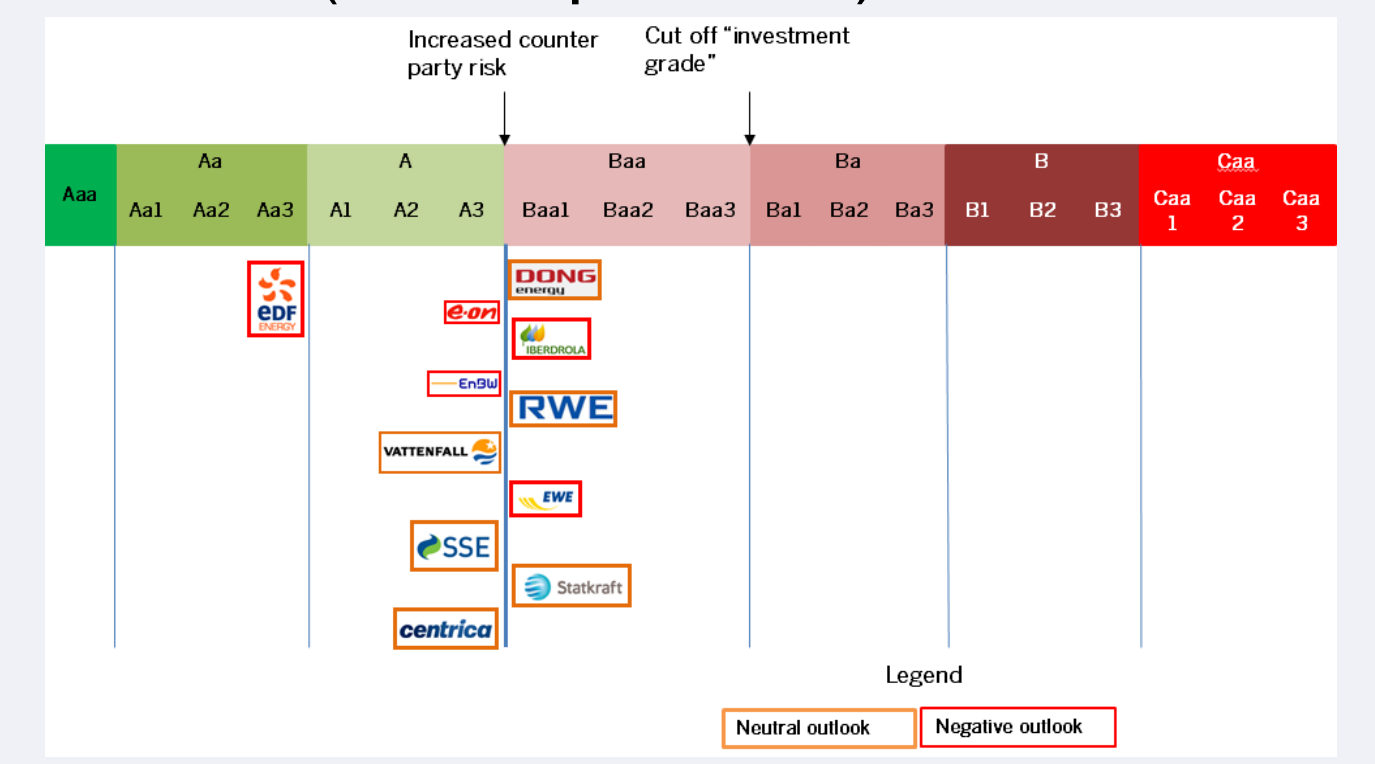
The majority of that construction has been funded by utilities. The scale of offshore wind, however, is greater than the utility sector can lift on its own, given the constraints on their finances imposed by the global economic downturn and the resulting shortfall in both demand for electricity and profits from their traditional business.

New sources of debt and equity are required along with innovative financial engineering to support the scale of offshore wind deployment envisaged. Our analysis focuses on the fact that government support for offshore wind in future will be conditional on the industry lowering its costs. Without a significant reduction in the levelised cost of energy (LCOE), investor confidence will wane as government support weakens and power purchase prices fall as a result. The scope for bringing down the cost of generation of offshore wind power is large, and one of the options available is lowering the cost of finance.

Utilities Dominance in the offshore wind sector



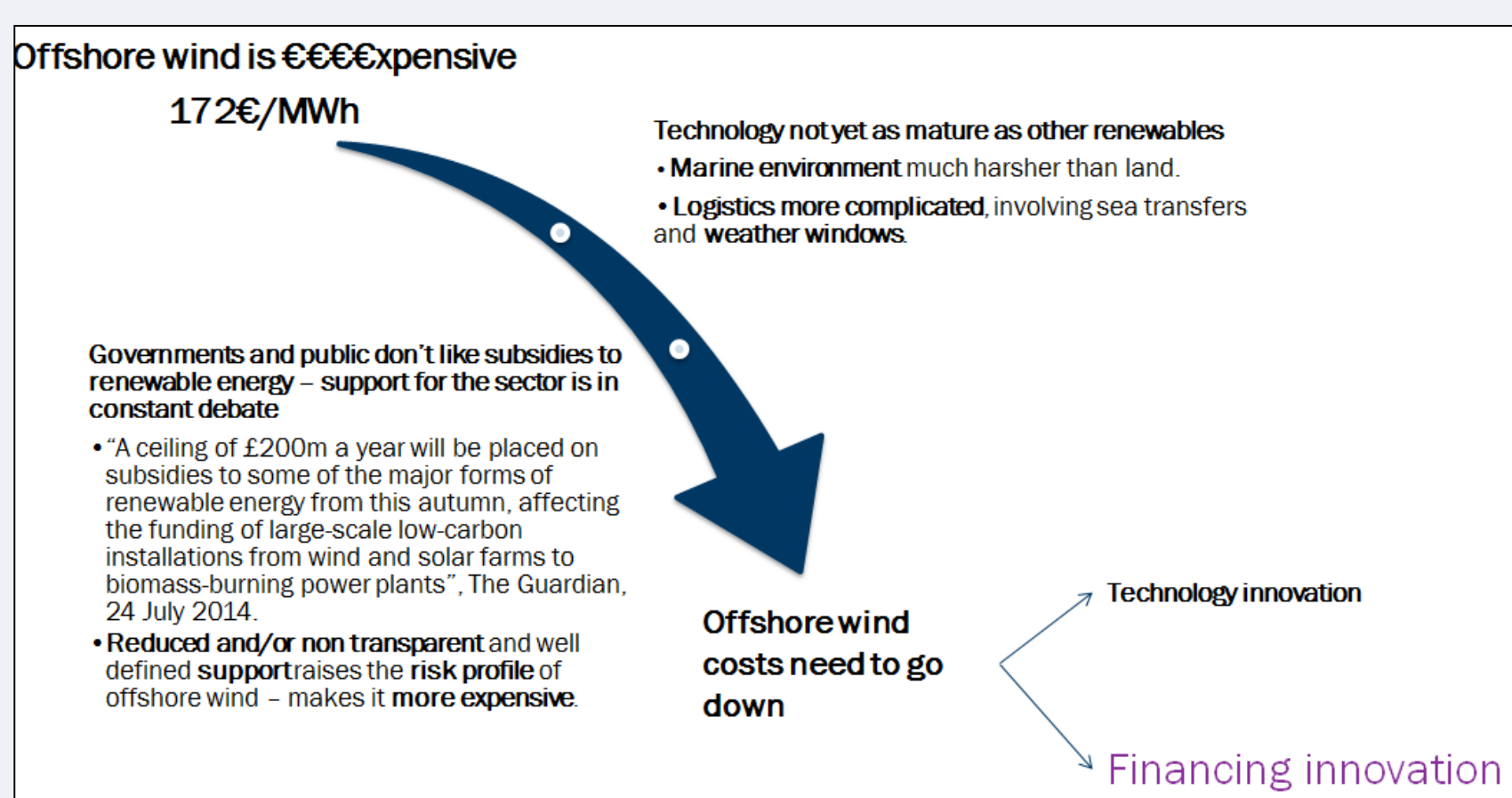
Credit ratings and expectations for utilities (as of April 2014)



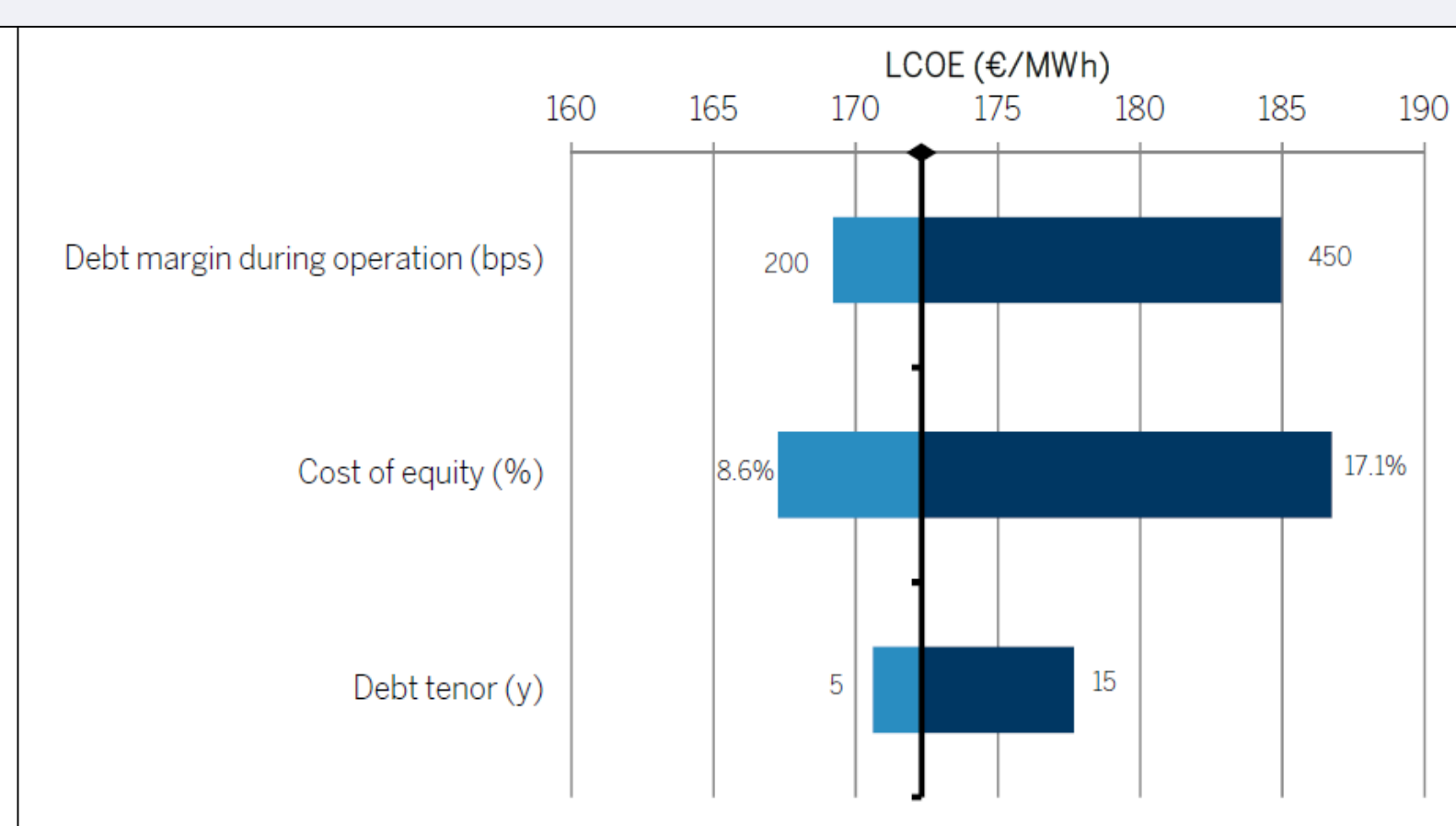
- Balance sheets weakened during financial crisis
- Profit margins are reduced
- Ability to finance complex and large infrastructure projects as offshore wind has decreased...

Objectives - Rationale

Financing elements of offshore wind

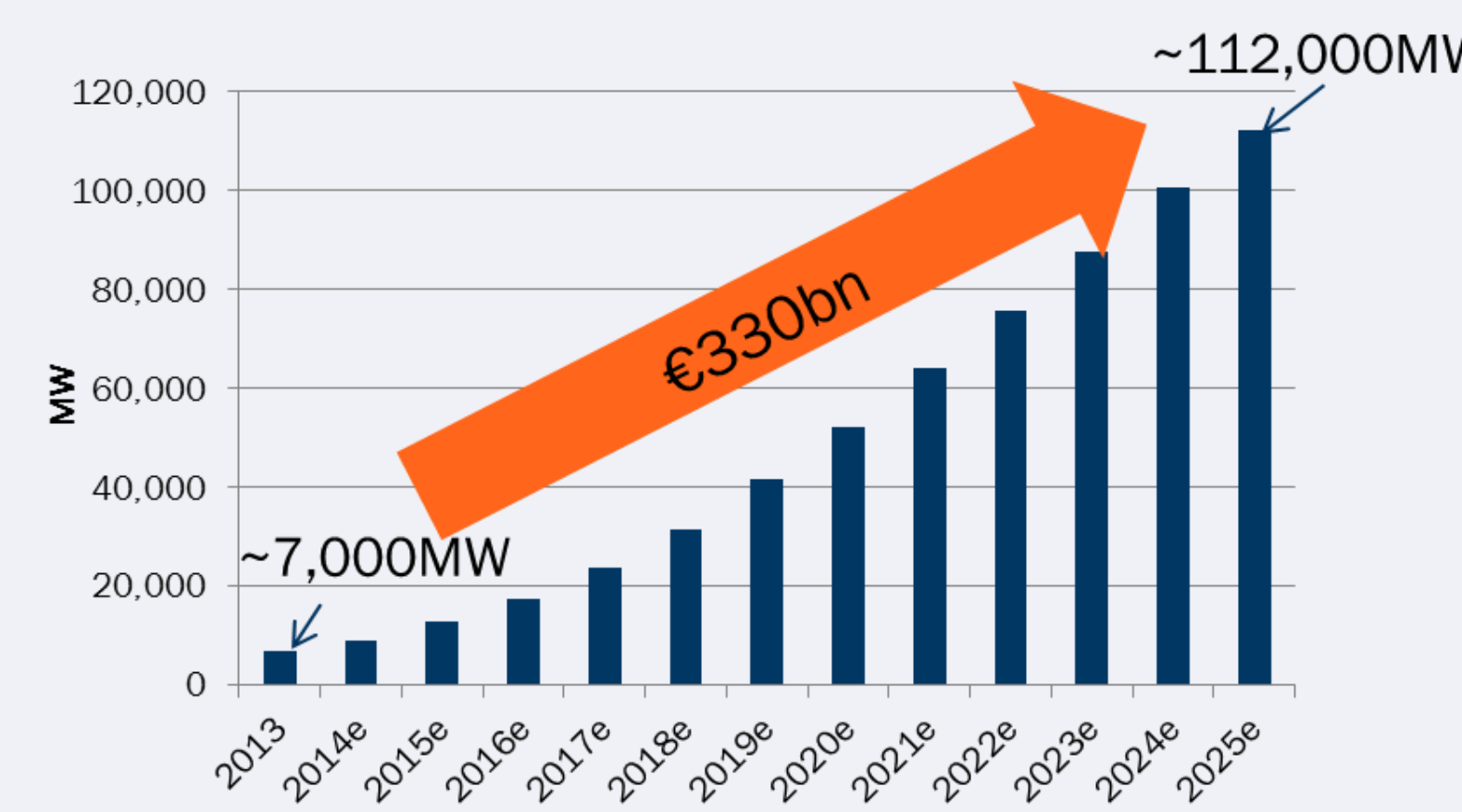


Sensitivity of LCOE



Necessary funds to deliver the sector's development

Cumulative offshore wind installation capacity (2013-2025e)



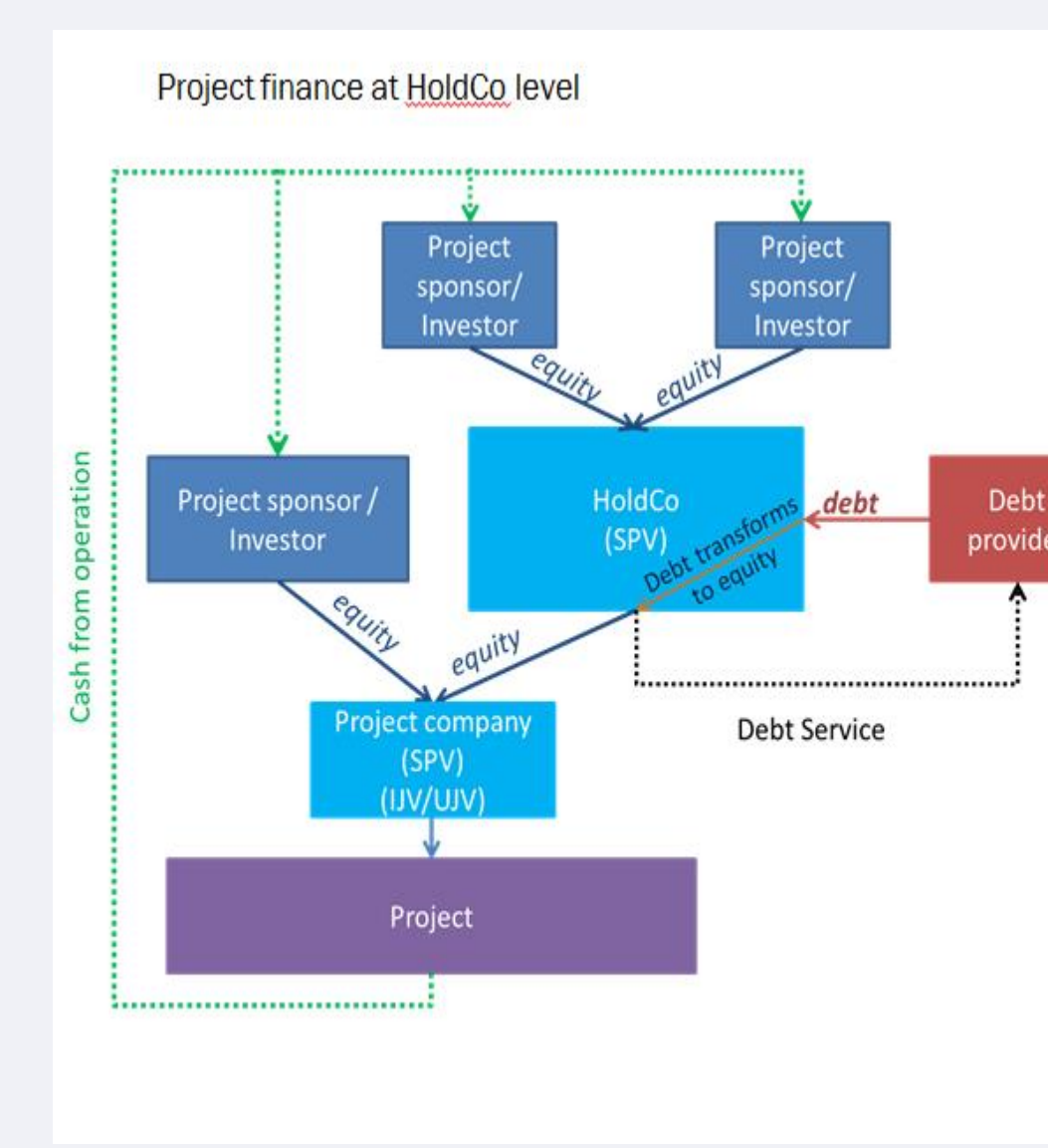
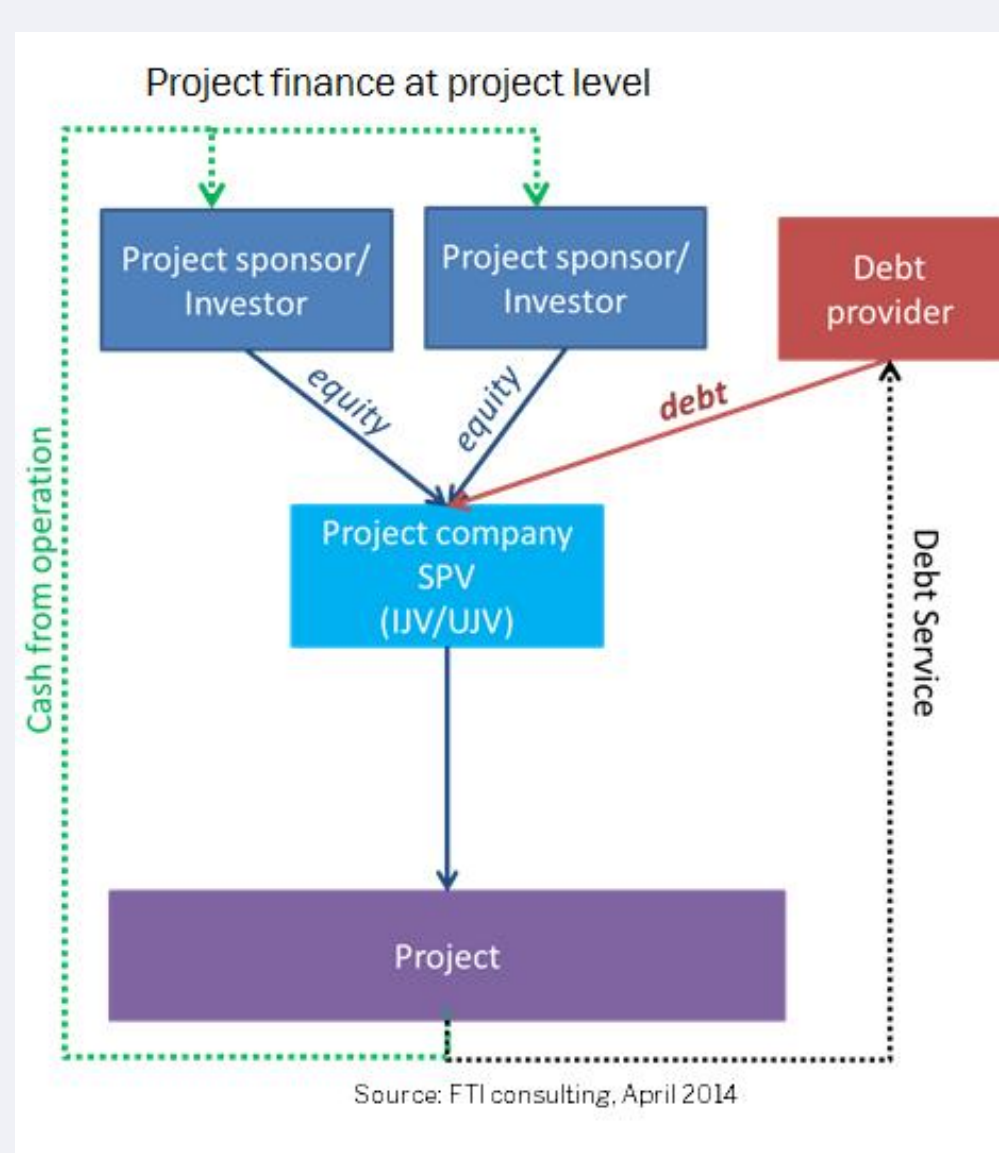
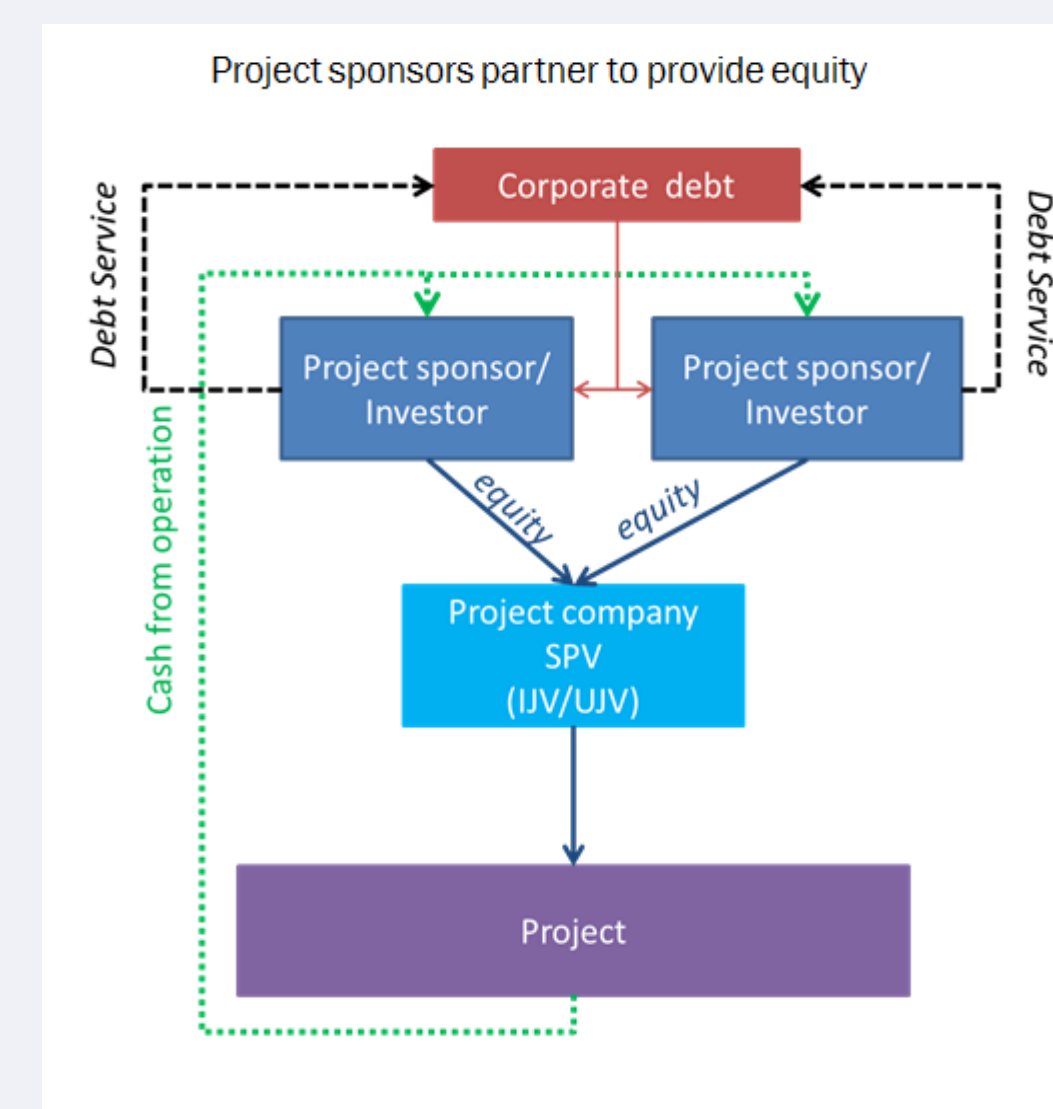
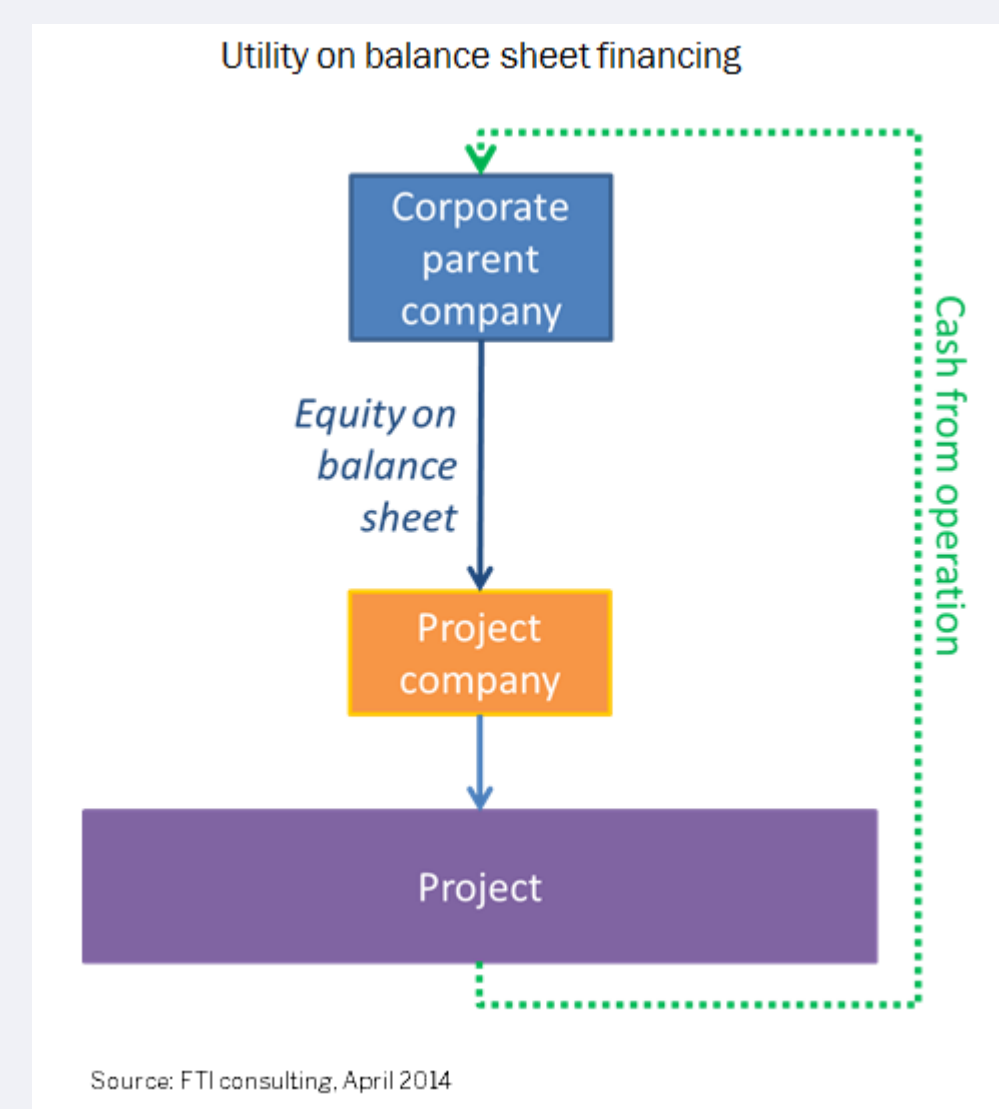
Our research indicates:

- Operational assets are sold after 2-3 years
- 75% of the capital invested in development and construction is released within 2 years for further divestment and refinancing.
- Recycled capital is moving back into the development of the sector
- We estimate that an additional one third of fresh capital is necessary for the development of the sector adequately

Financing Structures of offshore wind projects

Innovation in equity provision – where is the new capital coming from:

- Pension and insurance funds**: looking for low risk assets with long term returns – partnerships with experienced project developers
- Sovereign wealth funds**: also looking for long term low-risk investments – expected to participate with minority stakes in operational offshore wind projects
- Infrastructure funds**: Similar to pension and insurance funds focused on infrastructure projects
- Private equity funds**: willing to accept higher risk for higher returns – investing in the construction phase with the aim of exiting the project early
- Corporate investors** investing in green power: Driven by economic and social reasons but also by the energy intensity of their business
- Others: Development banks** (not only European but Asian as well) have been active in providing equity into operational and under construction projects



Innovation in debt provision – where is the new debt coming from

- Public debt**:
 - State owned banks (ex. Green Investment Bank, KfW, etc.)
 - Export Credit Agencies (ex. EKF, Eules Hermes, NEXI, etc.)
 - Multilateral lending organisation (European Investment Bank, Nordic Investment Bank)
- Commercial debt**:
 - Multiple commercial banks already active in project financing deals for offshore wind energy development
- Hybrid debt**:
 - Debt from institutional investors
 - Bond financing

Conclusions

Our analysis indicates that lack of consistent energy policy is by far the largest risk factor that investors are pricing into their financial planning. Consistent energy policy and a long-term regulatory framework could lead to a rapid reduction in financing costs and a significant direct reduction in LCOE, given its sensitivity to the cost of capital. Regulatory instability cultivates uncertainty which raises the cost of capital and the cost of LCOE which in turn triggers regulatory review in a vicious circle.

There is no shortage of capital for offshore wind. Investor appetite is sufficient, provided the political commitment is unequivocal and meets an energy investment horizon. On the equity side, investors with access to large pools of money are recognising offshore wind as an infrastructure asset with clear benefits and are committing substantial resources. On the debt side, innovative structures within project financing are evolving and new options are emerging, including bond financing during the different phases of project completion. As a result, an increasing number of more widely diversified creditors are entering the sector. The offshore wind industry has succeeded in showcasing its financial feasibility in a relatively short time frame, leading to tailor-made financial engineering.

Offshore Wind Financing	Development phase		Construction phase		Operation phase	
	Present	Future	Present	Future	Present	Future
Equity	Utilities	●	●	●	●	●
	Institutional Investors	○	●	○	●	●
	Corporates	○	○	○	○	○
	Private Equity	○	○	○	○	○
	IPPs	○	○	○	○	○
Debt	Commercial banks	○	○	○	○	○
	Institutional Investors	○	○	○	○	○
	ECA's	○	○	○	○	○
	Multilaterals	○	○	○	○	○
	Project Bonds	○	○	○	○	○

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