Weighted Average Cost of Capital – a Game Changer (?)

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Vienna, 19th October 2018
Agenda

Why is cost of capital relevant for RES development?

What is the current development in Europe?

Conclusions
Relevance from LCOE perspective

LCOE Spain (1350 - 1900 kWh/kWp p.a.); WACC between 5% and 10%

Figure 58

Agora 2015
Impact of costs of capital on RES costs in a system dynamic approach
### Avg. WACC value 2016 (interview results)

- **<5.0%**
- **5.0 - <6.0%**
- **6.0 - <7.0%**
- **7.0 - <8.0%**
- **8.0 - <9.0%**
- **9.0 - <10.0%**
- **>10.0%**
- **no data gathered, yet**

### Evolution of avg. WACC value 2014 - 2016

- **-1.0%**
- **+2.7%**

### Decrease in most MS, but still no converging WACC

- **less than 3% wind power increase 2014-2016**
Plunging interest rates – but unclear consequences for market actors

Avg. Cost of Debt value 2016 (interview results)
- <3.0%
- 3.0 - <4.0%
- 4.0 - <5.0%
- 5.0 - <6.0%
- 6.0 - <7.0%
- >7.0%
- no data gathered, yet

- -1.0%
- +2.7%

less than 3% wind power increase 2014-2016
Trend indicates correlation between cost of debt & interest rates…

Source: eclareon, ECB
Comparison of Cost of Debt & interest rate development

...but the development at EU Member State level is extremely diverse
Comparison of Cost of Debt & interest rate development

Differences in comparison to absolute interest rates - and their potential

Source: eclareon, ECB
The Good: - Decreasing trend for WACC for wind onshore in Europe
   - The window of opportunity is open now

The Bad: - Still no converging markets
   - No wind-onshore deployment in some markets despite decreased WACC
   - Increasing risks for at least some market actors

The Ugly: - Relationship between macroeconomic development, policies & WACC development still not entirely clear
   - What happens if interest rates increase?
ideas into energy.
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Methodology

Existing data
• Estimations of costs of capital of wind onshore-investments from DIA Core Project
• Comprehensive interview series with financial experts
• Evaluation of development of parameters

Analysis
• Comparison with interest rates for loans from other sectors in EURO zone
• Description of trends

Results
• Aggregation and visualization of meta data
• Presentation of results and feedback from national experts
• Preparation of deliverables: project presentation & database
Before we start: some caveats

• There are **several methods for wind project financing**: corporate financing or project financing

• Ongoing changing interest rates

• Constant changes of RES market conditions

• **Lack of current, significant projects in some EU markets**, made sometimes model estimations necessary

• Different level of transparency of market actors
Cost of Equity Development

Decrease in almost all Member States – change of business models?

Evolution of avg. CoE value
2014 - 2016

-1.0%  +2.7%

Avg. Cost of Equity value 2016 (interview results)

- <9.0%
- 9.0 - <10.0%
- 10.0 - <11.0%
- 11.0 - <13.0%
- 13.0 - <15.0%
- >15.0%
- no data gathered, yet

less than 3% wind power increase 2014-2016
Development of debt/equity ratio

Diverging ratios reflect opposing factors in MS

Avg. Debt/Equity ratio 2016 (interview results)
85/15
80/20
75/25
70/30
65/35
60/40
55/45
no data gathered, yet

+5/-5
-5/+5

less than 3% wind power increase 2014-2016