
The effects of auctions for renewable energy support on financing conditions of renewable energy

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Presentation contents



- 1) Costs of capital and risk
- 2) AURES II Study “Effects of auctions on financing conditions for RES”
 - New risks in the project development timeline
 - Comparison of the effects on financing from different premium systems
- 3) Conclusions and make takeaway messages

Risk

Degree of uncertainty regarding the realization and timing of future economic income, measured by variability of returns

Risk types

- Political: change in policy, political stability
- Economic: variability of returns, contractual risks, country risks
- Technology: technical failure
- Social: acceptance of renewable energy installations (NIMBY)

Weighted Average Cost of Capital (WACC)



WACC	Equity	Debt
Aggregated cost of equity and cost of debt, considering their relative weights in the financing structure	Own funds Most expensive capital	Sourced from bank or capital market (in case of bond issuance)

Weighted Average Cost of Capital (WACC)



$$WACC = \frac{E}{D + E} (r_e) + \frac{D}{D + E} (r_d)(1 - t)$$

Where:

- E = market value of equity
- D = market value of debt
- r_e = cost of equity
- r_d = cost of debt
- t = corporate tax rate

What increases WACC?

- ✓ Greater share of equity
- ✓ Larger equity return requirements
- ✓ Larger interest rates

Very large differences in WACC for renewable energy in Europe

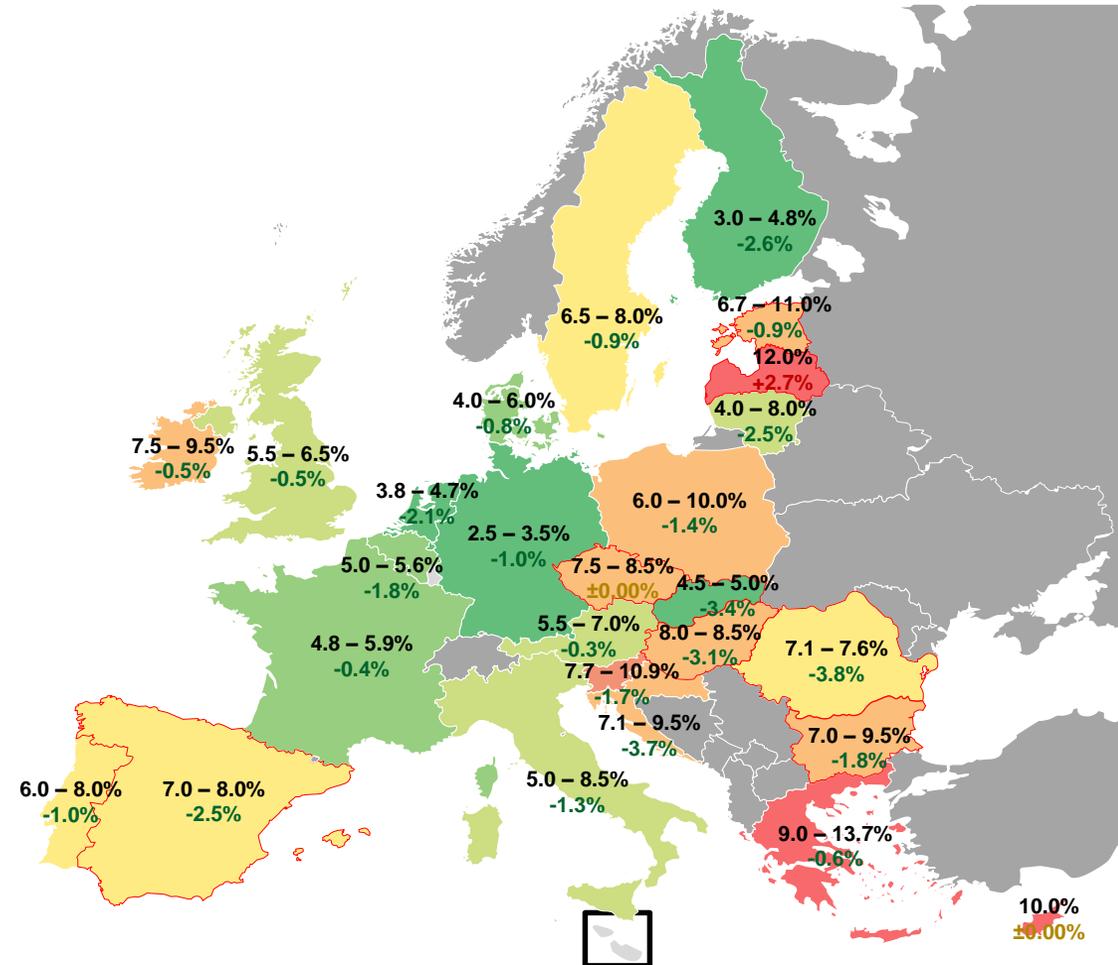
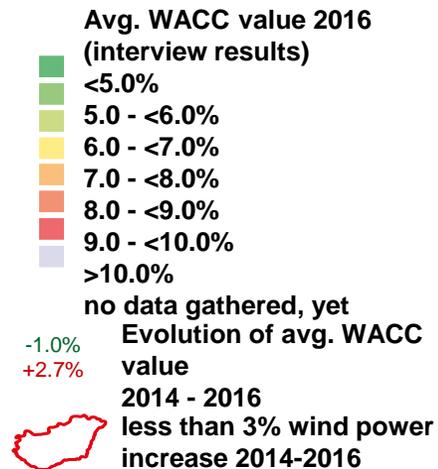


WACC

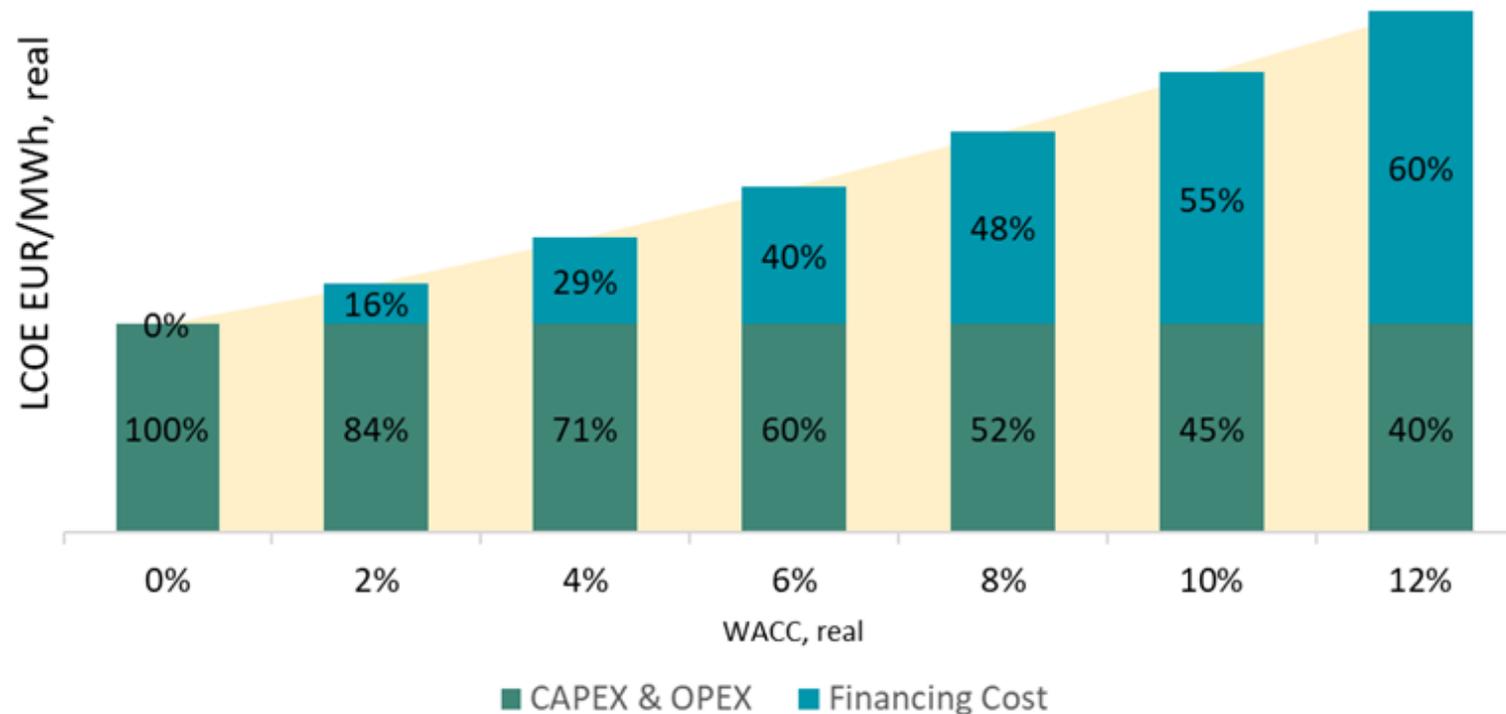
Germany 2.5 – 3.5%

Hungary 8 – 8.5%

Financing costs have a large role in the distribution of onshore wind energy projects in EU power system



Renewable energy projects are CAPEX intensive and sensitive to financing costs



Share of financing costs in LCOE for 20 MW onshore wind farm is 50% at WACC of 8%

De-risking could enable governments to reduce support costs

*calculation highly dependent on input assumptions

Work package: Impact of auctions on cost of capital and financing conditions

Partners

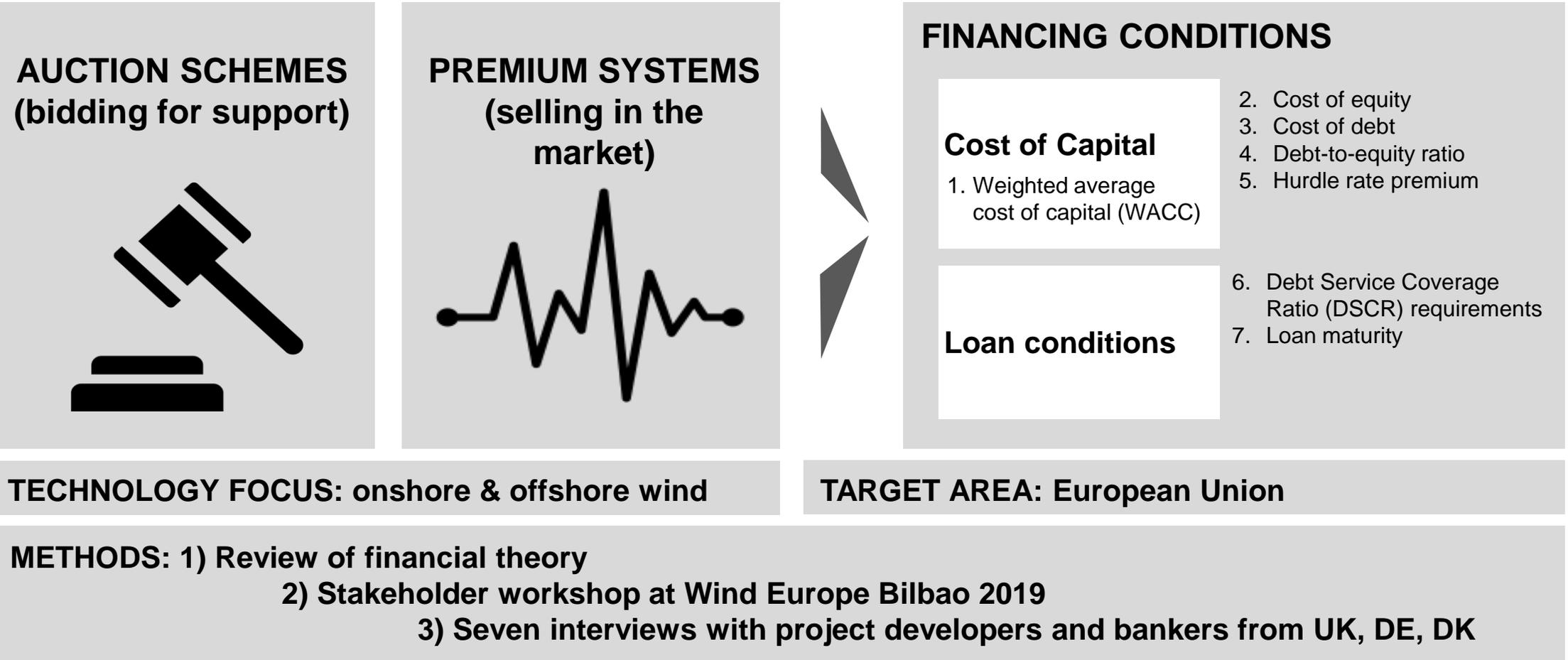
- Lead: Technical University of Denmark (DTU)
- Eclareon, Navigant, Fraunhofer ISI, REKK, TU Wien

Background for this presentation

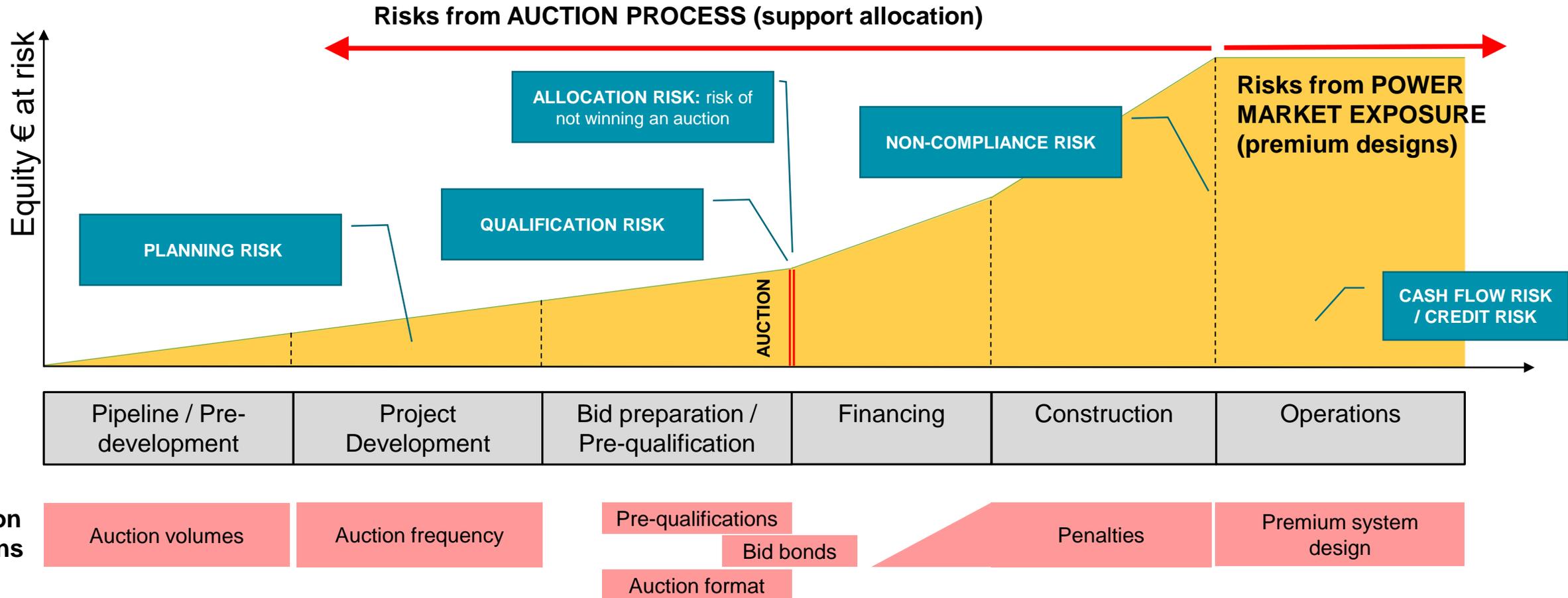
Some main deliverables

- Report “[Effects of auctions on financing conditions for renewable energy](#)”
- Stakeholder survey: 140 interviews with financing experts across EU 28
- Report on auction designs to minimize investor risk

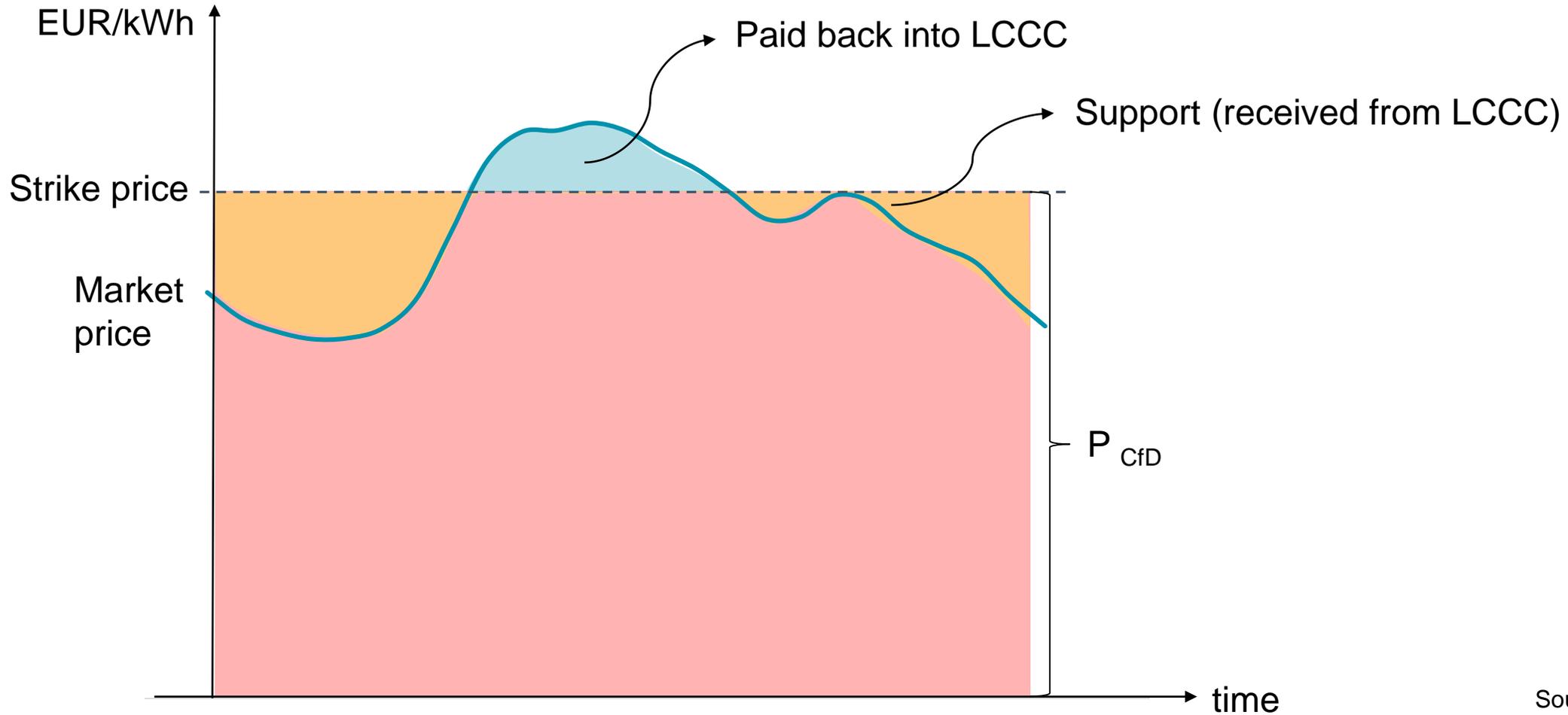
Scope



Auction designs and risks

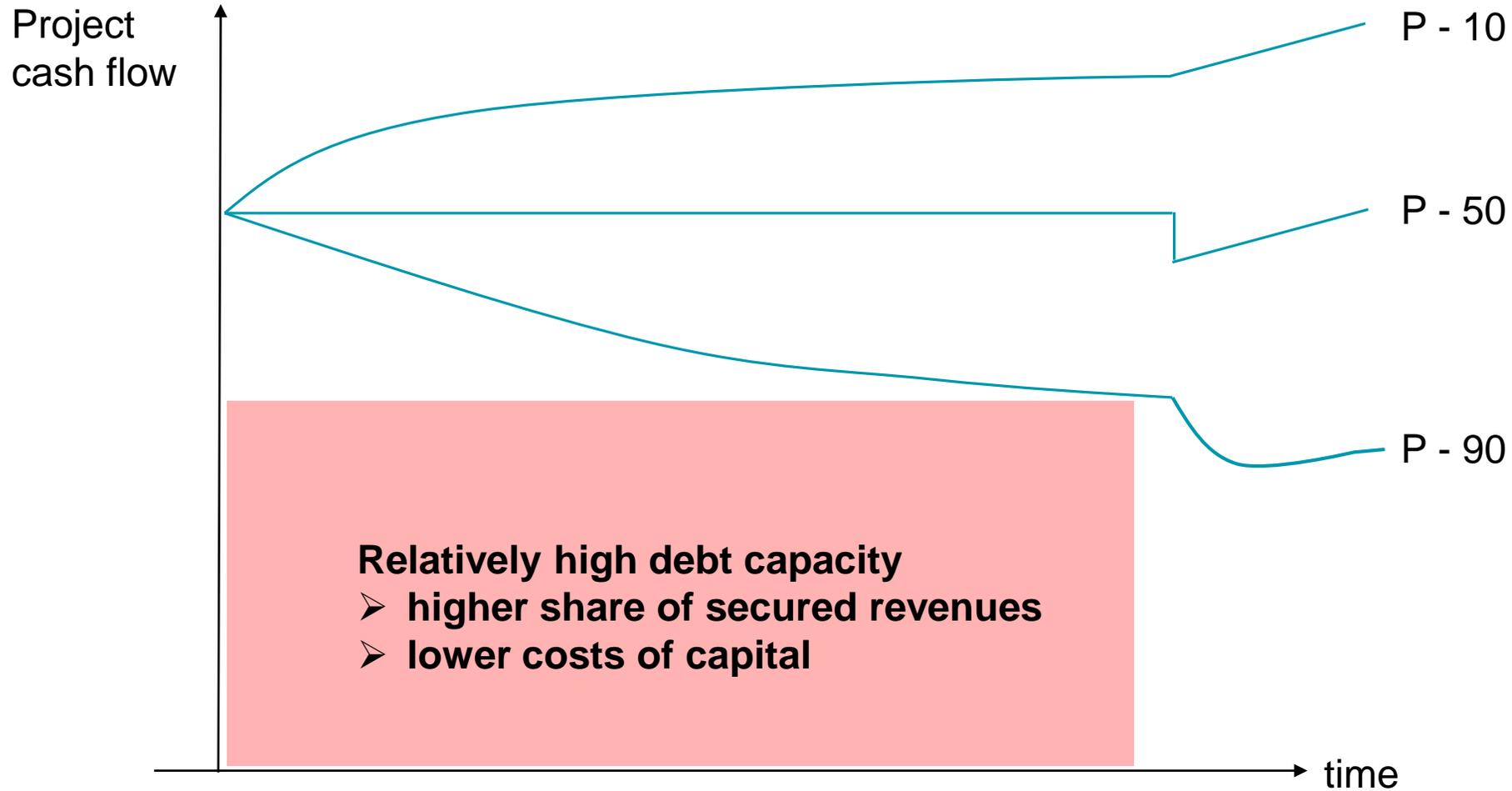


UK Contract for Difference (“two sided”)

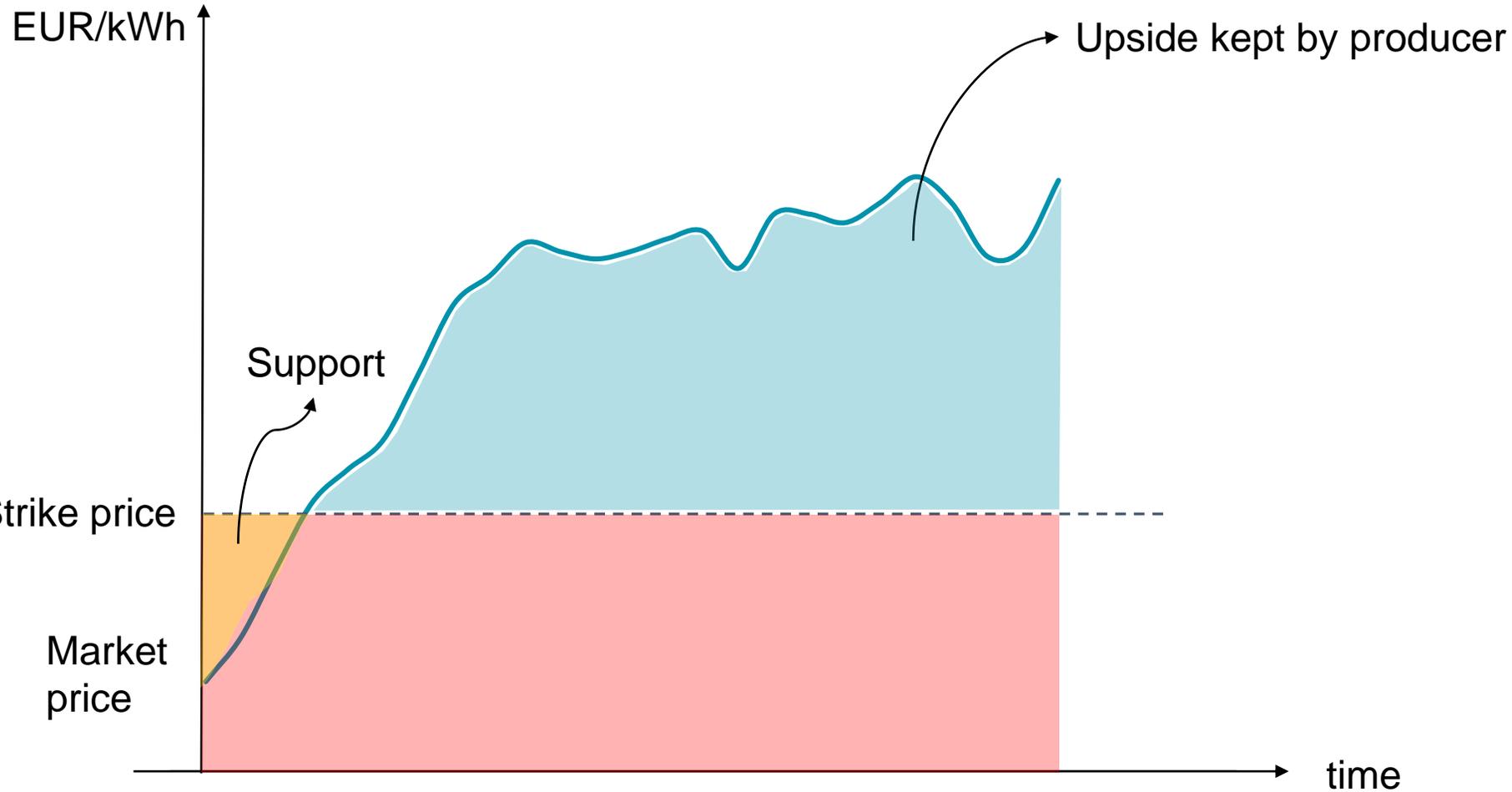


Source: inspired by F. Fausto

Project financing conditions

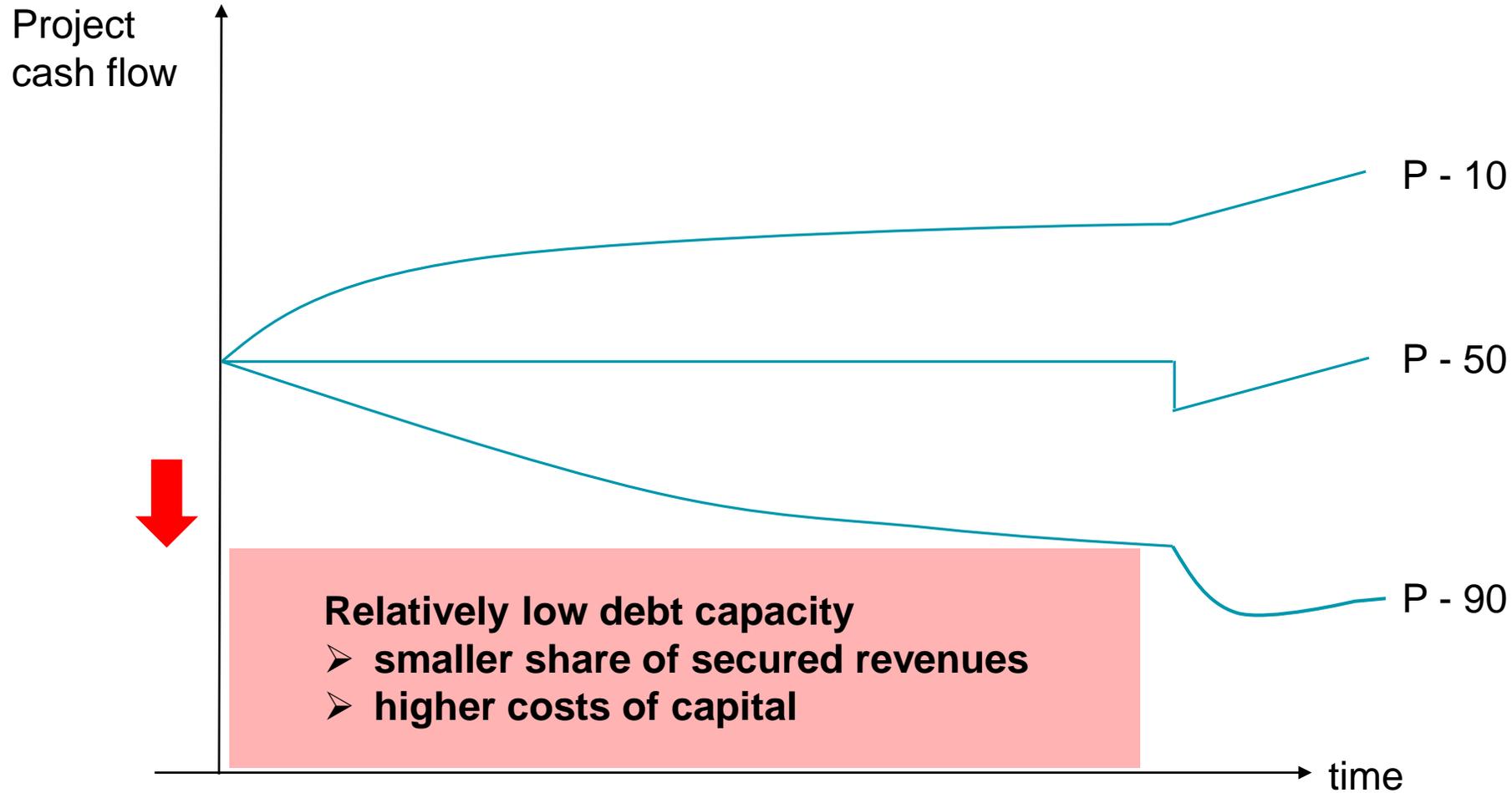


German sliding premium (“one sided”)



Source: inspired by F. Fausto

Project financing conditions



Key finding 1

- Auction designs such as bid bonds and pre-qualification requirements could have an effect on **cost of equity** in early project development stages, especially for smaller market actors. These do not have a large impact on costs of debt, as banks get involved in projects only after the auction and when the PPA has been signed

Key finding 2

- The remuneration systems (one sided vs. two sided CfD vs. fixed FIP) exhibit the greatest impact on **costs of debt**. This is because they directly affect the revenue predictability of projects, and therefore affect the ability of projects to repay debt. Systems with more price risk, also affect loan tenor and DSCR in a negative way

Key finding 3

- The extent of the effects of individual auction designs on financing conditions, will mostly depend on the **type of actor involved**, and their ability to diversify risk and/or absorb potential sunk costs. Smaller actors might experience a greater impact on financing conditions, than larger actors (energy cooperative vs. utility)

Key finding 4

- Auctions could exhibit a positive impact on costs of capital, by enabling **greater support scheme sustainability** and predictable roll out schedules



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AURES II

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