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German Renewables Week

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Trade-offs in the German energy transition: Market-based build-out versus climate targets

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Osborne Clarke uniper FORESIGHT Climate & Energy TAGESSPIEGEL ENERGIE & KLIMA BACKGROUND

Reaching the 2030 65% target and phasing out renewables subsidies by 2030 is a key trade-off in the EEG

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Security of supply

Reaching climate targets

Cost-efficiency

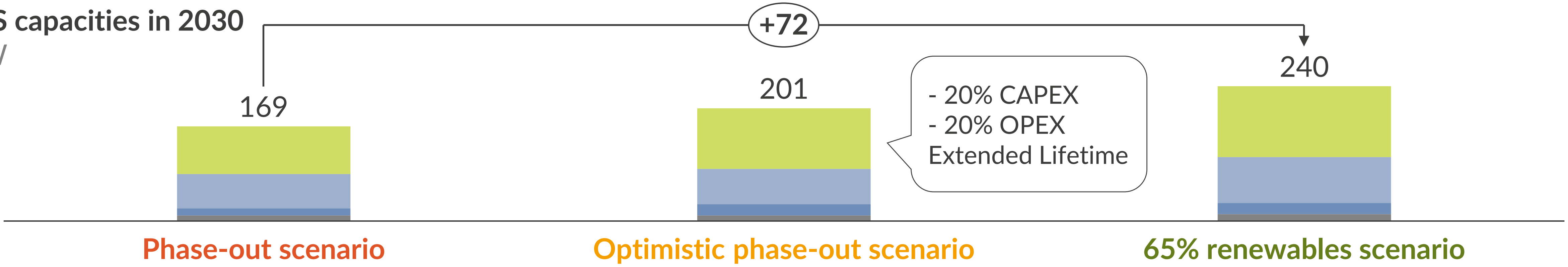
“Reaching the 2030 65% Renewables target and Net Zero in 2050“

“Phasing out subsidies by 2027 and shifting to market-driven build-out“

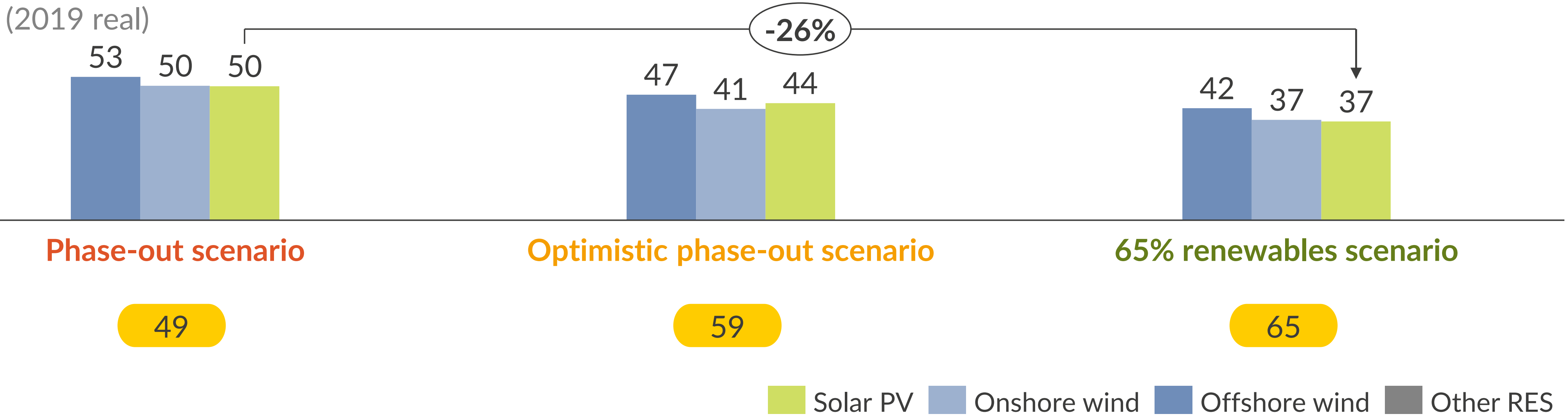
Source: Aurora Energy Research, BMWi, Bundesrat, Bundestag, Bundesregierung

Germany will miss the 65% renewables target by 72 GW, if subsidies are phased out by 2027

RES capacities in 2030
GW



Capture prices in 2030
EUR/MWh (2019 real)



RES share in demand
%

Source: Aurora Energy Research

The prospect of phasing out subsidies by 2027 leaves room for solar PV PPA-based assets being profitable…

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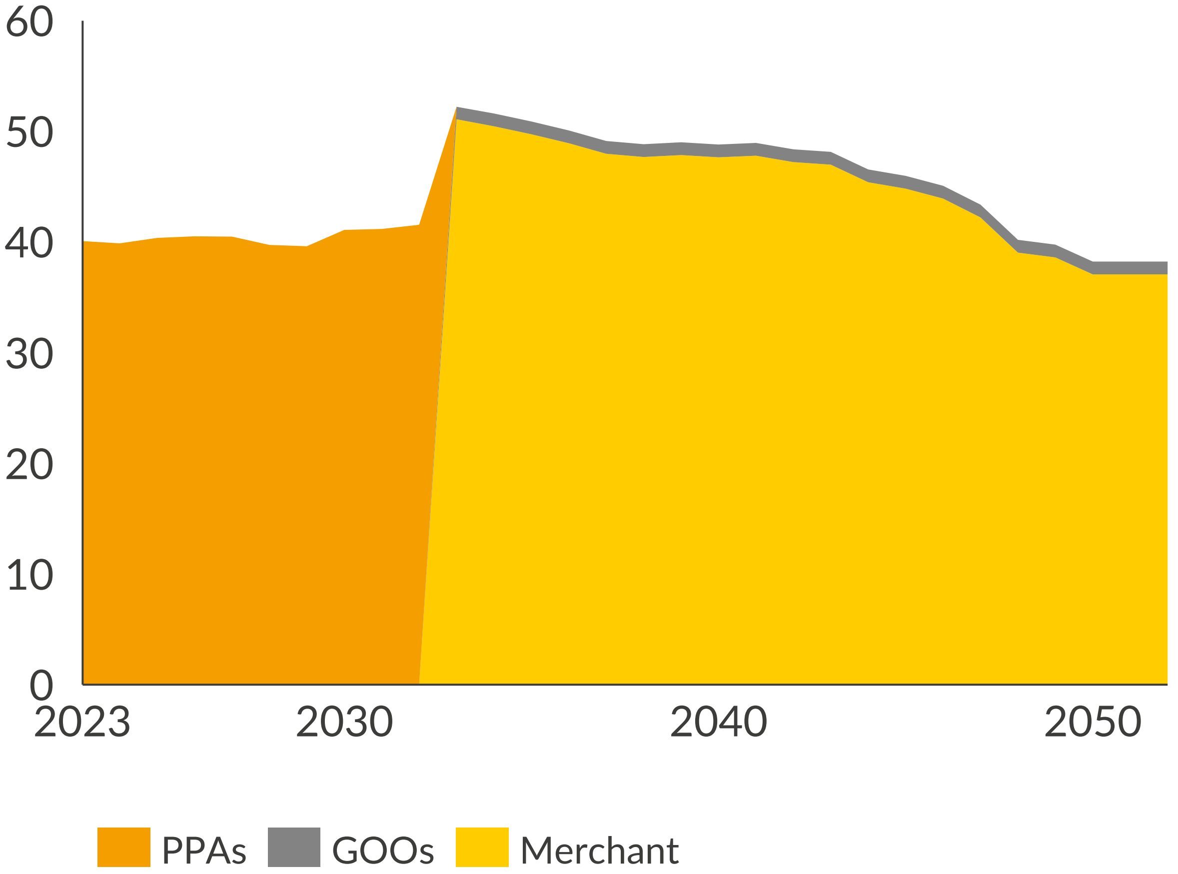
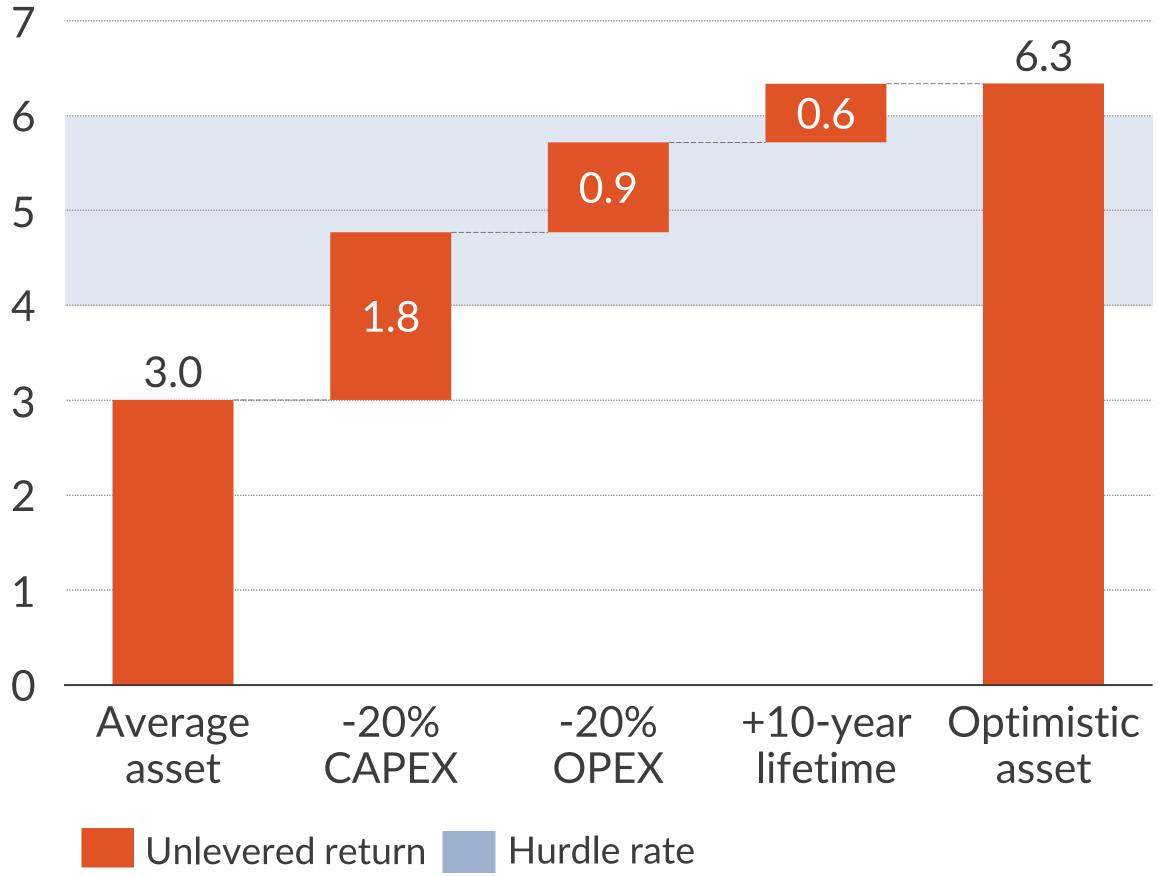
» Subsidy phase-out scenario

Annual revenues of solar asset commissioning in 2023
EUR/kW/a (real 2019)



Unlevered return
%, (real pre-tax)



Assumptions: 547 EUR/ kW CAPEX, 16 EUR/ kW/ year OPEX, 1050 full load hours, 30-year lifetime, 45 EUR/ MWh LCOE, 10-year PPA tenor, 40 EUR/ MWh PPA price (represents an 11% or 5.1 EUR/ MWh discount to average capture prices).

Source: Aurora Energy Research

… while a credible 65% renewables target trajectory will substantially deteriorate the return perspective for investors

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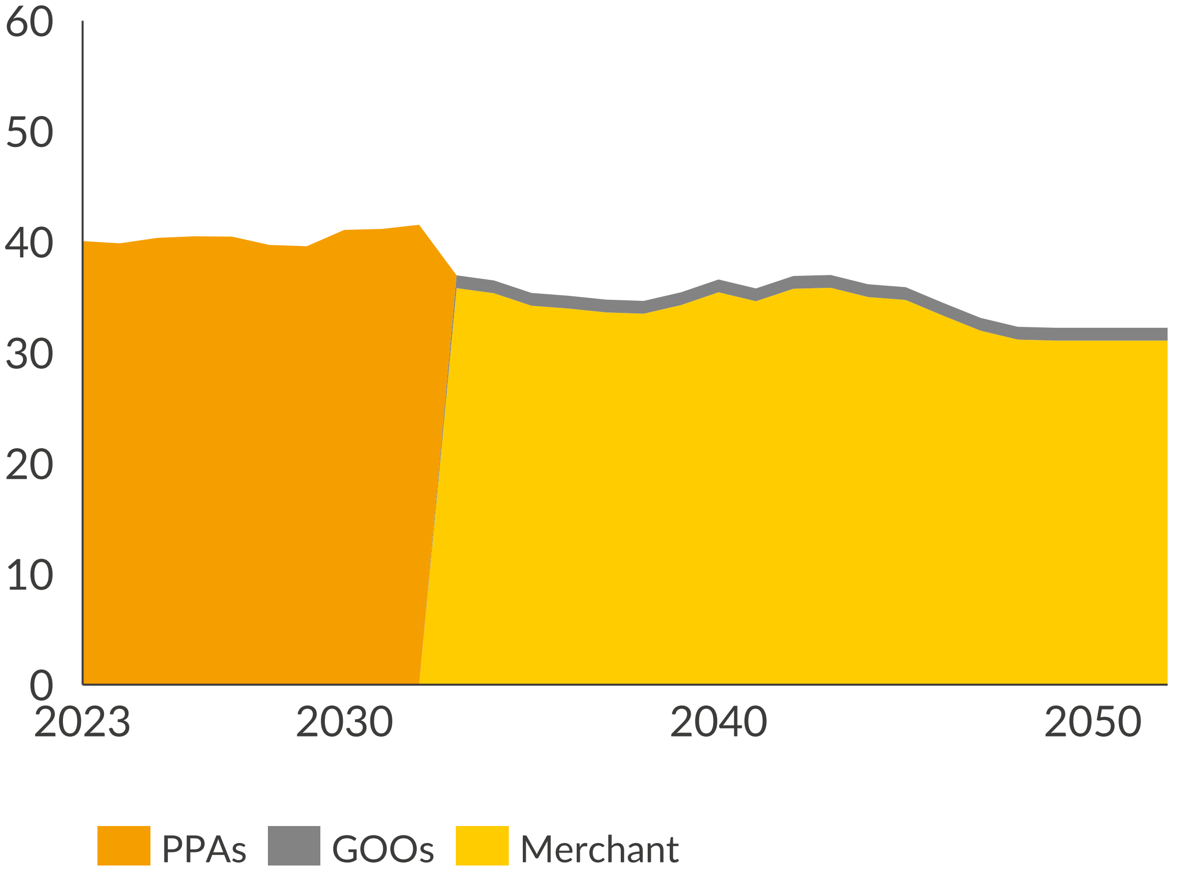
» 65% renewables scenario

Annual revenues of solar asset commissioning in 2023
EUR/kW/a (real 2019)



Unlevered return
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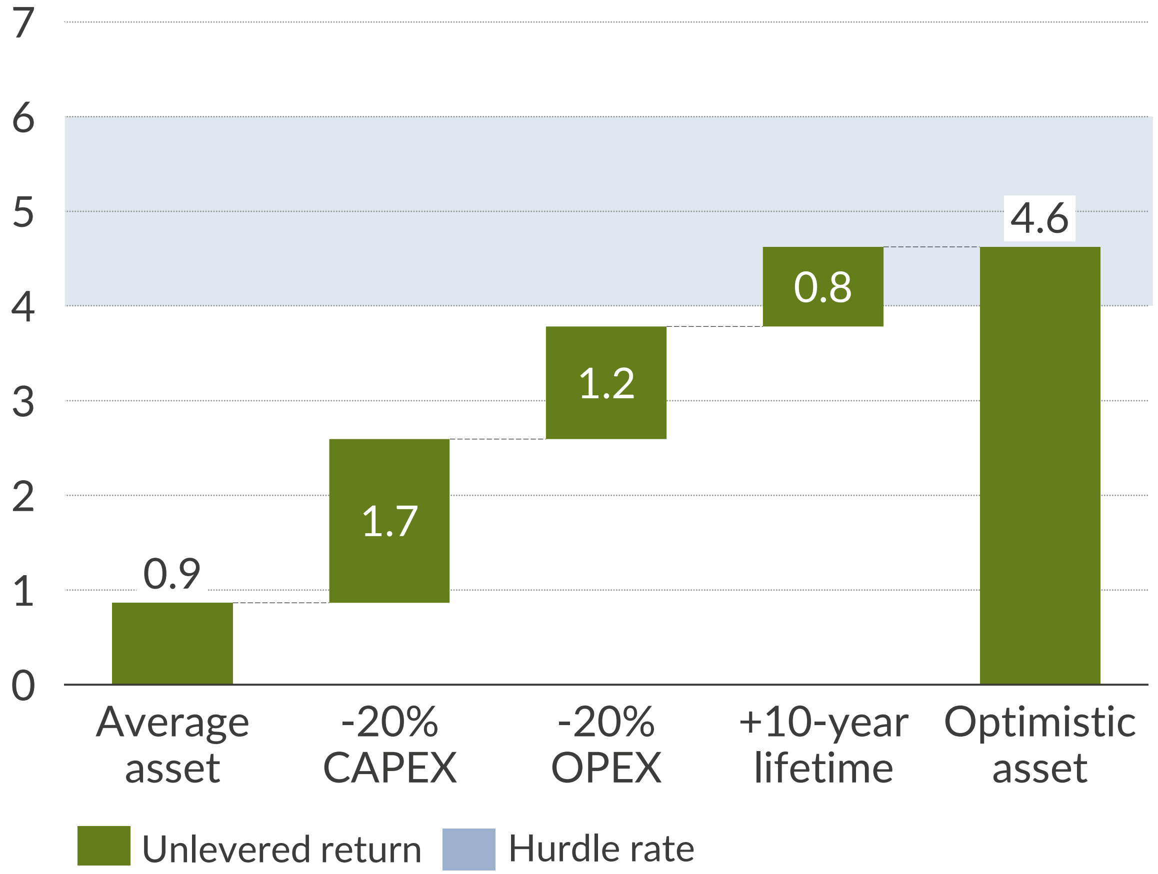

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Source: Aurora Energy Research

Climate targets are achievable in conjunction with a subsidy phase-out, if the carbon price is between 62-118 EUR/MWh in 2030

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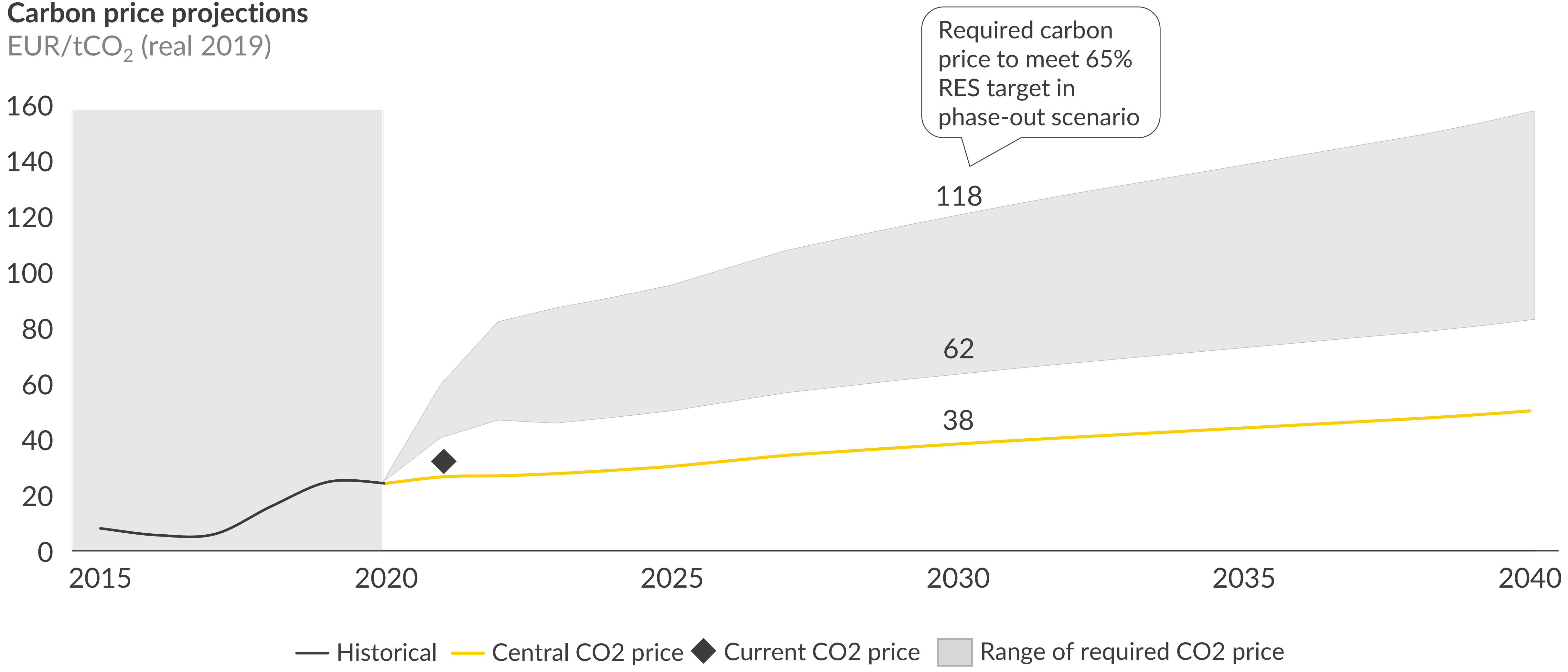
Carbon price projections

EUR/tCO_2 (real 2019)



Market and policy risks are not adequately addressed by de-risking instruments, despite their large impact on return

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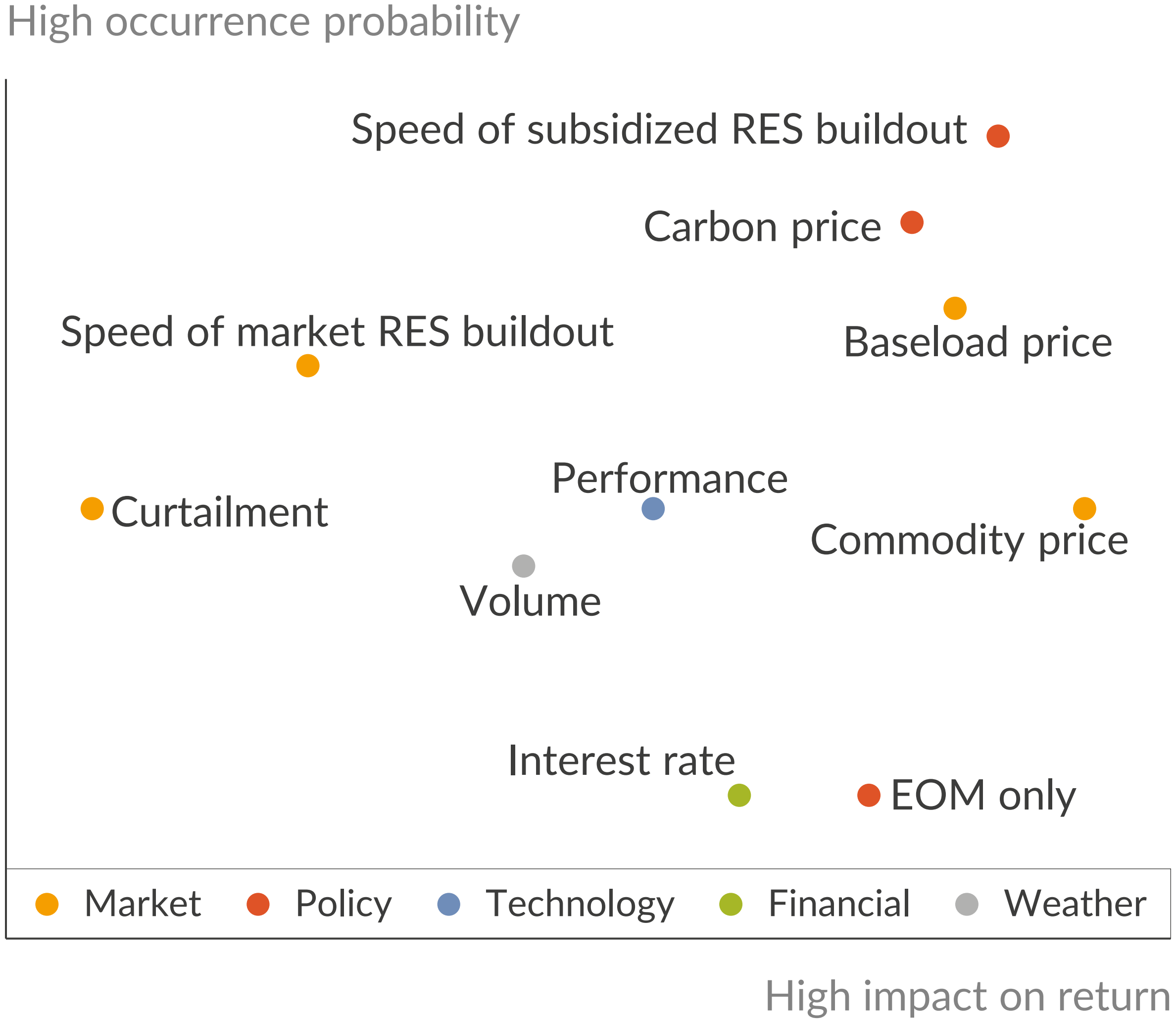
Select investment risks for market-based RES assets



Instruments available to industry

Risk type	Instruments available (selection)	Risk sufficiently addressed
Market risk	▪ Long-term PPA ▪ Financial hedge ▪ Portfolio	⬇
Policy risk	▪ Long-term PPA	⬇
Technology risk	▪ Insurance ▪ Warranty ▪ Full service contract	⬆
Financial risk	▪ Counter-guarantee ▪ Contingency plan	⬆
Weather risk	▪ Portfolio ▪ Weather derivatives ▪ Storage	⬆

Source: Aurora Energy Research

Is it possible to reconcile German renewables targets with a subsidy phase-out in 2027?

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Can Germany reach its climate targets...

... while phasing out subsidies by 2027?

1. Reaching the 65% target and phasing-out subsidies by 2027 is very unlikely given the current EEG and market prospective

2. A subsidy phase-out by 2027 leaves room for solar PV PPA-based assets being profitable, while a credible 65% target will deteriorate the return perspective for investors

3. Policy makers can incentivise higher CO2 prices, however a CO2 price of 62 – 118 EUR/tonne in 2030 would be necessary to reconcile a subsidy phase-out and reach 65% target

4. Policy uncertainty is a substantial investment risk to merchant renewables and cannot be adequately addressed at the moment

Source: Aurora Energy Research

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