Procurement strategies with PPAs and how to agree on price

How can corporate consumers go green, including how to include GoOs and find the right price?

Josephine Steppat

Vienna, 25. September 2024

Agenda

A Procurement strategy for corporates through PPAs

B Determining the “fair” PPA price

C An outlook on current political and social issues

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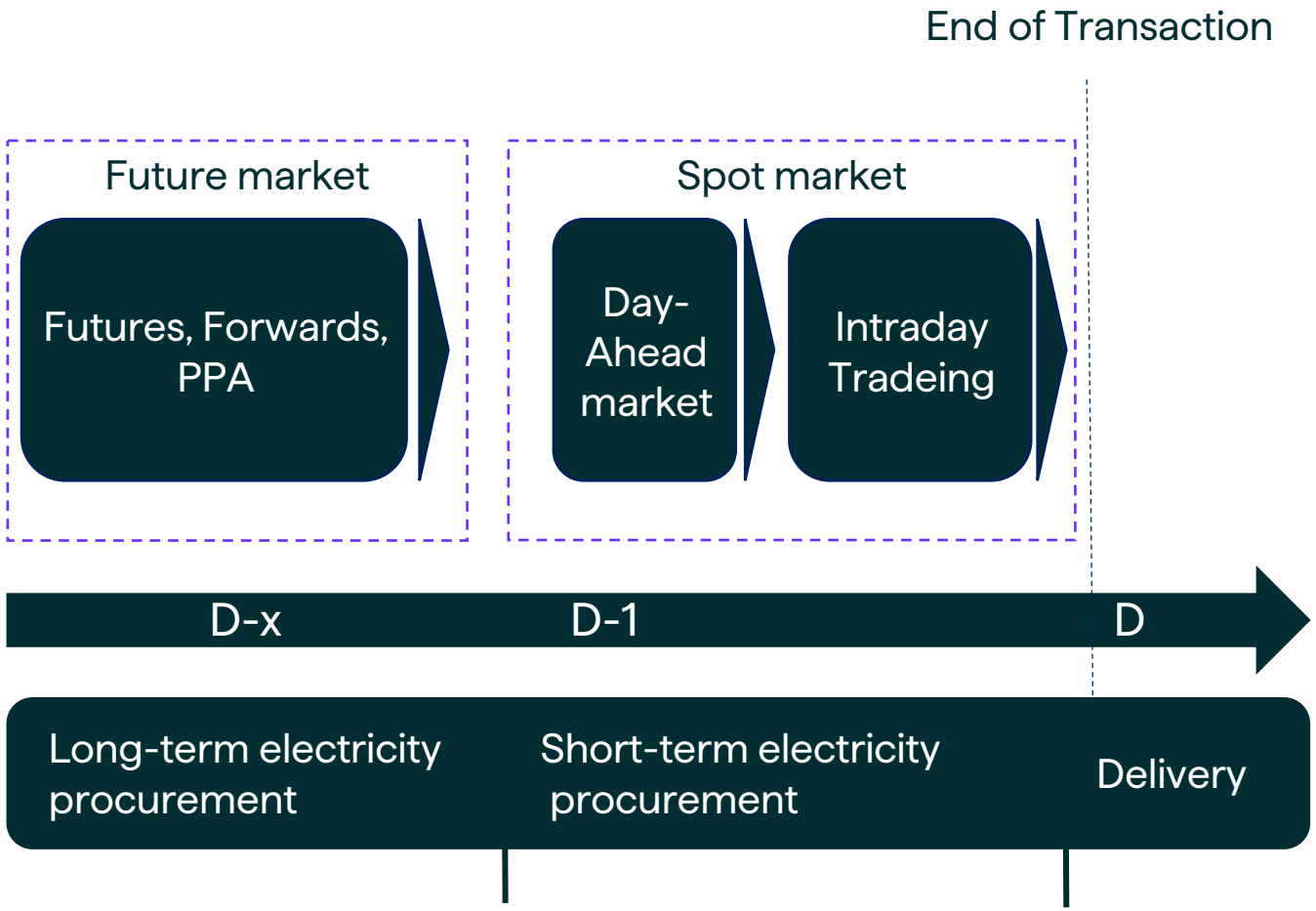
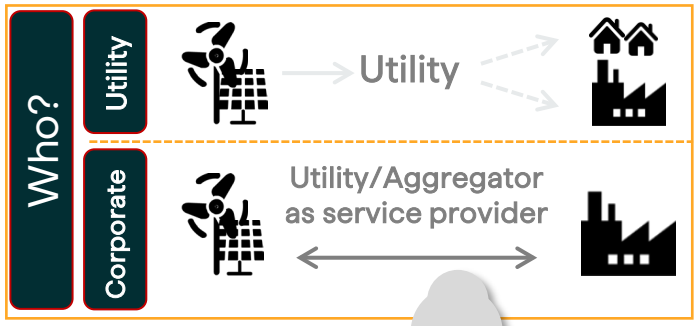
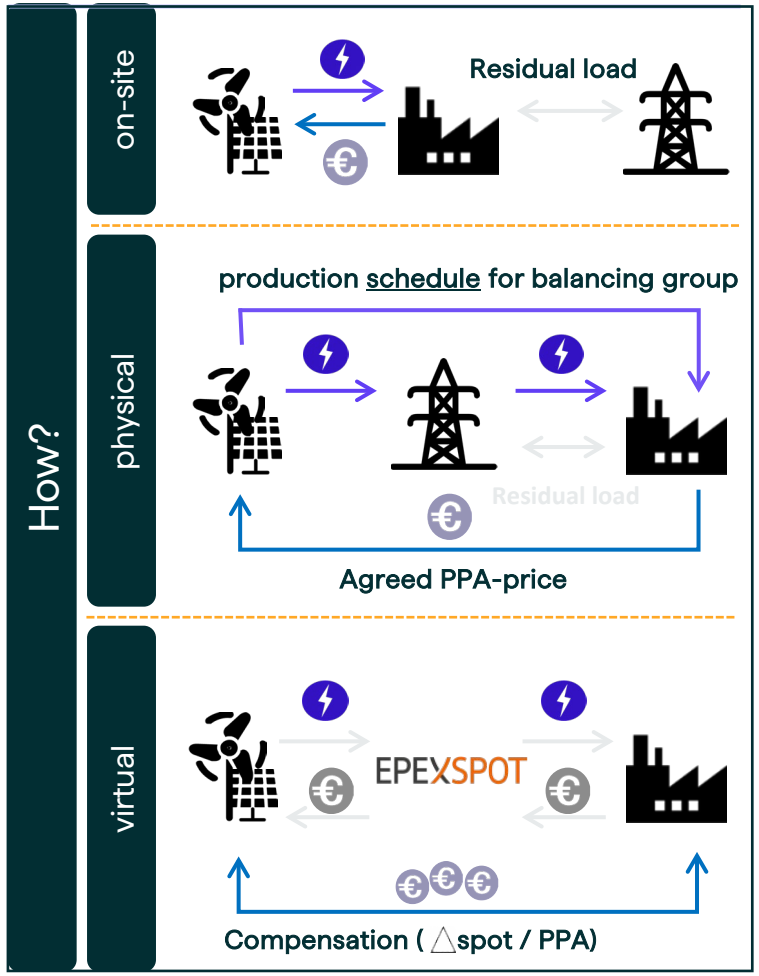
Simplified electricity procurement process



Types of green PPAs



- **„Structuring“:** Buying/Selling delta at day-ahead
- **„Balancing“:** Forecasting, buying/selling delta at intraday/balancing markets
- **Management of Guarantees of Origin (GO)**



Physical vs virtual PPA: Main difference is balancing group management!

Market Data: Status quo PPAs 2019-2024

Capacity secured via PPAs:

- At least 38 GW rated capacity from wind farms (on- and offshore)
- At least 25 GW rated capacity from PV plants
- Only PPA contracts displayed which were reported in the trade press

Top countries:

- Spain: 18 GW
- Nordics: 13.5 GW
- UK: 8.6 GW

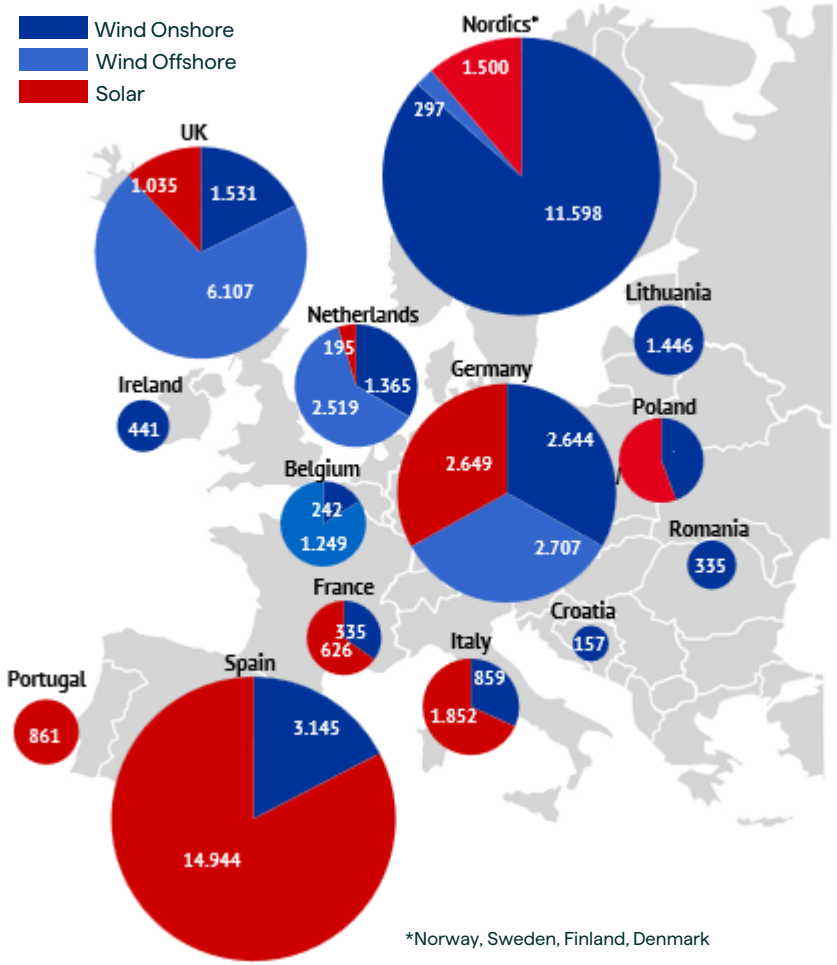
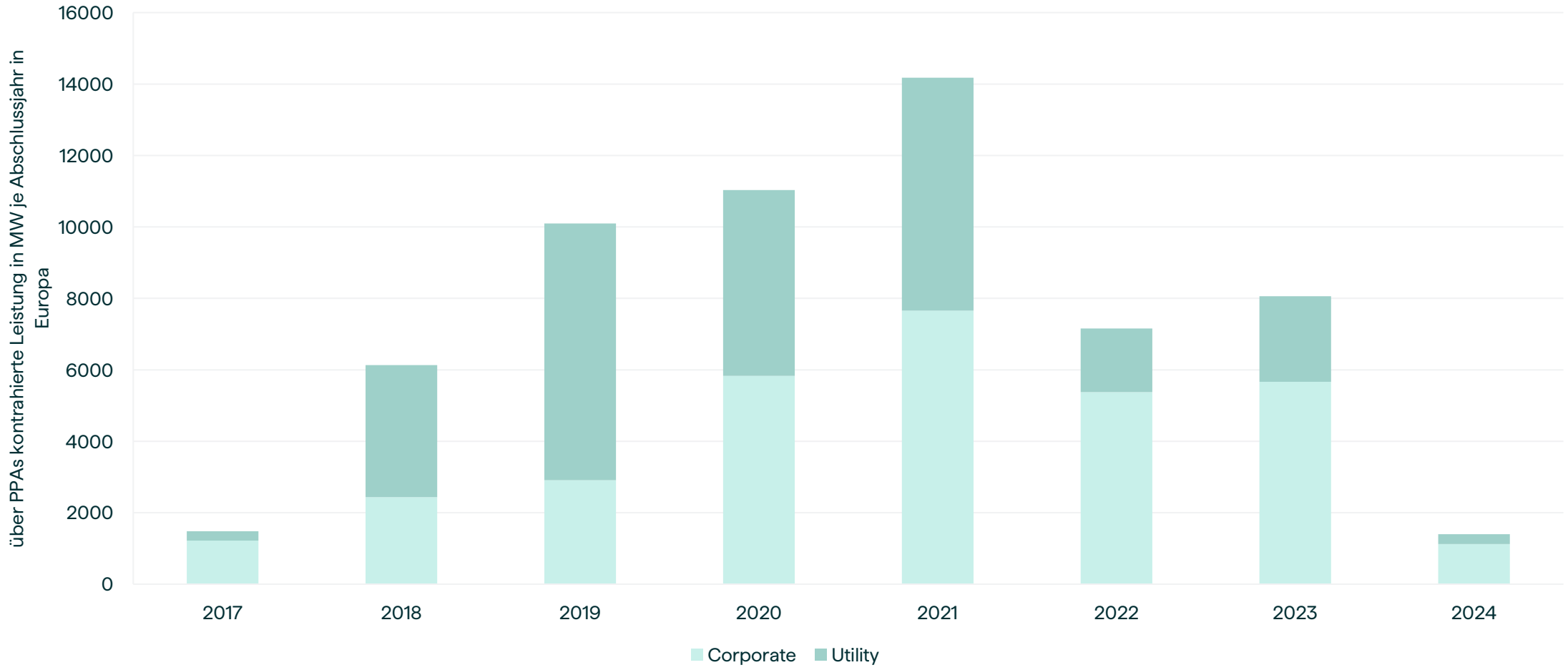


Figure: PPAs in Europe (accumulated in MW), status: July 2024

Source: Trade Press Research Energy Brainpool

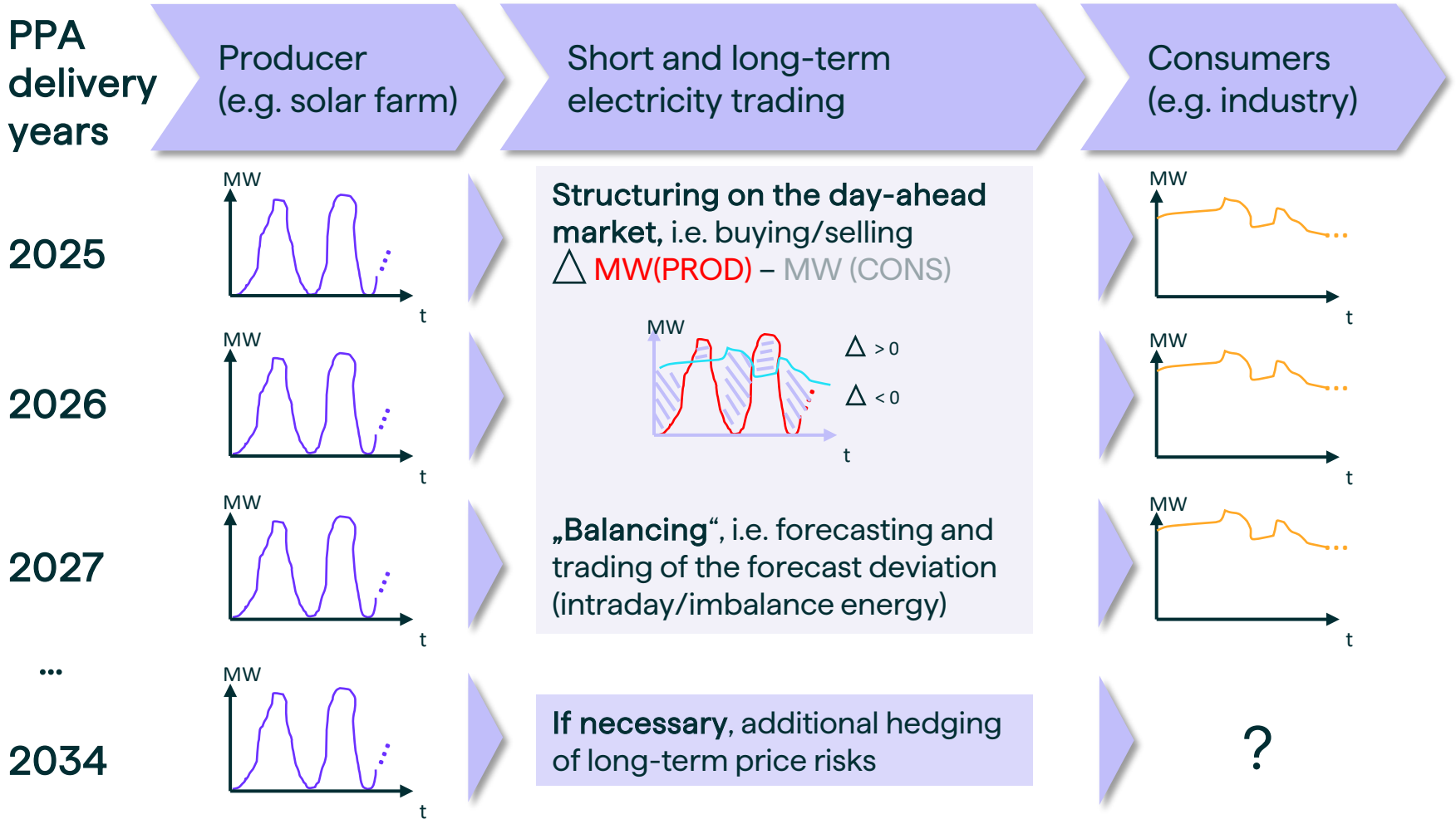
Corporate vs. utility PPAs in Europa



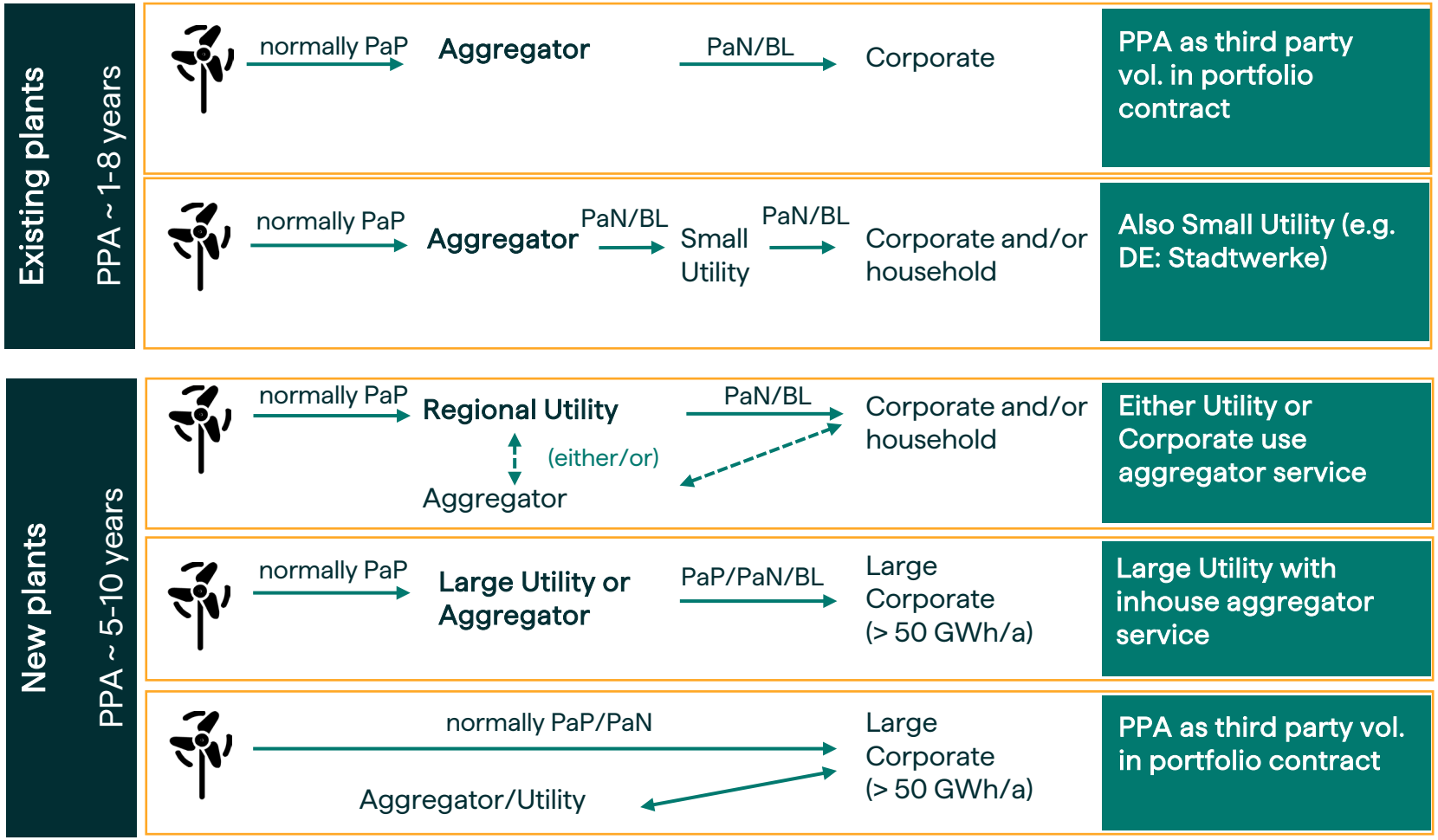
Potential buyers and sellers of PPAs

Seller	Buyer
Operators of past subsidy power plants	Direct marketers and Utilities
Operators of power plants that currently receive a subsidy	Green electricity supplier
Investors for post-subsidy power plant	Large consumers (e.g. "RE100")

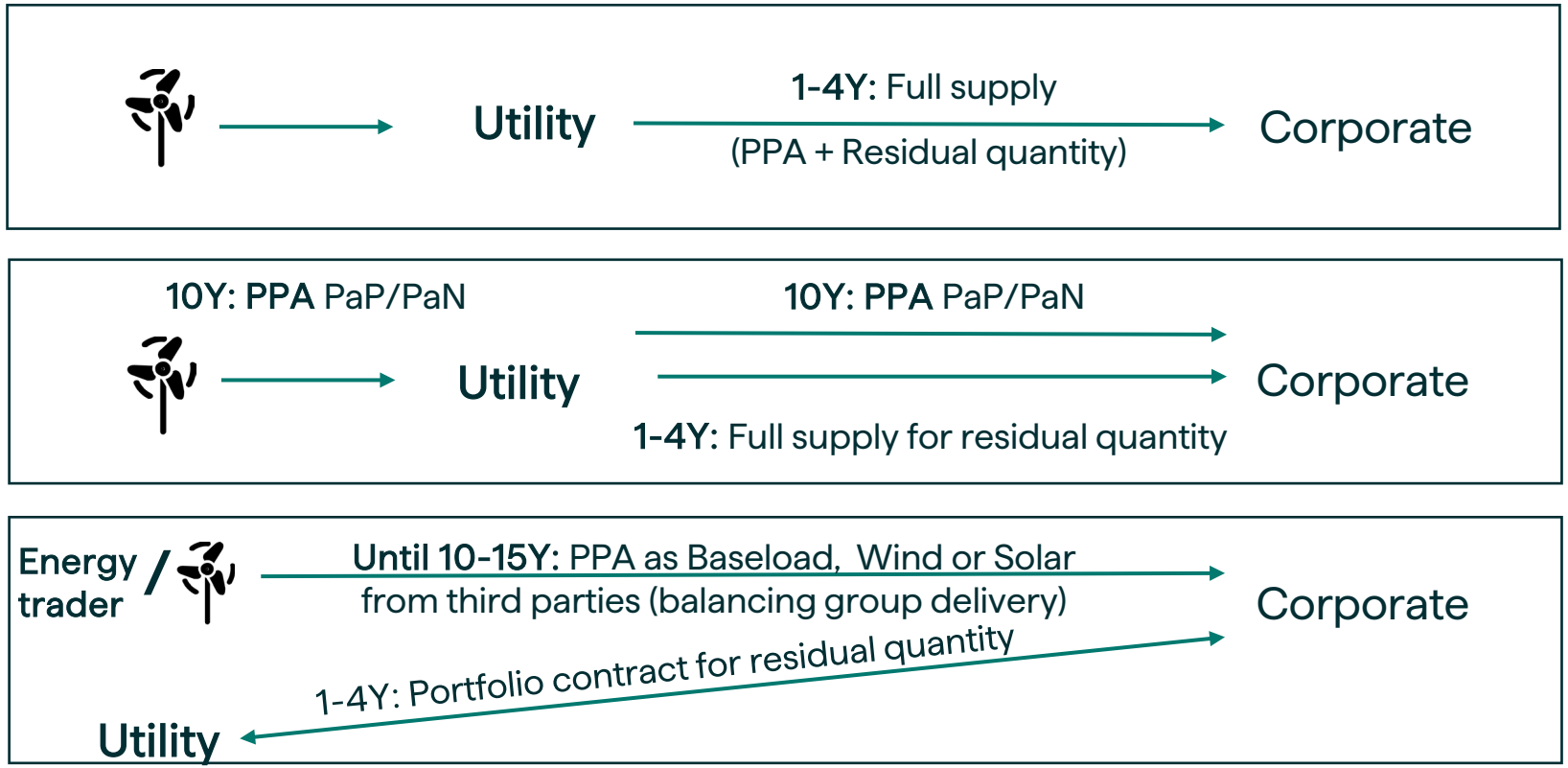
PPA value chain



Typical PPA constructs: examples from germany



Corporate PPA Construct (in Germany)



PPA market: How do producers and offtakers find each other?

Utility-PPA: Initiative by producers

- Example A:
  Producer asks several large direct marketers/ utilities for price quotes (RFQ)*
- Example B:
  Producer offers tranches at a fixed price to several smaller players (e.g. municipal utility associations, etc.)
  → rather large projects (PV, offshore)

PPA platforms

- In Europe: so far little liquidity/trading volumes due to individual needs ≠ Platform standards (still)
  → Standardisation of the market regarding contracts still to be seen
- Already more proven and successful in the USA
- Example: LevelTen

Corp. PPA: Initiative by Offtaker

- As a rule, private/public tendering of quantities via direct enquiries/procurement platform
- If necessary, multi-stage process:
  1.) RFP/RFQ* with shortlist of producers,
  2.) Framework contract,
  3.) Plant-specific individual contracts (possibly in private auction or negotiation)

Corp. PPA: Initiative by RU / Intermediary

- Long-term initiation on the part of Utilitys
- Goal of Utility: back-to-back procurement if possible
- "We enable you to conclude a direct purchase contract with a PV system, take care of energy-related risks and the procurement of residual quantities"

*RFQ/´RFP = Request for Quote / Proposal

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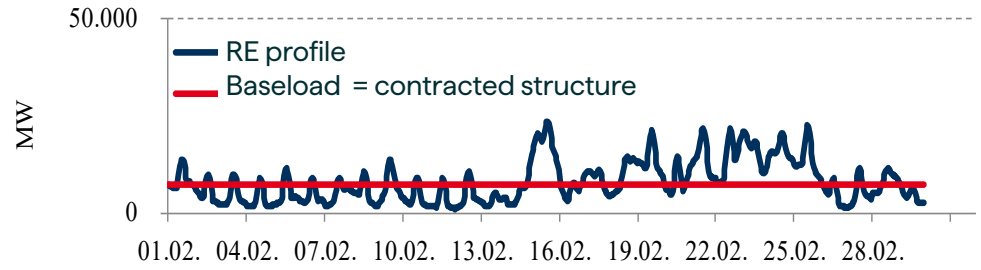
Pricing principles for PPA supply structures (excl. Risk parameters)

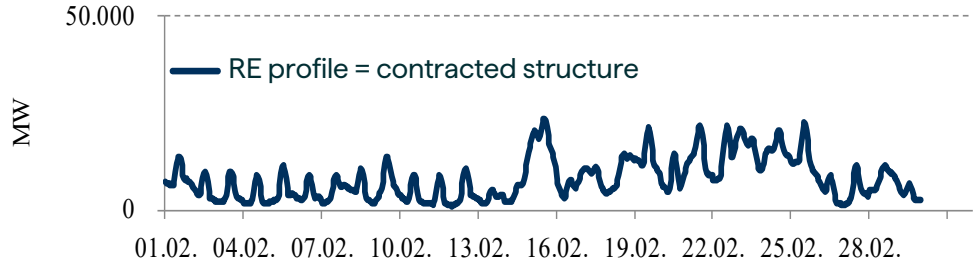
Customer Shape: e.g. Baseload



PPA price = Baseload price

Unknown future price structure determines **shape risk** for PPA seller

Producer Shape: PaP / PaN



PPA price = Base * capture rate (BPR)

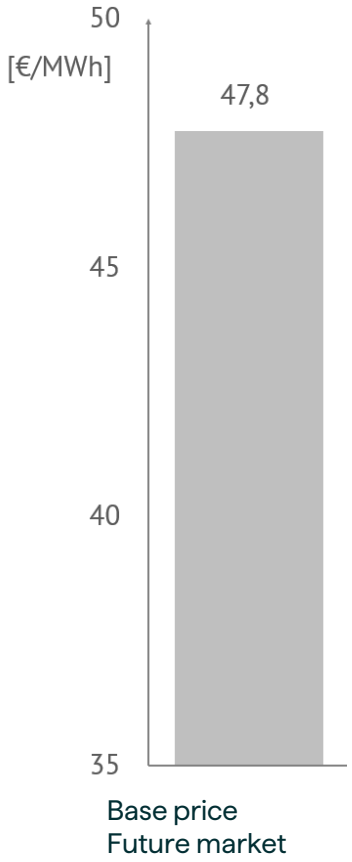
Unknown future price structure determines **profile risk** for PPA buyer

- The value of different load profiles can be compared via ratios [in %], e.g.

  RE capture price / baseload price = “Capture rate“ or „Base-Parity-Ratio“ (BPR)

Step 1: Determine baseload price over duration

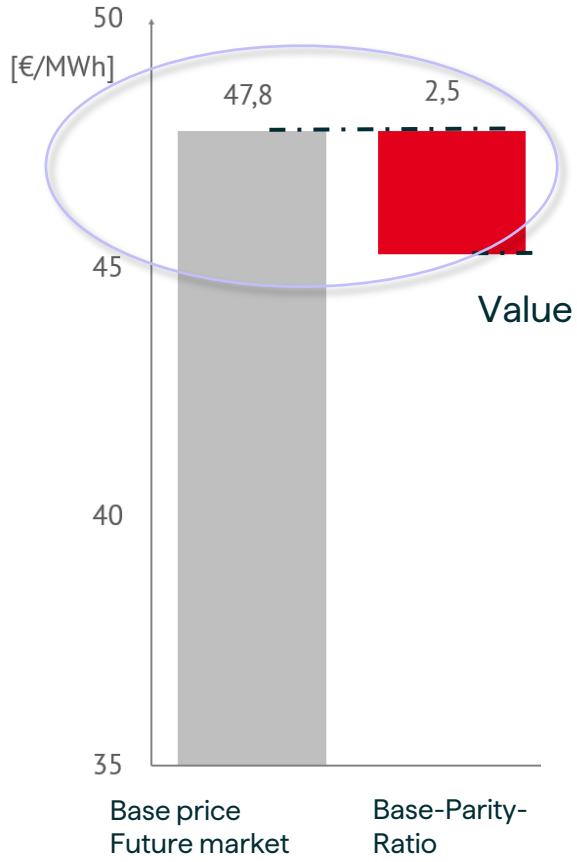
Illustrative example: 1-year PPA PV (PaP)



Value of a base electricity supply valued at market prices

Step 2: Multiply base price with bpr

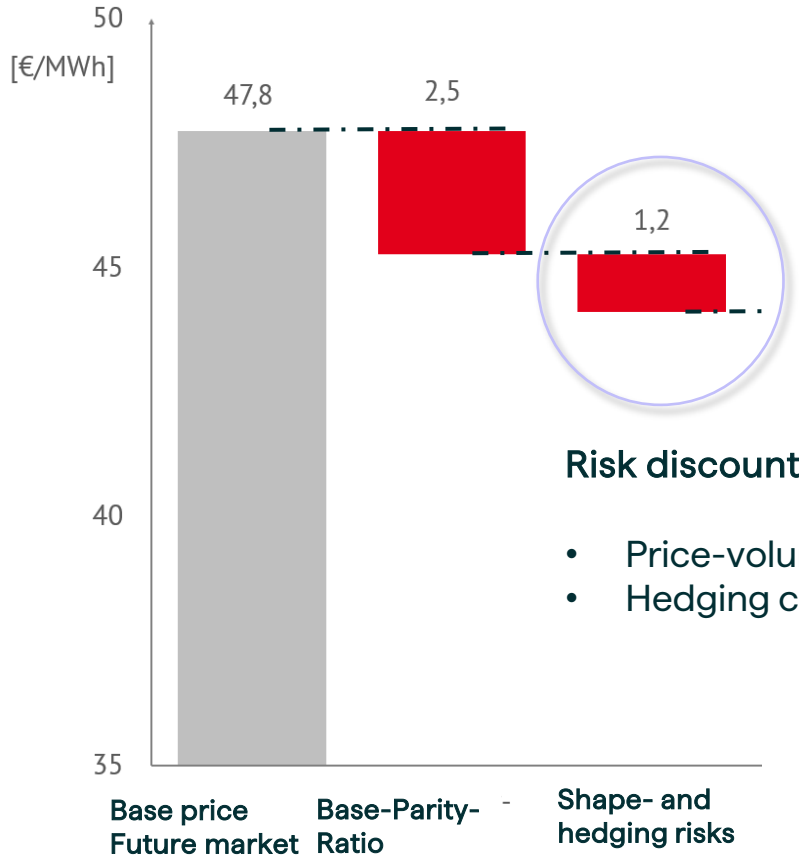
Illustrative example: 1-year PPA PV (PaP)



Value of the profile electricity delivery valued at market prices

Step 3: Deriving the fair value depending on the risk distribution

Illustrative example: 1-year PPA PV (PaP)



Structuring risk = risk discount for lower BPR and/or quantity

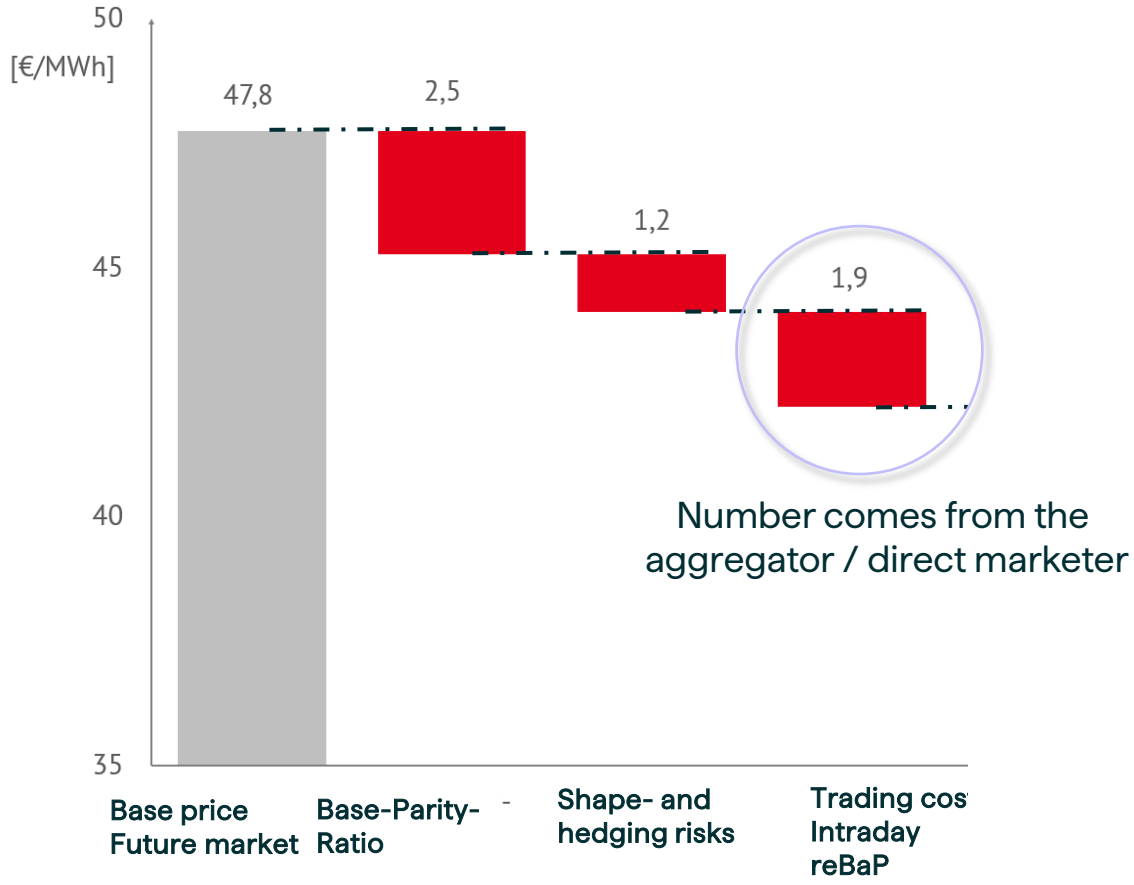
Hedging risk = risk associated with hedging

Risk discount depending on

- Price-volume agreements
- Hedging concept

Step 4: Consider intraday trading costs

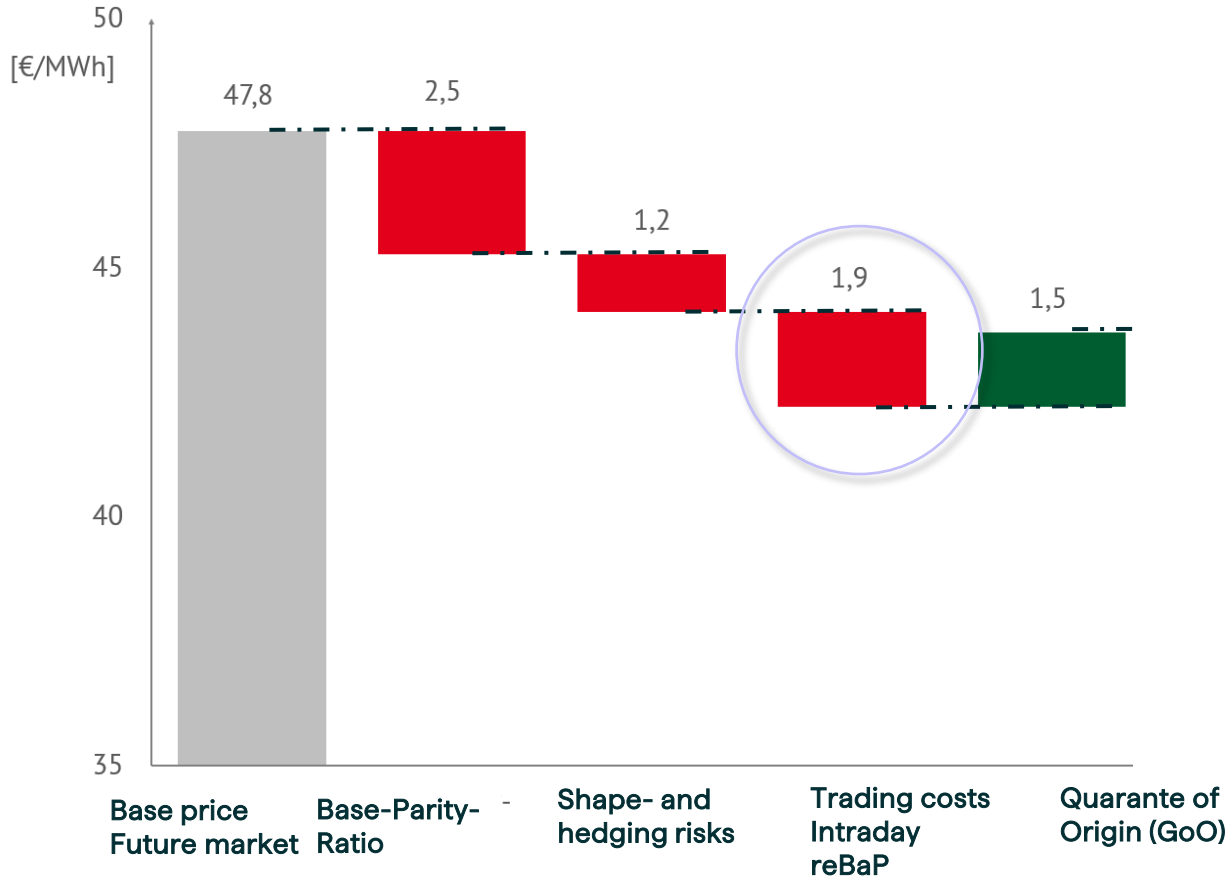
Illustrative example: 1-year PPA PV (PaP)



Number comes from the aggregator / direct marketer

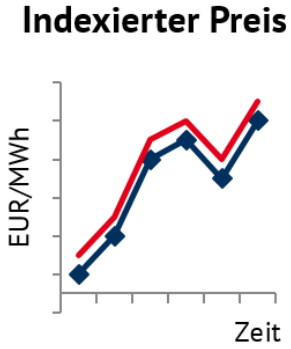
Step 5: Goo valuation

Illustrative example: 1-year PPA PV (PaP)



Value development of Go: non-transparent OTC market

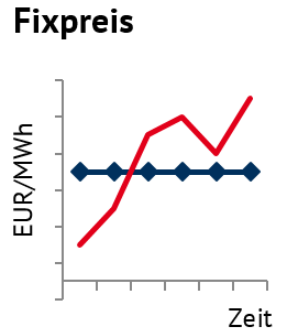
Option i) dynamic pricing



Price development rather intransparent, so far scarcely liquid exchange trading

- Which index? (ICAP, EPEX,...)

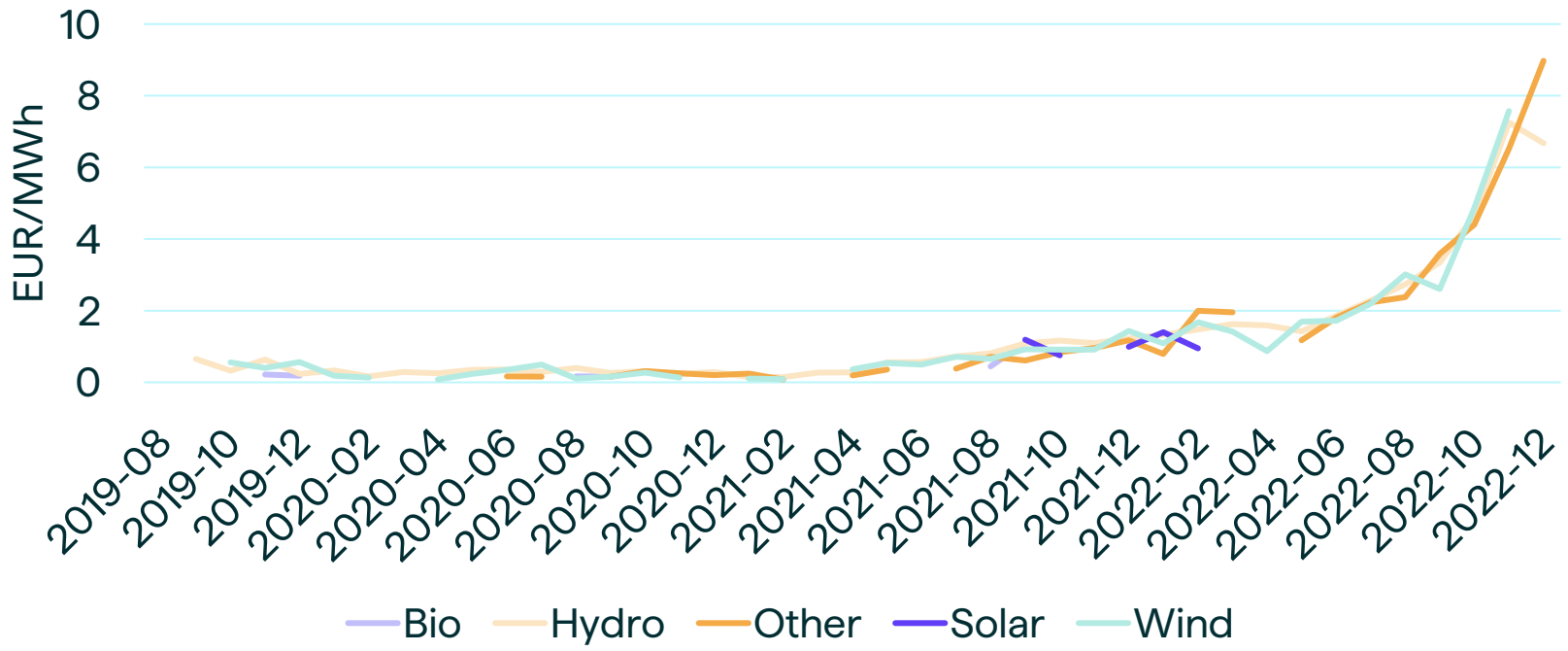
Option ii) "bet" on a fixed price



- Currently difficult due to high price volatility

Recent go price development

Monthly average GO prices

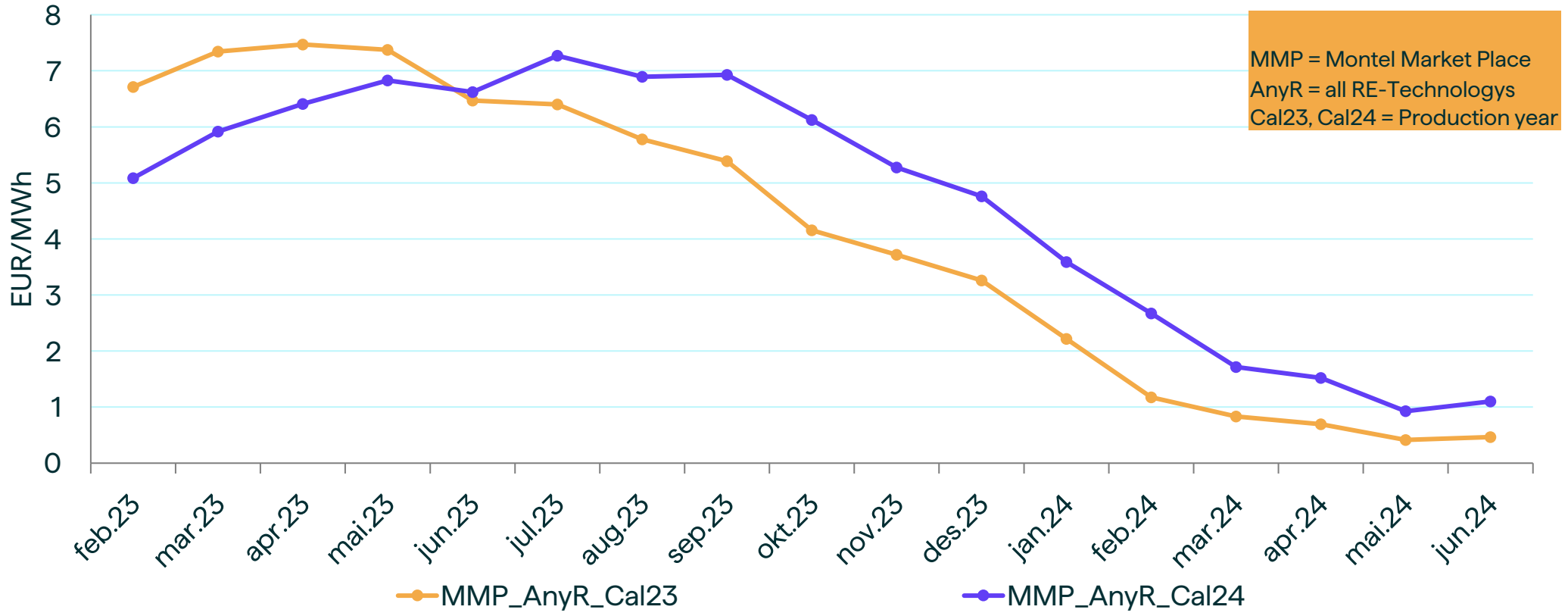


Price increase due to shortage in Nordic hydro power, resulting in lack of GoO production

Source: Energy Brainpool based on data from Greenpowerhub (2022)

GO Price development 2023/2024

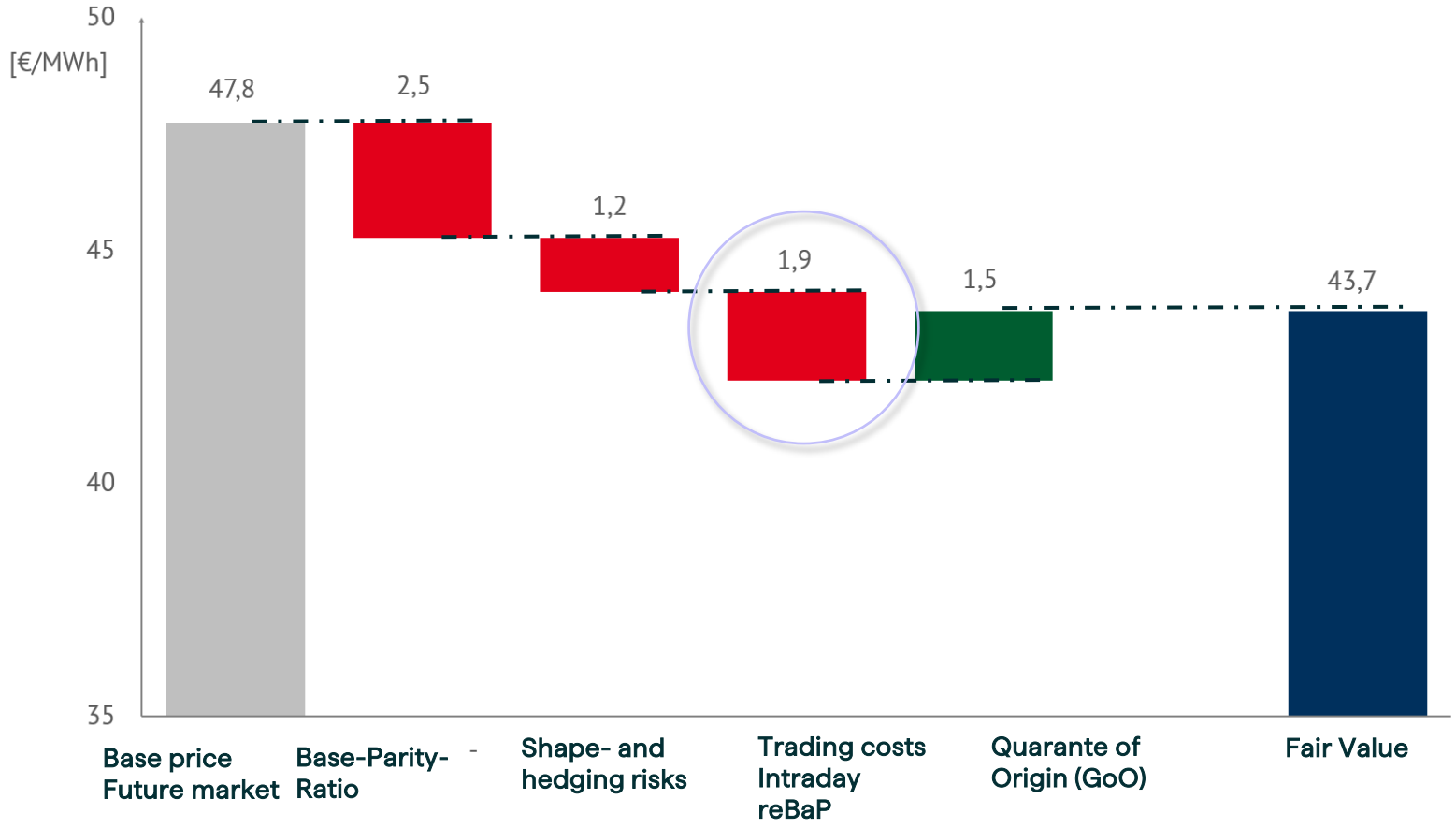
GoO Prices (monthly averages)



Quelle: Montel Online

PPA fair value determination

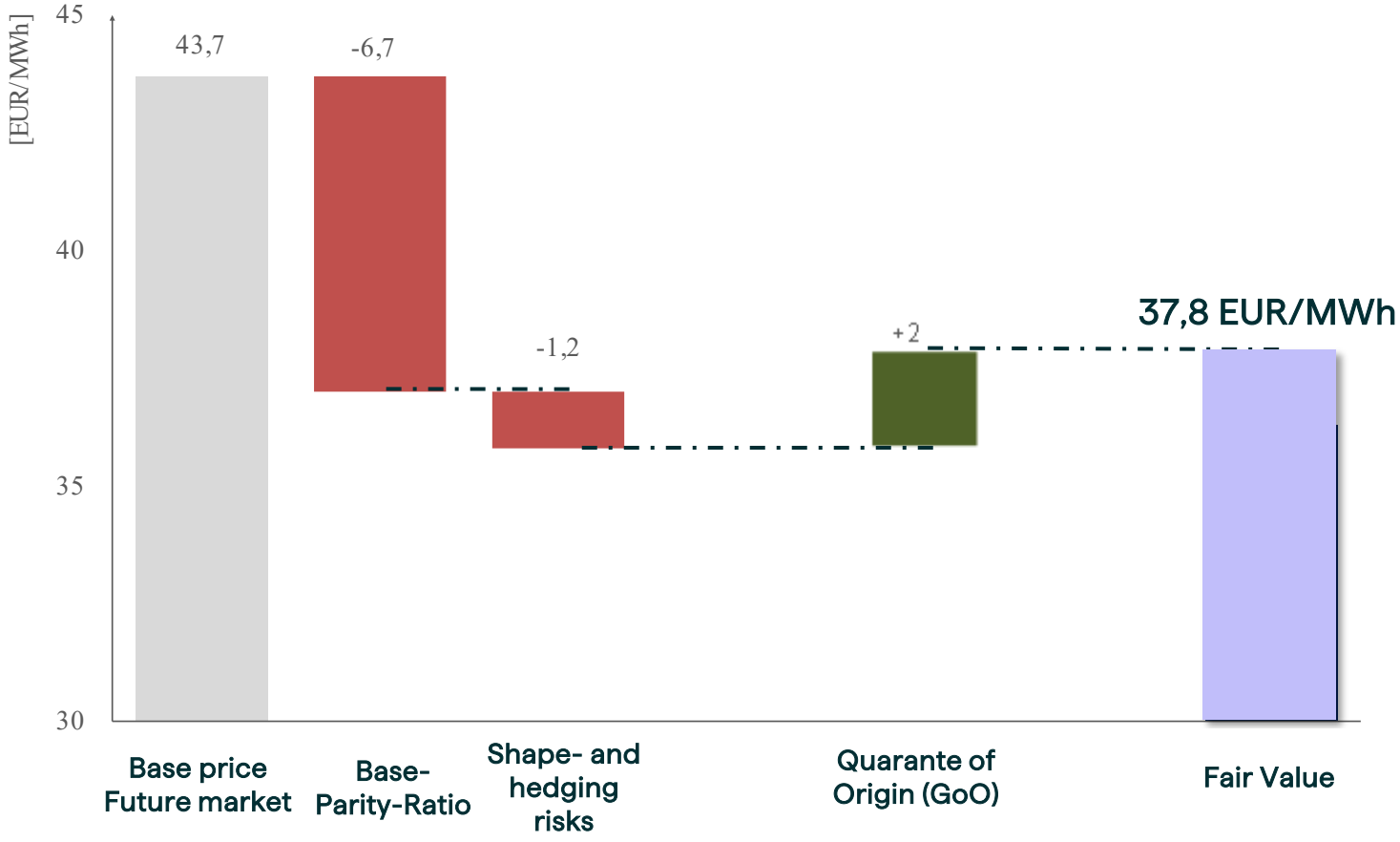
Illustrative example: 1-year PPA PV (PaP)



PPA Fair Value: Pay-as-nominated

100% pay-as-nominated

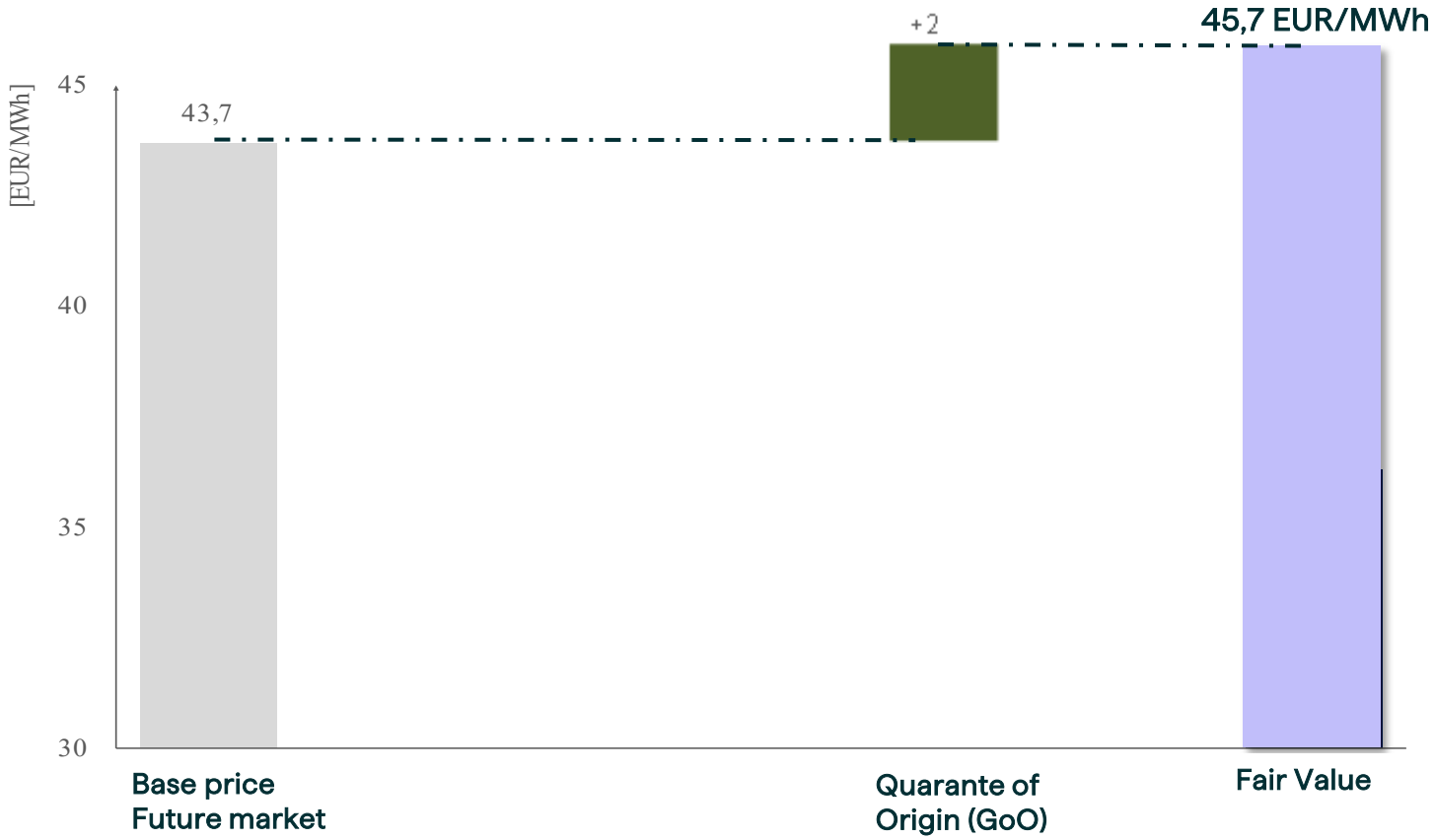
Illustrative example: 5-year PPA Onshore (PaN)



PPA Fair Value: Baseload

100% baseload

Illustrative example: 5-year PPA (baseload)



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Why do corporates want ppas and not only gos?

Today

- Driver for “greening”: pressure from stakeholders (financing, B2B / B2C customers)
- Stakeholder communication through
  - non-financial /sustainability reporting
  - Performance in ESG and sustainability ratings
- **So far: Ratings mainly equal for “Nordic Hydro” vs. “new PPA” GO**
- Only exception – electrolysers (bundled), RE100 (<15Y)
- Otherwise PPAs still voluntary and a “first mover” thing to do

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

CDP
DISCLOSURE INSIGHT ACTION

RE100

Future

- Stricter requirements conceivable in the future, both from sustainability ratings and regulators
- PPAas a hedge against stricter requirements and greenwashing accusations

PPA: Electricity supply relationship and “high quality GOs“ can be secured for 10 years

Agreement on EU electricity market design

Regulation regarding PPAs and support systems for renewable energies

PPA

- In line with their decarbonization plans, Member States can further promote investment in renewable energy through power purchase agreements, including by establishing guarantee schemes.
- Plant operators can reserve part of their electricity for PPAs while receiving state subsidies for the other part via CfDs.

Contract for Difference (CfDs)

- Any state support will take place via two-side CFDs
- CfDs can be used for all investments in new electricity generation plants, regardless of whether they come from renewable energies (wind energy, solar energy, geothermal energy, hydropower without a reservoir) or nuclear energy.
- In future, it will also be possible to subsidize existing plants via CfDs. However, this will only be possible under certain conditions, such as the obligation to make significant new investments.

EU criteria for green hydrogen

RED II	RE share of the electricity mix in the last two years in the member state(Art. 25 para. 3 subpara. 4 RED II)				
	Direct connection (Art. 3 DA)	Grid connection (Art. 3 DA)			
DA options	**Direct purchase** No grid connection of the renewable energy system or grid connection with the measuring system; proportional grid connection permitted **Additionality**	**High RE share** RE share in the bidding zone above 90 %, calculation based on RE production in the Member State; Utilisation of the RFNBO, but limited level of RE share	**Low-emission grid (less than 18 g CO2 eq/MJ)** Conclusion of an 'RE-PPA' (except biomass); here also existing plants **Simultaneity** **Regionality**	**Redispatch** Redispatch of renewable energy plants and electricity consumption, which reduces the need for the measure accordingly	**Grid supply via PPA** 'RE-PPA (except biomass) **Additionality** **Additionality Plus** **Simultaneity** **Regionality**

Additionality: Commissioning of the RE system max. 36 months before Ely; expansion of Ely permitted 36 months after commissioning

Additionality Plus: In principle, no support for the RE system (operating or investment subsidies): Additionality and Additionality Plus only apply from 2038, provided that the Ely is commissioned before 2028 (transitional regulation for grid procurement)

Simultaneity: RE generation and consumption in the same calendar month, from 1 January 2030 at the same hour (early action possible from 1 July 2027 by member states); or: electricity price max. 20 €/MWh or less than 0.36 times the ETS certificate price

Regionality: RES installation and Ely are located in the same bidding zone or in a connected bidding zone with a lower or equal electricity price or in a connected offshore bidding zone; member states may introduce additional location criteria

Thank you very much!

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