FINDING · REGULATION AS A WEIGHTED SCENARIO TIMELINE

More than a third of your project value hinges on an election — €33 of €84 million.

WE WEIGHT THE BREAK AT 25%.

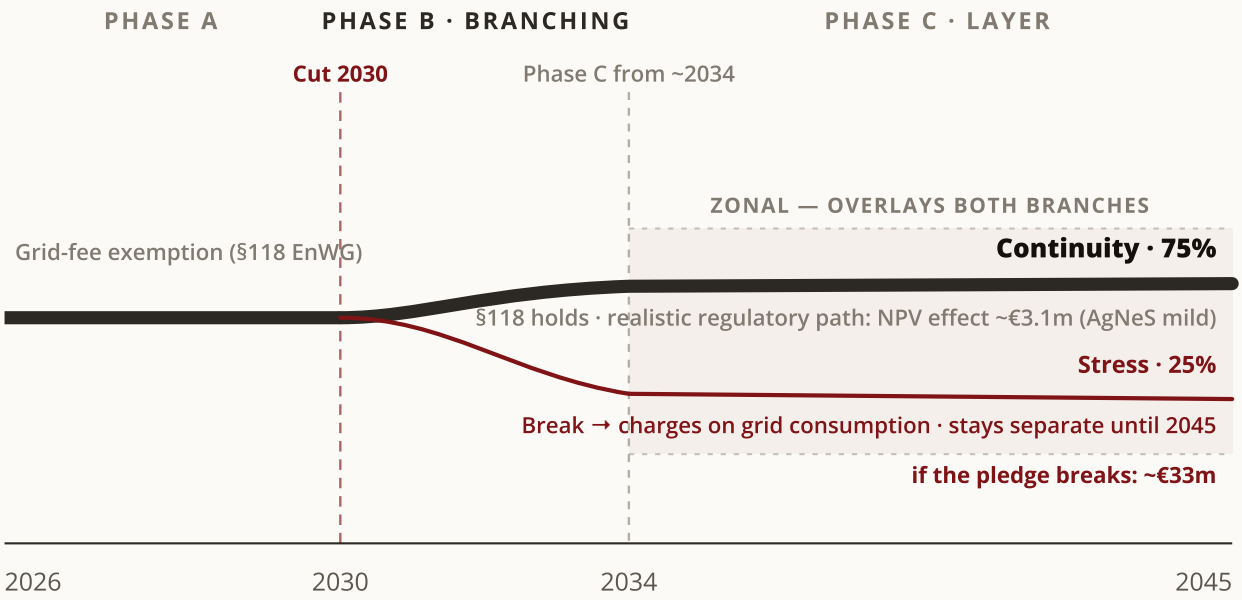

FIG. 1 Regulatory timeline as a fork: Phase A (exemption) branches at Phase B into Continuity (thick, 75%) and Stress (thin, 25%) — line weight carries the path weight. The fork never closes: once the branch splits, the stress path runs separately to the end of life in 2045 — the break is permanent. On the realistic regulatory path: NPV effect ~€3.1m (AgNeS mild); on the stress branch, if the pledge breaks: ~€33m — more than a third of project value. Not negative in any of the 1,000 paths — the difference lies in your financing terms. Phase C (zonal pricing, from ~2034) overlays both branches — no third branch; detailed in the annex.

Why now: The pledge can break — and the break is permanent.

TODAY'S COST	Your bank prices this risk in today — debt sizing runs off the downside case: now, not only if the break occurs. Diffuse regulatory risk costs you return either way.
MECHANISM	Capital is committed on the basis of a state pledge — and the pledge changes after the capital is sunk. Regulatory trust can break; a break acts forward, only on cash flows from the cut-off date.
EVIDENCE	MEAG / Spain shows the magnitude: a granted benefit, later withdrawn — losses in the hundreds of millions. A risk everyone knows — and nobody models.
CONSEQUENCE	In the likely case, almost nothing changes (~€3.1m NPV effect). If the exemption breaks, the asset carries a permanent charge on grid consumption for the remaining lifetime — ~€33m, **weighted at one quarter (25%)**.
BOTTOM LINE	Bankable in both worlds — the difference lies in your terms. Quantified and weighted, the risk becomes negotiable.

DATA SOURCES:
Digital: SMARD.de (BNetzA), CC BY 4.0 — aggregated/processed. Day-ahead as a licence-driven surrogate for the intraday model — DA carries lower intraday spreads than ID3, revenues correspondingly more conservative. 15-min resolution 10/2025–07/2026 (~9 months, not a full annual cycle). Reference asset: 50 MW / 200 MWh · Seed-reproducible.

METHODOLOGY · EVIDENCE · CONTACT

What the model does: empirical market data instead of static assumptions.

Python model, 1,000 stochastic paths (Monte Carlo, block bootstrap on empirical market prices, 15-min resolution), path-wise valuation, aggregation via quantiles. Output: NPV/IRR distributions and downside metrics (VaR, revenue at risk).

TRC: LP optimisation under perfect foresight — a mathematical upper bound, not a forecast.
ORC (roadmap): rolling optimisation without perfect foresight, interface for customer forecasts as the realistic complement.

The quiet evidence: A single number hides the spread — the distribution shows it, two runs show the difference.

REALISTIC · AGNES
~€7/KW/A

STRESS TIMELINE · BREAK BRANCH WEIGHTED AT 25% (BREAK: ~€70/KW/A + €20/MWH ON CONSUMPTION)

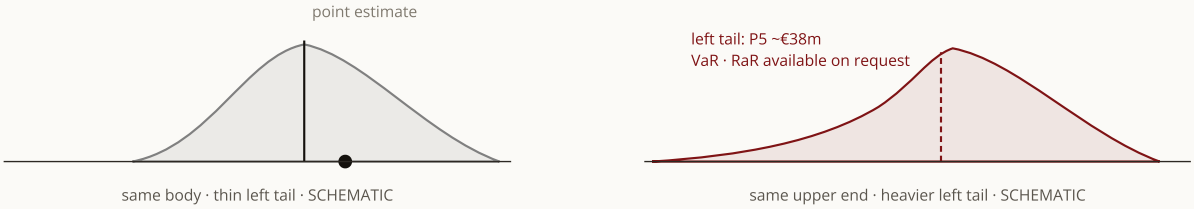

FIG. 2 Point estimate vs. distribution, in both runs. 'In the likely case almost nothing — if the pledge breaks, this.' Quiet evidence: P50 ~€83m · 100% of the 1,000 iterations positive (TRC upper bound, see methodology). Right: the weighted timeline — the break branch (25%) creates the heavy left tail; the conditional break effect (~€33m) is shown in Fig. 1. Regulatory risk acts on financing terms via debt sizing — quantified and weighted, it becomes negotiable. *Curve shapes schematic.*

Next step: a project-specific briefing.

Input: storage specification, contractual position, site — a tailored single-asset assessment, not SaaS.
Scope: front-of-meter / grid-scale (arbitrage + FCR), one bidding zone per asset, no inter-zonal trading.

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ANNEX · DEEP DIVE — ZONAL PRICING (PHASE C)

Deep dive: One zone per asset — North or South, additive price-level offset.

Model declaration: Zonal pricing as an additive level offset on the national price series (South +5, North −5 EUR/MWh[1]). The spread structure remains national — zone-specific spread changes are not modelled (roadmap), as they are not quantitatively substantiated. The offset acts over the full lifetime: a declared upper bound of the level effect in both directions — for the northern zone the permanent offset is accordingly a best-case assumption (grid build-out suggests convergence).

Result (full runs, paired, DA): southern zone −€0.32m (−0.38% NPV), northern zone +€0.34m (+0.41%). Reading: a pure zonal price level is secondary for BESS arbitrage — due to round-trip losses the storage asset is a net consumer of energy; a higher level costs slightly, a lower one benefits slightly. What would matter is the zonal spread structure; we do not claim it, because the evidence base does not support it. The regulatory effect (conditional delta ~€3.1m realistic / ~€33m stress test) is zone-robust.

The figures isolate the level effect. The unmodelled spread effect would likely act in the opposite direction — a southern scarcity zone primarily raises volatility, and volatility is the arbitrage lever. The siting question South vs. North is one this model structurally does not answer.

Regulatory context (as of Dec 2025): Germany rejected the split and submitted an action plan to the European Commission — the split is thus conditionally deferred, not settled (Art. 15 EU 2019/943: 70% capacity target, EU lever if missed; redispatch costs back at ~€3bn in 2025). If it comes: the North/South axis is the base geometry of every configuration studied (DE2–DE5, boundary along the northern borders of Bavaria/Hesse/NRW); earliest realistic horizon ~2030+. Our two-zone approximation is the coarsest resolution of the substantiated structure, not an arbitrary assumption.

[1] ±5 EUR/MWh: source Aurora 2030 ~+5 EUR/MWh southern premium, convergent range 5–10 (Fraunhofer/EWI); symmetric split around the national series as a simplification.

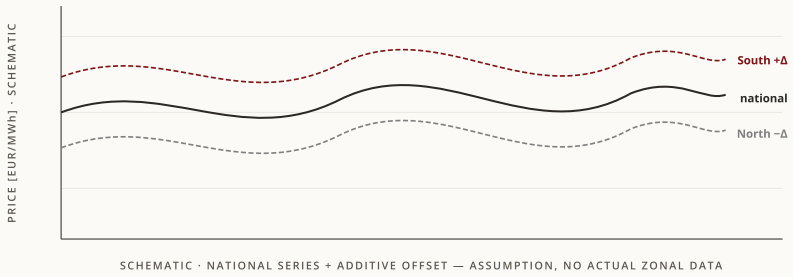

FIG. A1 Zonal price series as an additive offset on the national series (South +5 / North −5 EUR/MWh, footnote 1). One zone per asset, no inter-zonal trading. *Schematic illustration.*

DERIVATION OF THE STRESS VALUE · EVIDENCE

Stress charge ~€70/kW/a + €20/MWh (on grid consumption / charging only, not on discharge): full end-consumer grid-fee case at high-voltage level, German grid-fee sheets 2025/26 ~€50–90/kW/a + €15–30/MWh; 70 = upper middle of the HV range. A counterfactual break of the pledged exemption — not a BNetzA forecast (AgNeS status 27 May 2026 is mild; the break was rejected).

DATA SOURCES:

This page contains no market data — zonal series are synthetic (national series + offset), declared as an assumption. · Reference asset: 50 MW / 200 MWh · Price basis day-ahead (SMARD.de), CC BY 4.0 · Seed-reproducible.