

CASE-05 · ENERGY & MAJOR INVESTMENTS

Approving a €900 million plant, designed to last 25 years

A large, heavily fossil-intensive energy infrastructure. At today's prices and consumption, it pays back in 8 years.

THE JUDGMENT

25 years → with options

CALIBRATED CONFIDENCE

46%

SECTOR

Energy



EXECUTIVE VERDICT

In ten years it risks becoming a **stranded asset**.

THE CALL

25 years → with options

CONFIDENCE

46%

IN ONE LINE

Reduced the risk of a **stranded asset** on €900M, turning a bet into an option.

§ THE PROTAGONIST & THE CONTEXT

The Chief Investment Officer of an integrated energy operator, with a board asking for concrete progress on the pipeline and a guaranteed purchase contract up for renewal within six months.

A national energy operator with a consolidated fossil generation base and regulated supply obligations. The proposed plant replaces capacity being decommissioned and is framed as necessary for the country's near-term energy security. Existing guaranteed purchase contracts cover the first ten years of operation.

§ BACKGROUND

The cost curve for renewable energy has followed a near-exponential trajectory over the past decade: the levelised cost of solar PV and onshore wind fell 89% and 70% respectively between 2010 and 2023. Credible energy-transition scenarios place the competitive parity point between renewables-plus-storage and natural gas between 2030 and 2035 in most European markets. On the regulatory side, the current CO₂ price in the European ETS is already on a trajectory to double by 2030 per consensus estimates. A plant engineered to the economics of today and expected to run for 25 years assumes none of these trends accelerates — an increasingly fragile assumption.

§ COUNTER-INTUITIVE SCENARIO

The risk isn't the early years, it's the **last** ones. It pays back in 8 years, but it must live 25. Electrification, CO₂ levies and the collapse in the cost of renewables and batteries can drive usage down after year ten. A calculation that assumes the plant always at full capacity for 25 years is fragile: you risk a **stranded asset**, still to be paid for but that no one uses anymore.

IMPLICIT ASSUMPTIONS

- ◆ Consumption will stay at these levels for 25 years.
- ◆ The price of CO₂ won't penalize the plant.
- ◆ The cost of money will stay low.

FALSIFICATION TESTS

- ◆ With CO₂ at €150/tonne, does the calculation still hold?
- ◆ When do renewables and batteries become cheaper than gas?
- ◆ If usage drops 40%, do the guaranteed purchase contracts still cover the investment?

QUESTIONS THAT RAISE THE BAR

- ◆ At what CO₂ price does the plant become dead weight, and with what probability within 10 years?
- ◆ How much of the return depends precisely on the last 10 years, the most uncertain?

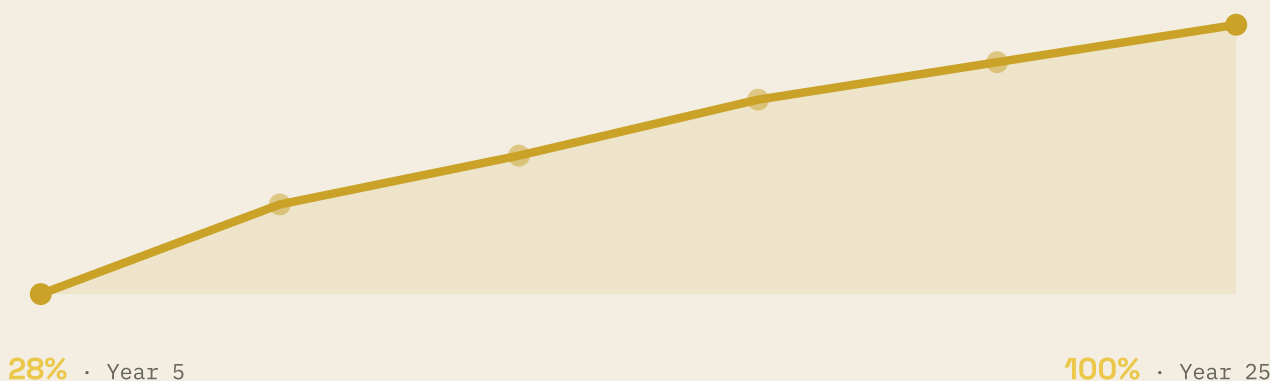
CALIBRATED CONFIDENCE & PROVENANCE

that the 25-year return withstands the transition scenario

Provenance: energy transition scenarios · technology cost curves · guaranteed purchase contracts · red-team base.

Cumulative return distribution over time

ILLUSTRATIVE DATA



Expected cumulative return of the plant year by year — about 65% of the return is concentrated in the first ten years; the remaining fifteen are exposed to the energy transition (illustrative data).

NPV at 25 years: base vs accelerated transition

ILLUSTRATIVE DATA

Base case (full capacity)

€310M

Accelerated transition (-40% usage)

€85M

Net present value of the investment in the base case (full utilisation) and in the accelerated-transition scenario with declining usage from year ten (illustrative data).

OUTCOME

Numbers redone assuming declining usage; added flexibility (hydrogen-ready) and extended the guaranteed purchase contract.

VALUE

Reduced the risk of a **stranded asset** on €900M, turning a bet into an option.

METHODOLOGICAL NOTE — READ FIRST

Composite cases, in the method of the Harvard Business Review: reconstructions based on real, recurring situations in each sector, merged and anonymized to protect confidentiality. The decision dynamics are authentic; names, figures and details are altered and not traceable to any single client or case. The «provenance» notes describe the type of evidence the engine cites with traceability in production. The Δ-CSI values illustrate the intensity of the pressure the contradiction put on the assumptions.