Future-Proofing Strategic Asset Investment Planning for Grid transformation

CLIENT CASE

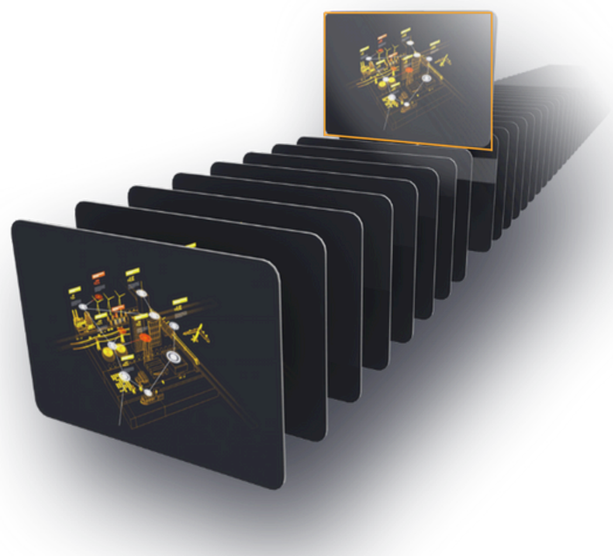
Financing an aging asset network and supporting grid transformation, while ensuring affordable tariffs for customers

"Cosmo Tech is a trusted solution across Groupe E stakeholders for uncovering trade-offs once impossible to see".

Head of Grid Asset Management, Groupe E

Groupe E is one of Switzerland's largest grid operators.

Active in electricity generation, distribution, and energy services, Groupe E operates more than 13,000 km of electrical lines and 26,000 photovoltaic installations connected to the grid, and serves businesses and more than 400,000 people across the cantons of Fribourg, Neuchâtel, and to a lesser extent, in Vaud.



Challenges

Groupe E is facing a dual challenge: aging infrastructure and the fast acceleration of the energy transition. The company needs to secure long-term service quality and define feasible investment trajectories while transforming its grid to the evolving electricity consumption and production patterns.

The Approach

Since 2021, Groupe E has leveraged Cosmo Tech AI-Simulation to support strategic investment planning, initially focused on renewal programs.

In 2024, Groupe E needed to define an investment strategy over the 2025–2034 period to support the massive introduction of Distributed Energy Resources (DERs) into the grid, with projections of 40% electric vehicle connection rates by 2040 and 50% of residential solar panels connected by 2050.

The grid operator expanded its approach to define the optimal broader renewal and reinforcement strategy, enhanced by smart grid flexibility levers. Since then, Cosmo Tech's solution has simulated all possible investment pathways by factoring in infrastructure aging laws and renewal policies, workforce capacity, reinforcement projects driven by smart grid flexibility scenarios as well as the conflicts and synergies between plans.

Groupe E explores the cumulative impact and assesses—year by year, over a 30-year horizon—the outcomes of each strategy on grid stability (SAIDI), energy transmission costs, CAPEX, asset fleet financial value, maintenance needs, and workforce allocation.

2022 Results

-8%

TOTEX

For renewal plans reallocated to high voltage assets.

Simulation uncovered a saving opportunity from deferring low-voltage renewals by 2030 and revealed a 400V low failure risk, driving reallocation of investments.

2024 Results

-30%

CAPEX

For combined renewal and reinforcement plans.

Optimized trade-offs also include a 30% reduction in extraordinary depreciation and a 5% reduction in HR needs, while controlling energy delivery costs and preserving asset financial value.