

Annual Summary

Figure 1: Annual Summary

Storage SOC Comparison

Figure 2: Storage SOC Comparison

Scenario Analysis Report: scenario_5

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Overview

Financial Analysis

Metric	Value
Initial Investment	CHF 36,672,740
Annual Operating Cost	CHF 905,287
NPV (10 years)	CHF -68,844,458
NPV (20 years)	CHF -88,117,920
NPV (30 years)	CHF -96,134,125

Generation Analysis

Annual Generation by Asset Type

Asset Type	Generation (MWh)
nuclear	181'046
solar	119'421
battery1	-229
wind	82'827
battery2	-351

Generation Costs

Asset Type	Cost (CHF)
cost_nuclear	905'230

Storage State of Charge

AI Critical Analysis

Critical Analysis of Scenario: scenario_5_nominal

Economic Efficiency of the Generation Mix: The annual cost of \$905,287 indicates a relatively high operational burden, particularly given that most generation types, including solar, wind, and battery systems, report zero generation

costs. However, the dependency on nuclear energy, which has both significant generation and cost, raises concerns about overall cost efficiency in the long run, especially with its low capacity factor of 2.59%.

System Composition Strengths/Weaknesses: The scenario showcases a strong reliance on nuclear power for generation but suffers from an over-reliance on it, presenting risks of operational inflexibility. Wind generation exhibits a high capacity factor (1.2), indicating its effective potential; however, anomalies in reported generation may suggest data integrity issues. Additionally, gas and battery systems show negative generation and capacity factors, which undermine reliability and indicate potential storage and generation inefficiencies.

Key Recommendations for Improvement:

- 1. Data Validation:** Address data anomalies, particularly for gas and negative capacity factors in battery systems to ensure reliable generation reporting.
- 2. Diversify the Mix:** Increase investment in solar and wind where feasible, as both show the potential for zero costs and higher operational efficiency.
- 3. Enhance Battery Utilization:** Improve battery system management to ensure they contribute positively to storage and generation. This could stabilize supply and reduce dependency on nuclear power.
