NextEra Energy (NEE) Stock Analysis Report

Impact of AI Infrastructure Surge, Long-Term Wealth Creation & Renewable Energy Cycles

Dataset Source: Kaggle • Period: 1973–2026

1. Project Objective

The goal of this project is to study how NextEra Energy (NEE) has performed over multiple decades and understand how major technological and macroeconomic events affect the stock.

Specifically, we examine:
• AI Infrastructure Surge (2024–2025)
• Long-Term Wealth Creation
• Renewable Energy Cycles

The analysis is based on rolling volatility, return calculations, wealth simulations, and annual-cycle returns.

2. AI Infrastructure Surge (2024–2025) — Volatility Analysis

The 90-day rolling volatility graph shows a clear upward shift after the start of 2024. Before 2024, volatility remains relatively stable. After 2024, volatility increases sharply and remains elevated, indicating higher uncertainty.

Average Volatility before 2024: 0.1971
Average Volatility after 2024: 0.2767

This represents an approximate 40% increase in volatility, suggesting a structural break. This behavior aligns with increased energy demand driven by AI data centers and infrastructure expansion.

3. Long-Term Wealth Creation Analysis

The long-term wealth creation graph simulates how a ₹10,000 ($10,000) investment would grow over time. Growth remains steady until the early 2000s, after which acceleration becomes more pronounced. Between 2018 and 2021, the portfolio value rises sharply, crossing ₹600,000.

The calculated price CAGR is 7.79%, which is considered strong and stable for a utility company. This confirms NextEra Energy's long-term compounding ability.

4. Renewable Energy Cycles — Annual Return Analysis

Annual return analysis shows significant year-to-year variation. Negative returns are observed during high interest rate periods and economic slowdowns, while strong positive returns coincide with renewable energy expansion phases.

Despite short-term volatility, the stock consistently recovers, demonstrating resilience across renewable energy and macroeconomic cycles.

5. Final Insights

- Volatility increased significantly after 2024 due to AI-driven energy demand.
- NextEra Energy demonstrates strong long-term wealth creation with a CAGR of 7.79%.
- Renewable energy cycles introduce fluctuations, but the long-term trend remains positive.

6. Final Conclusion

This project demonstrates that NextEra Energy experiences higher volatility during periods of technological disruption, such as the AI infrastructure surge. However, the company remains a strong long-term performer due to its leadership in renewable energy and consistent growth trajectory.