

Optimization of Energy Generation Using Multiple Sources

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Abstract

This report details the optimization of power generation across various energy sources (wind, solar, nuclear, and gas) based on hourly demand. The project was conducted using Python for optimization and LaTeX for documentation.

1 Introduction

Provide an introduction to your problem, goals, and objectives here.

2 Methodology

Describe the optimization problem setup, including the mathematical model, cost functions, and constraints.

2.1 Objective Function

The objective function used to minimize the total cost of generation is:

$$\text{Cost} = C_1P_1 + C_2P_2 + C_3P_3 + C_4P_4$$

Where: - C_1, C_2, C_3, C_4 are the cost coefficients for nuclear, wind, solar, and gas, respectively. - P_1, P_2, P_3, P_4 are the power generated by each source.

3 Results

You can include the plots generated in ‘visualization.py’ here:

4 Conclusion

Summarize your findings and any potential improvements for the future.