Renewable Energy Systems Optimization Using AI

Abstract: This study presents AI-driven optimization techniques for renewable energy systems, focusing on solar and wind power integration. We develop predictive models for energy generation forecasting showing 25%% improvement in efficiency.

Introduction

The transition to renewable energy sources presents challenges in grid stability and energy storage management. Artificial intelligence offers solutions for predicting energy generation patterns and optimizing distribution networks.

Results

Our AI models achieved 92%% accuracy in 24-hour energy generation forecasts. The intelligent grid management system reduced energy waste by 18%% and improved grid stability during peak demand periods.