

## An Explanatory Study Approach Using Artificial Intelligence to Forecast Solar Energy Outcome

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**Abstract :** Artificial intelligence (AI) techniques play a crucial role in predicting the expected energy outcome and its performance, analysis, modeling, and control of renewable energy. Renewable energy is becoming more popular for economic and environmental reasons. In the face of global energy consumption and increased depletion of most fossil fuels, the world is faced with the challenges of meeting the ever-increasing energy demands. Therefore, incorporating artificial intelligence to predict solar radiation outcomes from the intermittent sunlight is crucial to enable a balance between supply and demand of energy on loads, predict the performance and outcome of solar energy, enhance production planning and energy management, and ensure proper sizing of parameters when generating clean energy. However, one of the major problems of forecasting is the algorithms used to control, model, and predict performances of the energy systems, which are complicated and involves large computer power, differential equations, and time series. Also, having unreliable data (poor quality) for solar radiation over a geographical location as well as insufficient long series can be a bottleneck to actualization. To overcome these problems, this study employs the anaconda Navigator (Jupyter Notebook) for machine learning which can combine larger amounts of data with fast, iterative processing and intelligent algorithms allowing the software to learn automatically from patterns or features to predict the performance and outcome of Solar Energy which in turns enables the balance of supply and demand on loads as well as enhance production planning and energy management.

**Keywords :** artificial Intelligence, backward elimination, linear regression, solar energy

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