

## 資料說明

本次生成 FAQ 資料使用 Journal of Cleaner Production 中的文獻—Long short-term memory recurrent neural network for modeling temporal patterns in long-term power forecasting for solar PV facilities: Case study of South Korea (<https://www.sciencedirect.com/science/article/pii/S095965261934346X>) 裡面的 Introduction 部分，並將其切成五份，每一份生成各自的 FAQ。

### Introduction1

本部分提及長時間太陽能發電的應用情境、重要性及當前困境。ChatGPT 生成的問答：

Q:

1. What is PV solar energy and why is it important in renewable energy sources?
4. What are the challenges in estimating the potential of power generation at new candidate sites?

A:

1. PV solar energy is a renewable energy source that is considered as one of the most promising sources of renewable energy worldwide. It is important because it can help reduce dependence on fossil fuels and mitigate the negative effects of climate change on the environment.
4. The challenges in estimating the potential of power generation at new candidate sites include topographical and meteorological conditions that differ from region to region and vary over time. The amount of power generated is affected by the aspect and slope of the specific location, as well as weather conditions.

，有問出段落重點，回答內容有照文本內容回應。

### Introduction2

本部分提及利用機器學習方法預測太陽能發電的文獻回顧及作法介紹。ChatGPT 生成的問答：

Q:

1. What approach has been adopted to address the issues in forecasting energy potential for solar PV facilities?
5. How has the use of machine learning techniques improved the forecasting accuracy of solar energy models?

A:

1. Machine learning-based approaches have been adopted to address the issues in forecasting energy potential for solar PV facilities.
5. The use of machine learning techniques has significantly improved the forecasting

accuracy of solar energy models that use historical data.

，切中段落要點，回答內容無大礙。

## Introduction3

本部分提及當前研究的缺陷與挑戰。ChatGPT 生成的問答較針對各個研究中的細節，答案皆無大礙：

Q:

2. Why might the data from one PV site not be representative of other PV sites?
7. How many PV plants were used in the forecasting models presented by Hossain et al. (2017)?

A:

2. The sites may have different geographical and topographical features that affect the amount of solar radiation available.
7. Three PV plants.

## Introduction4

本部分接續前一段落，持續提及當前研究的缺陷與挑戰。ChatGPT 在此部分生成的問答有針對過去研究的缺陷或挑戰做提問，並依照文本內容答覆：

Q:

3. Can data with short temporal resolutions capture monthly or seasonal temporal patterns?
5. According to Abdel-Nasser and Mahmoud, in which temporal resolution were temporal patterns of PV power more apparent?

A:

3. It is questionable whether data with short temporal resolutions can capture monthly or seasonal temporal patterns that can vary nonlinearly by month or season.
5. According to Abdel-Nasser and Mahmoud, temporal patterns of PV power were more apparent in a monthly resolution than in hourly, daily, or weekly resolutions.

## Introduction5

本部分提及此文獻作者研究的目的與對前段落提出缺陷給予解法。ChatGPT 生成的問答有將作者的重點描述出來，答案皆無大礙：

Q:

1. What is the purpose of the study?
6. How is the proposed method different from previous studies?

A:

1. The purpose of the study is to propose and evaluate a machine learning-based forecasting model trained with data from multiple PV plants to predict the monthly

PV power generation at new PV sites.

6. The proposed method uses a single integrated forecasting model that can be applied to PV sites whose data were not used during training, whereas previous studies used multiple LSTM-based models individually built for each facility or season.

## Conclusion

基本上 ChatGPT 生出問題的答覆無明顯錯誤，且有根據文本內容回答。在 Introduction3、Introduction4 有部分問題是針對過去文獻研究的內容提問，而這些問題我認為不是重點，主要詢問過去文獻的缺陷在哪裡較符合段落表達重點，但整體而言 ChatGPT 生出的 FAQ 是可以被採用，期望能設計一些具體指標衡量 ChatGPT 生出的 FAQ 的能力。