

## Faculti Summary

<https://faculti.net/probabilistic-forecasting-of-wind-and-solar-farm-output/>

This video discusses the importance of probabilistic forecasting in energy generation from renewable sources like solar and wind farms, particularly in the context of the Australian energy market. It emphasizes that understanding the error bounds around energy forecasts is crucial for decision-making by both producers and grid operators. Narrow error bands signify confidence in predictions, allowing for more reliable integration into the grid, while wider bands may lead to the risk of penalties for misforecasting.

The speaker shares a scenario in which a solar or wind farm must balance the output to the grid with the possibility of underestimating or overestimating generation, which could incur costs. Therefore, accurate and sharp probabilistic forecasts can enhance the financial decisions made by generators.

This video also highlights recent experiments using simple statistical models, which have proven effective for short-term forecasting, compared to more complex machine learning methods. These forecasts help evaluate the value and reliability of the predicted energy output, supporting operational flexibility and profitability.

Additionally, it mentions a research project funded by the Australian Renewable Energy Agency, focusing on improving five-minute forecasting for solar and wind outputs, and outlines a method for transforming forecasting errors into a more useful form, demonstrating a novel approach that outperforms traditional quantile regression.

Finally, the text concludes with thoughts on future developments in market mechanisms for renewables, suggesting that established prediction methodologies can facilitate financial decisions and operational efficiencies in an increasingly renewable-driven electricity market.