

PL-05

A Review of Solar Forecasting

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Abstract Solar forecasting represents a critical enabler to high solar power penetration as it reduces the operating costs of the integrated power system. The talk will provide an overview of the state-of-the-art techniques, tools, and concepts of solar forecasting from hours to days-ahead. Ground measurements, satellite solar resource assessment, and numerical weather prediction models will be introduced. The talk will review the model chain that is necessary to convert solar irradiance to solar power and recent model advances will be presented. Several characteristics of solar forecasting including reproducibility, operational relevance, physics-based models, forecast ensembles, and standardized accuracy measures will be reviewed. The talk will conclude by showing several examples of solar forecast error penalties for State Grid Corporation of China.

Keyword(s)

Solar forecasting, Forecast skill, Numerical weather prediction, Satellite solar resource assessment, Forecast value

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