

HOME

Competition on solar generation forecasting

Website

<http://www.gecad.isep.ipp.pt/smartgridcompetition-forecast>

Competition Outline

Energy resources forecasting is increasingly important in current and future power and energy systems. Due to the high uncertainty of generation based on renewable energy sources, which results from their dependence on weather conditions, such as wind speed or solar intensity, the need to develop suitable solutions to deal with such variability increases considerably. Relevant effort is being put on the development of energy consumption and generation forecasting methods, able to deal with different forecasting circumstances, e.g., the prediction time horizon, the

available data, the frequency of data, or even the quality of data measurements. The main conclusion is that different methods are more suitable for different prediction circumstances, and it is not clear that a certain method can outperform all others in all situations. This competition fosters the benchmarking of artificial intelligence methods for solar generation forecasting. Authors of methods that present the best results in this competition will be invited to present their work in the Panel:

Benchmarking of Artificial Intelligence Methods for Energy Generation and Consumption Forecasting

To take place at the 2022 IEEE Power & Energy Society General Meeting - 17-21 July 2022 (Denver, US)

Jointly organized by the IEEE PES AMPS/ISS

To take place at the 2021 IEEE Power & Energy Society General Meeting to be held 25-29 July 2021 in Washington, DC

<https://pes-gm.org/>

Competition Format and Important Dates

The competition will comprise a single submission for each participant, which consists in the hourly solar generation forecast for a full week. Submission by 11 July 2022

In order to build and refine the forecasting models, a **data set comprising three Years of historical data is already available (participants need to register and login** to have access to these data).

1 week before the competition deadline, **by 4 July, the final data, comprising the previous 4 months before the week to be forecasted will be provided.**

In summary:

Requested forecasts: Solar generation forecast for each hour of a full week.

Inputs/historical data (all referring to 5 minutes intervals): PV generation and weather information, including temperature, wind speed, humidity, among other information.

The provided values of power, included in data sets, represent the mean of instant power during 5 minutes. To participate in this competition, it is requested the forecasted values representing the mean of instant power during 1 hour, leaving to the participant the required processing of data needed to provide results for 1 hour periods.

Submission details

The forecasts for each hour of the 7 days must be submitted in XLS format. The file should be named: PARTICIPANTLASTNAME_DATE.xls and the file should contain 2 columns: time and solar generation forecast; and 168 rows: one for each hour of each of the 7 days.

The submission should be done in two ways: 1 – upload in the competition website (after login) and 2 – send by email to the organizers (tcp@isep.ipp.pt, zav@isep.ipp.pt, log@isep.ipp.pt), with the XLS file attached (**NO links**, e.g. Dropbox, OneDrive, allowed).

The email subject should be:

- ODS-Competition_2022_LastName_DDMMYYYY

Submissions must be done until 11 July Anywhere on Earth time. Only submissions received (via website and email) until this deadline will be considered.

Disclaimer

The data sets provided in the scope of the ‘competition on building energy consumption forecasting’ are for competition purposes only. All information on the data sets are provided in good faith and cannot be used outside the competition scope. However, we can provide part of these data, or alternative/additional data, by request, to be used in research works. To request data for purposes outside the current competition, please contact the competition organizers listed in <http://www.gecad.isep.ipp.pt/smartgridcompetitions/>, describing the objectives of your work and the data needed.