

General issues of Photovoltaic power forecasts for energy management in Japan

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A large amount of photovoltaics (PV) power systems (approximately 52 GW as of 2019) have been connected to a power grid in Japan. For safety control of an energy manage system (EMS) with renewable power generation, optimal use of other power plants (thermal power plants etc) and battery systems (include electric vehicles in future) will be required in a future energy network.

However, PV power forecasts data include forecast errors of various types (e.g., forecast errors of low level clouds, snow cover, ..). In December, 2018, Tokyo Electric Power Company Holdings, Inc. (TEPCO) and Hokkaido Electric Power Co., Inc. jointly launched the “PV in HOKKAIDO” contest to find outstanding new models for predicting the power output of solar power plants in Hokkaido (URL: <https://cuusoo.com/projects/50369/challenges/result>). After the competition, their general discussion on PV power forecast errors has been done through the Japan Solar Energy Society. In this presentation, we summarized the forecast technologies and various technical issues in order to improve PV power forecasts in Japan area.

Keywords: Photovoltaic power generation, PV power forecasts, forecast errors