

Application of Meteorological data to future electrical power fields

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Recently, a lot of photovoltaics (PV) power systems have been installed in Japan islands. PV power generations can exceed electric power demand in a power grid in the future. Optimal control of other power plants (thermal power plants etc) and battery systems with PV power generation will be required for safe control of power systems. PV power forecasts based on a meteorological data including both observations and forecasts data can be useful information for an optimal control of other power systems. In our research group, HARPS in a JST CREST research project, impacts of solar power forecasts have been investigated in several research fields (e.g., optimal control of electrical power grids (called a unit commitment) and battery systems) under large PV installations. Furthermore, solar power resource assessments, regional PV power estimations and a failure detection of PV power systems have been also tried using a new geostationary satellite, Himawari 8/9. In this presentation, we will introduce the combination between meteorological data (observations and forecasts) and electrical power fields and share research problems.

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