

A study of the use of meteorological data for energy management

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Recently, a large amount of photovoltaics (PV) power systems (approximately 45 GW as of June 2018) have been connected to a power grid in Japan. Electric power supply with PV power generation exceed electric power demand in a power grid. For safety control of an energy manage system (EMS) with variable PV power generation, optimal use of other power plants (thermal power plants etc) and battery systems will be required in a future energy network (Fig.1). PV power monitoring and forecasts based on a meteorological data can be useful information for an optimal control of other power systems. In our research group (referred as a HARPS in a JST CREST project), we developed a communication tool between meteorology and EMS research fields. Impacts of meteorological data have been also investigated in an EMS (e.g., optimal control of electrical power systems and battery systems) under large PV installations. Furthermore, real time monitoring of regional PV power estimation have been also tried using a new geostationary satellite, Himawari 8/9. In this presentation, we will introduce research topic of meteorological data in the EMS field.

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