

Integration of renewable energy into the electricity market – New requirements for Power Control Centers

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Abstract

Wind variability, that makes difficult to predict, and the priority to use it that the Electricity Regulator Authority conferred due to its renewable nature, has resulted in the adaptation of the electrical system to maximize the integration of wind generation at both the operational and production market.

This paper will show the lessons learned in the Spanish Electricity Market Operation in 2010, with a fall in demand, high wind generation and extremely high hydro inflows in Q1. The necessary flexibility was provided with daily switch off operation of Combined cycle gas-fired units and Hydro Pumping units. The ability to reduce wind power generation from a Control Center is also necessary.

The wind power generation will continue increasing for the next decade. In order to maintain the security level of supply, we will open a discussion on new requirement for Power Control Centers, necessary market developments and new requirements for renewable energy producers and conventional generators.