Comparison of Differences Between SCADA and WAMS Real-Time Data in Dispatch Center

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Taking advantage of the online statistical data from power system dispatching centers, the similarity and real-time difference between RTU and PMU measurements are compared: for a straight telemetered physical measurement, the time delay between RTU and PMU data is less than one second; the differences between active power, current magnitude and voltage magnitude measurements of most PMUs and RTUs are less than 2%, while the differences between reactive power measurements of the two devices usually range from 5%-40%. According to the PMU measurement quality of field data, the accuracy of active power, current magnitude and voltage magnitude measurements of PMUs is equal to that of RTUs, indicating that these measurements can be used in power system analysis. However, the reactive power, current angle and voltage angle measurements of PMUs should not be used directly without selection. The accuracy of PMU phase angle measurements can be improved through periodically checking and adjusting of the phase angle compensation parameters.