

New NIST calibration service 'arms' phasors for more reliable power grids

While the new calibration service for phasor measurement units (PMUs) offered by the National Institute of Standards and Technology sounds like it would appeal to "Star Trek" fans, it's actually the operators of America's electrical power grid—and all of us who value uninterrupted current—who benefit.

The new NIST service provides calibrations for the instruments that measure the magnitude and phase of voltage and current signals in a power system—a combined mathematical entity called a phasor—and report the data in terms of Coordinated Universal Time (UTC, also known as “the official world atomic time”).

Use of absolute time enables measurements called phase angles taken at one location on a power grid to be comparable to others across different systems. Phase angles and their derivations allow grid managers to know the operating condition of their portion of the system and determine if action is needed to prevent a power blackout.

The new NIST calibration service has already yielded two additional benefits. First, a major PMU manufacturer reports that using the calibrations during the manufacture of its instruments has improved their accuracy by a factor of five. Secondly, some PMUs that have been calibrated using the NIST service have revealed incompatibilities in the message format they send out, leading to corrections that have improved interoperability between PMUs across power grids.

Source: National Institute of Standards and Technology

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