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## Delay Analysis of Two-way Synchronization Scheme for Phasor Measurement Unit based Digital Smart Grid Applications (Conference Paper)

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### Abstract

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The power system has been experiencing adaptation of new problem solving technologies which have intelligent capabilities to arrive better solutions. Smart Grid is the best leading technology that presents better integration platforms of synchronous power generation system (Solar energy, hydro power plant, thermal plant, coal based power plant as well as fuel based power generation systems. Likewise, other power system components that require efficient techniques and methods for solving day-to-day problems have also being applied to the Smart Grid. Thus, the variables and the parameters of electrical and mechanical occurrences are needed to monitor, detect faults, measures the accuracies that actions timely to an interconnected grid system. In WAM-based smart grid system, the occurrences are monitored using frequency parameters, rotational speed as well as phasor angles of voltage. This parameter ensures the fault detection, monitoring, measurement and control of the interconnected digital smart grid applications. The recent development of IEEE C37.118 based frameworks in Phasor Measurement Unit (PMU) based Wide Area Measurement (WAM) systems of smart grid. However due to extensive level of delay and error the grid application became unstable in measuring, controlling and monitoring. Therefore, this paper has designed the two-way synchronization communication framework for smart grid application. The mat lab based simulation evaluation has made to measure the delay occurrences in smart grid applications. The designed scheme is a higher-level communication scheme is to be utilized, and validated to come up with the required solution of reconciling between input values and output values from the available synchronous applications. © 2018 IEEE.

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