Neural network identification of electric power system model parameters based on wide area monitoring system data.

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This paper explores the feasibility of identifying electric power system models based on wide area monitoring system (WAMS) data using artificial neural networks (ANNs). A new approach to using phasor measurement units (PMU) data for power system modeling is formulated. Considerations for forming a training set based on PMUs and determining training parameters that enable the ANN to identify the dynamic properties of the power system under consideration with high accuracy are presented. Models of parts of the Northwest electric power system and some electric power facilities (such as the Leningrad Nuclear Power Plant) are developed.

Key words: electric power system, phasor measurement units, artificial neural networks, adaptive momentum gradient method.