عنوان مقاله:

Application of Dynamic Phasor Method in Modeling and Analysis of Renewable Energy Source

محل انتشار:

کنفرانس بین المللی علوم، مهندسی و فناوری های محیط زیست (سال: 1394)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

Distributed generations and micro grids are more commonin new electric power systems, wherethere aremuch kind of equipments like wind energy conversion systems,PV systems, storage systems, electronic converters that transferthe energy produce by these renewable energies and FACTSthat are implemented in the whole system to guaranteedstability and quality of electric parameters. Some of thesesubsystems operate in continuous mode and others in discretemode. For reasons mentioned above, it is very important todevelop models of these technologies that let to analyze theirsdynamics, both in short as in long periods of time.In this paper Dynamic phasor representation which is definedbased on the Fourier series representation is capable of capturingthe behavior of a system contained with different frequencycomponents. This makes it ideal candidate for power electronicscircuit modeling and machine modeling under unbalanced conditions.This paper deals with modeling of Type 1 wind generatorfor unbalanced operation using dynamic phasor representation.More detailed insight of the system is achieved through smallsignal analysis.As the variations of dynamic phasors are slower than theinstantaneous quantities, they can be used to compute thefast electromagnetic transients with larger step sizes, sothat it makes simulation potentially faster thanonventional time domain like EMTP simulation.Simulation results inMatlab/Simulink showed the accurate and efficient of theDynamic phasor based model in compare with dq model

کلمات کلیدی:

renewable energy,wind generator, dynamic phasormodel, unbalanced condition, small signal analysis