

عنوان مقاله:

Microgrid state estimation algorithm, considering IoT communication network in smart grids

محل انتشار:

اولین همایش ملی نوآوری در مهندسی: راهی به سوی توسعه (سال: 1402)

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خلاصه مقاله:

Due to the global warming and energy crisis, the renewable distributed energy resources such as wind turbines are integrated into the grid. We model an AC micro grid with energy generating units, local loads and electronic devices. Then the set of non-linear differential equations are expressed as a state-space model, which is easy to analysis and estimation process. As the micro grid is located the customer premises or remote areas, its condition needs to monitor in real-time. So, the smart sensor requires to deploy around the micro grid, and its sensing information transmits to the energy management system via the internet as the sensing information is a massive amount of data. Combining the internet of things (IoT) elements such as sensors (internet emended) and the internet as a transmission medium will form the internet of energy (IoE), which is considered as a sign interest nowadays. Basically, the energy management centre is estimated the micro grid states to know the operating conditions of these foreseeable intermittent resources. For estimating the micro grid states, the H-infinity based Mimimax filter is proposed, which will no need to know the exact process and measurement noise statistics. Simulation results show that the proposed approach can be well estimated the system states compared with the existing Kalman filter. As a result, this framework will assist to design a suitable micro grid framework and provides effective dynamic state estimations.

کلمات کلیدی:

.Dynamic micro grid state estimation, fusion center, internet of things, information management system, micro grid

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