

What is the penetration coefficient of microgrids in power systems?

The penetration coefficient of microgrids in power systems, as well as the high uncertainty of these sources, requires an analysis of probabilistic methods. These types of energy sources are inherently uncertain and bring many unknowns to the power system.

What is probabilistic power flow?

Probabilistic power flow (PPF) is an effective method to evaluate the steady state of power systems with uncertainties[10]. The Monte Carlo simulation (MCS) [11],[12],[13],point estimate method (PEM) [14],[15],[16]and cumulant method (CM) [17],[18]are widely used in PPF calculation.

What is a microgrid (MG)?

1. Introduction A microgrid (MG) is a promising paradigm of electric power systems which integrates distributed generation (DG) units, energy storage systems and controllable loads to maintain the power supply in a defined area . The applications of power electronic devices in MGs have improved the flexibility of power system operation.

What is data clustering based probabilistic assessment method of power system?

In , the authors propose a data clustering based probabilistic assessment method of power system in probabilistic optimal power flow problem and evolutionary based optimization method is used to reduce the complexity and improve the convergence process of the optimal power flow calculation.

What is the distribution of the optimal power flow (POPF)?

One of the most important aspects to be analyzed is the distribution of the probabilistic optimal power flow (POPF). This research examines some methods for the distribution of possible loads in power systems,namely the Monte Carlo method (MCM),the two-point estimation method (2PEM),and the three-point estimation method (3PEM).

Are data driven based Bayesian methods a probabilistic optimal power flow problem?

As for data driven based Bayesian methods, Ref presented probabilistic optimal power flow problem by a data driven based non-parametric Dirichlet process mixture model and the variational Bayesian inference.

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The probabilistic power flow (PPF) of active distribution networks and microgrids based on the conventional power flow algorithms is almost impossible or at least cumbersome. ... Sometimes, the JM may be ...

A global sensitivity analysis (GSA) method is proposed to evaluate the influence of uncertainties on the power flow of islanded microgrids (IMGs) and the sparse polynomial chaos expansion ...

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Abstract: This study proposes a new power flow formulation for islanded microgrids. The proposed power flow is based on the effect of the superposition principle and the solution of a ...

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Considering the randomness and correlation of source and load in a microgrid, this paper establishes a probabilistic power flow model for micro-grid systems. The probabilistic power ...

A Nataf transformation based unscented transformation is employed to conduct the PPF analysis for an autonomous hybrid AC/DC MG in this paper, able to deal with various random variables, ...

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