A multi-agent approach to power system restoration

Power system restoration has attracted more attention and made great progress recently. Research progress of the power system restoration from 2006 to 2016 is reviewed in this paper, including black-start, network reconfiguration and load restoration. Some emerging methods and key techniques are also discussed in the context of the integration of variable ...

The proposed approach is applied to a simple network, and the results show that the multi-agent system is an efficient and robust approach for solving power system restoration problems. Discover ...

This paper proposes a multiagent approach to decentralized power system restoration for a distribution system network. The proposed method consists of several feeder agents (FAGs) and load agents (LAGs). A LAG corresponds to the customer load, while a FAG is developed to act as a manager for the decision process. From the simulation results, it can be seen the proposed ...

Multi agent system (MAS) is one of the most dominant research wings which consist of several agents who interact with each other to achieve a common objective. MAS has been developed for a wide range of applications in power systems. Power system restoration is a main application of that. Researchers present several architectures for fault identification, ...

In this paper, a Multi-Agent Systems approach to distribution systems is presented. To demonstrate the simplicity and efficiency of the adopted method four different scenarios were evaluated. ... A multi-agent based power system restoration approach in distributed smart grid. 2011 Int. Conf. Util. Exhib. Power Energy Syst. Issues Prospect. Asia ...

A new decentralized multiagent simulator for a bulk power system restoration and the simulation results show that the proposed multiagent approach is effective and promising. In this paper, we propose a new decentralized multiagent simulator for a bulk power system restoration. The proposed multiagent system is constructed with four-level hierarchical ...

In this paper, a decentralized multi-agent system (MAS) has been proposed to solve the power system restoration problem. In the proposed MAS, an agent with its own specific logic and interactions with other agents is devoted to any piece of equipment in the grid, including bus, black start, non-black start, photovoltaic and wind generating units.

This chapter proposes a multi-agent approach to power system restoration. The proposed system consists of a number of bus agents (BAGs) and a single facilita tor agent (FAG). The BAG is ...

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The multi-agent system will allow for the distribution of tasks between agents leading to a reduction of the computational time requirements as well avoiding single points of failure. 4. Multi-agent approach. The multi-agent structure and the communication between agents used was that presented in Zidan and El-Saadany (2012), differing in the ...

Planning of the power grid restoration (PPGR) is a problem with high computational complexity, many restrictions and conditions, which have to be evaluated by the operator of the grid [] is especially exciting because of its insufficient observability, high dimension of the state space, making impossible complete enumeration of the control object"s ...

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This paper proposes a multi-agent approach to power system restoration. So far, numerous studies have been conducted on power system restoration problems. From the view point of the system structures, these researches can be divided into two categories: centralized systems and decentralized systems. In this study, we have solved the distribution power system restoration ...

The development of agents and behaviors of the agents are described, including communication of agents, and a MAS that restores a power system after a fault is provided. The goal to provide faster and faster restoration after a fault is pushing the technical envelope related to new algorithms. While many approaches use centralized strategies, the concept of multi ...

Nagata et al. proposed a multi-agent approach for decentralized power system restoration in a distribution system network [10]. The load agent collects information about the power system, and the ...

This paper proposes a multi-agent approach to decentralized distribution power system restoration. So far, numerous studies have been conducted on power system restoration problems. From the view point of the system structures, these researches can be divided into two categories: centralized systems and decentralized systems. In this study, we have solved the ...

Multi agent based power system studies have been done in fault location and isolation [3][4][5][6], power system restoration [7][8] [9] and etc. Reconfiguration and service restoration has ...

A multi-agent based feeder automation system is developed for service restoration of power systems in a navy

ship after fault contingencies. In the system, power electronic building blocks (PEBBs ...

A multi-agent system (MAS) architecture for fault restoration with DG islanding is proposed and its flexible nature makes it topology independent as shown in the results. The increase in penetration level of distributed generation (DG) in the distribution network has enhanced the service reliability of the customers. In case of a fault, the DGs with their ...

Utilizing distributed energy resources (DERs) such as renewable based distributed generations and energy storages as the utility power is an alternative approach to continue power supply for CLs in the case without power feeding from the main grids [9].The focus of this paper is to study the CL restoration using DERs for the distribution system after a natural disaster.

This paper presents a multi-agent system framework that performs system restoration for Navy ship. If Navy surface combatants" electric power supply interruption is caused by a fault, it is ...

This approach is applied to minimize the power problem during the process of restoration . 4.8 Multi Agent System. In paper to achieve the power restoration the multi Agent System was presented. Multi agent system provides ...

The development of a multi-agent system for automatic restoration system (MARS) applied to a real power distribution network is presented. The agents of the MARS are embedded in external hardware to the intelligent electronic devices (IEDs) and communicate with each other via standard Foundation for Intelligent Physical Agents open protocols.

This paper presents a multi-agent system (MAS)-based approach for service restoration in a distribution system with distributed generators (DGs), static energy storage systems (SESSs), and mobile ...

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