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Reliability Assessment for Tie Line Capacity Assistance of Power Systems Based on Multi-Agent System

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Abstract : Technological developments in industrial innovations have currently been related to interconnected system assistance and distribution networks. This important in order to enable an electrical load to continue receive power in the event of disconnection of load from the main power grid. This paper represents a method for reliability assessment of interconnected power systems based. The multi-agent system consists of four agents. The first agent was the generator agent to using as connected the generator to the grid depending on the state of the reserve margin and the load demand. The second was a load agent is that located at the load. Meanwhile, the third is so-called "the reverse margin agent" that to limit the reserve margin between 0-25% depend on the load and the unit size generator. In the end, calculation reliability Agent can be calculate expected energy not supplied (EENS), loss of load expectation (LOLE) and the effecting of tie line capacity to determine the risk levels Roy Billinton Test System (RBTS) can use to evaluated the reliability indices by using the developed JADE package. The results estimated of the reliability interconnection power systems presented in this paper. The overall reliability of power system can be improved. Thus, the market becomes more concentrated against demand increasing and the generation units were operating in relation to reliability indices.

Keywords : reliability indices, load expectation, reserve margin, daily load, probability, multi-agent system
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