Review of: "Mathematical Assessment of the Reliability in a Complex Deregulated Power System"

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The authors have presented mathematical evaluation of the reliability of the power system that incorporates multiple aspects. The primary measures encompassed in this analysis are the reliability index, system security, and system adequacy. In order to improve the dependability index, authors have strategically deployed FACTS (Flexible AC Transmission System) devices inside the system. The facilitation of this process is achieved by the utilization of a power flow analysis. The strategy employed to strategically position FACTS devices at the most vulnerable places of the power system is accomplished through the utilization of a Genetic Algorithm-driven approach.

The correlation between the implementation of Distributed Generators (DGs) and the reliability index of the power system is thoroughly evaluated. The introduction of a Derated Forced Outage Rate is proposed as a means to enhance performance evaluation. Sequential simulations are of great value in boosting the reliability of power systems, with a particular focus on decreasing the Expected Energy Not Supplied (EENS) and improving the overall reliability of the system. The incorporation of Flexible AC Transmission Systems (FACTS) devices is of paramount importance in enhancing the reliability of power systems. In the domain of restructured power systems, the components of generation, transmission, and distribution are partitioned and overseen by respective entities. The oversight of legislation and operations under this decentralised framework is carried out by Independent System Operators (ISOs). The strategic positioning of Distributed Generators (DGs) and Flexible Alternating Current Transmission System (FACTS) devices demonstrates significant enhancements in the reliability of the power system, emphasizing their crucial contribution to the overall dependability of the system. The application of chronological simulation is employed in the evaluation of the dependability of large-scale electrical systems, with a specific emphasis on assessing the sufficiency and safety of the system.