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

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Potential competing interests: No potential competing interests to declare.

Comments

1. Abstract: abstract is presented well in terms of content wide while summarizing the entire paper work. In addition, its language, coherences and flow of sentences is fairly good. However, the following points needs revision and justification:

i. Initially, the author has proposed the FACTS device to enhance the reliability index, strategically locating FACTS devices at weakest point. Then, he/she is talking about the DG unit placement for reliability improvement in latter section of abstract. **In line with this, since FACTS and DG(Distributed generation units) two different things, clarification is needed whether DG or FACTS is used.** If it's DG, the types of DG should be also mentioned (Type - 1, 2, 3, 4 or others?)

ii. **Line 14 and 15: wording problem:** There is reliability index named as system frequency and system duration. It should stand as system frequency of interruptions and system duration of interruptions

iii. The term sequential simulations in needs revision. sequential simulations using which method or software?

1. **The comments on main documents**

i. Figure 3.1 , the assumption needs justification. In real power system operation and control, there are normal, alert, emergency and extremist states. In Normal state, the power network parameters are intact and the system works properly (which means there is no failure) . There is no down, down probability in normal stage. on other hands, in Extremis State the power system component not intact and there is no normal power operation conditions until the recovery state is reached(means there is no UP UP stage). The author should justify this assumption in correlation with the real power system operating seniors.

ii. There is no clearly developed model, mathematical formulation and design that shows the reliability improvement of the network. In line with this, there is no clear system(case study or standard network) that considered for reliability analysis.

iii. The reliability analysis of power not comprises collective reliability analysis of generation, transmission and distribution systems with independent reliability indices. If it's separate network reliability, which system is considered? Generation, transmission or distribution system reliability? If it's distribution system, where is the reliability each components in the distribution network

iv. State of art /author contribution to the existing knowledge is not clear