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Risk assessment of switching measures in electrical transmission systems

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Abstract:
Transmission system operators perform switching measures due to various reasons, e.g. for maintenance of network components or for security purposes [1]. However, while implementing switching measures failures can occur: Short-circuits faults on network components and/or malfunctioning of relevant switches might be the case [2]. In particular, probability of the latter is higher than average in case of frequent switching [3]. Therefore a risk assessment of switching measures is proposed. The defined risk can be used in real-time operation to identify an acceptable point in time for performing a (predetermined) switching measure or to decline a switching measure at all. Furthermore, the risk assessment method can be used in offline algorithms for topology optimization in order to take a constraint for an acceptable risk into account.

References:
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