Title	A Generalized Stability Model of a Simultaneous AC-DC Long Transmission System
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Published Journal Name	*International Journal of Emerging Technology and Advanced Engineering (IJETAE)*
Type of Publication	Journal
Volume	10 Issue 4
Publisher	
Publication Date	April, 2020
ISSN	2250–2459
DOI	
URL	https://www.ijetae.com/files/Volume10Issue4/IJETAE_0420_07.pdf
Other Related Info.	Page 45 -53

Abstract

Present researches show that if high voltage AC (HVAC) line is converted into simultaneous AC-DC system the line can be loaded up to the thermal limit since this new system of transmission improves the stability. Recently, a mathematical model is developed for the stability analysis of a simultaneous AC-DC transmission system but it is restricted to a particular fault location. This paper presents an extended and generalized version of that model which is applicable for the analysis of fault at all locations. The prominent feature of the model is that it introduced a solution technique for the determination of the power flow during fault at the critical clearing angle where circuit breaker reclosing is an issue. Initially the mathematical model is developed considering a 3- phase to ground fault at the transmission line and then applying minor modifications in it the stability model for the other fault type and fault locations are also deduced. To justify the performance and accuracy of the generalized model a validation is performed through standard software-based circuit simulation and through comparing the results with the publish one in the literature. Moreover, the applicability of the model is investigated by applying it to IEEE benchmark system.