

Power up-gradation of existing EHV AC lines using transformer bank configuration by composite AC/DC transmission

Vivek Kumar, H. Kumar

¹Assitant Professor, Research Scholar

¹Department of electrical engineering , Jaipur India

¹ vivek.kumar@gmail.com*

* corresponding author

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Correspondence:

E-mail: vivek.kumar@gmail.com

ABSTRACT

Over the years, rising electricity demand, costly power transmission infrastructure and technology innovation has urged concerned stakeholder towards recently proposed concept of simultaneous ac-dc power transmission that enables the long Extra High Voltage (EHV) ac lines to be loaded close to their thermal limits. The conductors are allowed to carry certain amount of dc current superimposed on usual ac. This paper presents a novel power up gradation technique of existing EHVac line corridor by using set of single phase transformers as bank, for converting lines into composite ac-dc power transmission line. There is no need of alteration in conductors, insulator strings or towers of the original line. Also, there are great advantages of using transformer bank. The Simulation study is carried on Multisim 11.0 (NI's software package) and the results are practically verified on HAN2013 kit.

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