

Conversion of HVAC Lines into HVDC in Transmission Expansion Planning

Authors : Juan P. Novoa, Mario A. Rios

Abstract : This paper presents a transmission planning methodology that considers the conversion of HVAC transmission lines to HVDC as an alternative of expansion of power systems, as a consequence of restrictions for the construction of new lines. The transmission expansion planning problem formulates an optimization problem that minimizes the total cost that includes the investment cost to convert lines from HVAC to HVDC and possible required reinforcements of the power system prior to the conversion. The costs analysis assesses the impact of the conversion on the reliability because transmission lines are out of service during the conversion work. The presented methodology is applied to a test system considering a planning a horizon of 10 years.

Keywords : transmission expansion planning, HVDC, cost optimization, energy non-supplied

Conference Title : ICEPEE 2017 : International Conference on Energy, Power and Electrical Engineering

Conference Location : Barcelona, Spain

Conference Dates : December 14-15, 2017