

## Enhance Power Quality by HVDC System, Comparison Technique between HVDC and HVAC Transmission Systems

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**Abstract :** The alternating current is the main power in all industries and other aspects especially for the short and mid distances, but as far as long a distance which exceeds 500 KMs, using the alternating current technically will face many difficulties and more costs because it's difficult to control the current and also other restrictions. Therefore, recently those reasons led to building transmission lines HVDC to transmit power for long distances. This document presents technical comparison and assessments for power transmission system among distances either ways and studying the stability of the system regarding the proportion of losses in the actual power sent and received between both sides in different systems and also categorizing filters used in the HVDC system and its impact and effect on reducing Harmonic in the power transmission. MATLAB /Simulink simulation software is used to simulate both HVAC & HVDC power transmission system topologies.

**Keywords :** HVAC power system, HVDC power system, power system simulation (MATLAB), the alternating current, voltage stability

**Conference Title :** ICEECE 2016 : International Conference on Electronics, Electrical and Computation Engineering

**Conference Location :** Istanbul, Türkiye

**Conference Dates :** February 15-16, 2016