

Hydro-Québec's world-renowned expertise in 735-kV AC and ± 450 -kV DC networks

by

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ABSTRACT

Since the 1960s, Hydro-Québec has been operating a 735-kV network which is now 11,300 km in length, comprises 37 substations and includes a ± 450 -kV DC multiterminal link. The author presents the context in which the network was created as well as the technological challenges which prevailed at the time. He also describes how the network was upgraded over the years, the problems encountered –magnetic storms among others– and the means used to solve them.

The paper describes in greater detail how series compensation was implemented and briefly explains how this technology is used in Hydro-Québec's network.

The paper also presents an overview of a few research projects currently under way at IREQ aimed at increasing network performance such as power system control and management strategies, tools used to assess the condition and residual life of equipment and facilities, and research being conducted to counter the effects of climatic events on the power system.