



魁北克水电公司高压电网Lévis变电站的融冰装置*

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摘要：魁北克水电公司Lévis 变电站的融冰装置是一项独特的研发成果，设计成可对输电网提供两种截然不同的功能。在一种运行模式下，它是一台HVDC整流器，给从这个变电站引出的735 kV和315 kV线路提供高达7?200 A的直流电以融掉这些线路上的覆冰。该融冰装置产生的±17.4 kV 直流电压可在输电线路不同相之间通过线路开关依次切换。毕竟冰暴是偶发事件，这套装置在其余大部分时间内将以另一种模式，即配置成为一台静止无功补偿器运行，给735 kV输电线路提供?+250 Mvar/-125 Mvar的动态无功支持。实现这两种模式转换所需的时间不到1 h。

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关键词：高压直流输电；柔性交流输电系统；静止无功补偿器；晶闸管控制电抗器；晶闸管投切电容器；冰暴

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De-Icer Installation at Lévis Substation on Hydro Québec' s High Voltage System

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Abstract: The De-Icer installation at Lévis substation on Hydro Québec' s High Voltage System is a unique development, designed to provide two distinct functions on the transmission network. In one mode of operation it is a HVDC rectifier, providing a DC current of up to 7?200 A to melt accumulated ice on the 735 kV and 315 kV lines radiating from the station. The ±17.4 kV DC voltage generated by the De-Icer installation can be switched between different phases of the transmission lines in turn, by means of disconnects. However, ice storms are a rare event and for most of its operating life the De-Icer will be re-configured to operate in another mode as an SVC, providing +250 Mvar/-125 Mvar of dynamic reactive power support onto the 735 kV transmission system. Reconfiguration between to two modes is designed to take place in less than an hour.

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Key words: high voltage direct current transmission (HVDC); flexible AC transmission system (FACTS); static var compensator (SVC); thyristor controlled reactor (TCR); thyristor switched capacitor (TSC); ice storm

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