Huang, J. A.; **Harrison, S.**; **Vanier, G.**; **Valette, A.**; **Wehenkel, L.**
Application of data mining to optimize settings for generator tripping and load shedding system in emergency control at Hydro-Québec. (English) ‖ Zbl 1078.62537 ‖

Summary: This paper describes the on-going work done by Hydro-Québec to optimize the settings of automatic devices installed in its main power plants to maintain secure operation under extreme contingencies. The automatic generator tripping and load shedding system (RPTC) described in this paper is installed at the Churchill Falls hydroelectric power plant (5,500 MW) in Labrador. Data mining techniques such as decision trees and regression trees have been used. Real time snapshots of the Hydro-Québec power system collected over a 5 year period have been used to generate large amounts of results by transient stability simulations. The processing of these data has been done using software developed by the University of Liege. This approach gives the most relevant parameters and finds optimal settings for the RPTC system, minimizing the number of tripped generator units while maintaining the same performance in terms of security coverage. New operation rules can thus be established.

MSC:

62P30	Applications of statistics in engineering and industry; control charts
68U99	Computing methodologies and applications

Keywords:

Electrical power systems; Optimum design; Disasters; Water power

Full Text: DOI

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