



Capacitor Switching Techniques

S.J. Kulas

Faculty of Electrical Engineering
Warsaw University of Technology

GG 130, Pl. Politechniki 1, 00-662 Warsaw, Poland

Phone number: (48-22) 660-5383, Fax number: (48-22) 625-7524, e-mail: Stanislaw.Kulas@ien.pw.edu.pl

Abstract. Capacitance switching applications involve not only interrupting capacitive currents, but also the energizing of capacitor banks, cables and overhead lines. The interruption of a capacitive current can cause dielectric problems for the switching device. The high inrush currents can cause damage to the capacitors of the capacitors bank and to weld the contacts of the switch together. The problems of the capacitive inrush currents and ways to reduce the magnitude of the inrush current, have been chosen for analysis in this paper.

Key words

Inrush current, capacitor bank, synchronous switching.

References

- [1] Z. Ciok, Non-Simultaneous short-circuits in three phase networks with special consideration to the effect upon the operation of circuit-breakers, CIGRE Session 1962, report 120.
- [2] R.D. Garzon, High voltage circuit breakers, Marcel Dekker, Inc., New York – Basel, 2002.
- [3] A. Khan, D.S. Johnson, J.R. Meyer, K.B. Hapke, Development of new synchronous closing circuit breaker for shunt capacitor bank energization, Sixty-First Annual International Conference of Doble Clients, Berlin, Paper 5E, 1994.
- [4] S.J. Kulas, The influence of contact closing velocity on arc duration, Proceedings of the 10th International Conference SAP 2005 on, Switching Arc Phenomena, pp. 106-110, Łódź, Poland, 2005.
- [5] J. Maksymiuk, Electrical Apparatuses, WNT Warsaw, Poland (in polish).
- [6] P.G. Slade, The vacuum interrupter, CRC Press, New York 2008.
- [7] Ware B., Reckleff. J., Mauthe G., Schett G., Synchronous Switching of Power Systems, CIGRE Session 1990, Report No. 13-205.