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ACCIDENTAL INCIDENTS DURATION ANALYSIS IN POWER TRANSMISSION GRIDS

BY

GH. GRIGORAŞ, CECILIA BĂRBULESCU, GH. CÂRȚINĂ and FLORINA ROTARU

Abstract. The Romanian Transmission System Operator (TSO) plays a key role in the Romanian electricity market. It manages and operates the electricity transmission system and provides electricity exchanges among Central and South-Eastern countries, as a member of UCTE (Union for Coordination of Transmission of Electricity) and ETSO (Association of European Transmission and System Operators). TSO is responsible for electricity transmission, system and market operation, grid and market infrastructure development ensuring the security of the Romanian Power System (RPS). It also serves as the main link between electricity supply and demand, matching all the times power generation with demand. TSO for this activity, the standards imposed by the full membership of ETSO is necessary to ensure the functioning and development of RPS safely and stable, conditioning that make investment activities for modernization, refurbishment and maintenance of assets to be strategic components of management. In this study we analyse accidental events due to special weather conditions of electricity transmission of RPS, over a period of 10 years, in terms of duration of incidents and time of unavailability. Using classification and codification of phenomena according to the criteria established by technical legal rules and clustering techniques we have obtained interesting results, from a practical perspective, with possible uses in the future for the following purposes: elimination of weaknesses in facilities, planning work under emergency; planning of maintenance work, and freeing resources for investment in case of force majeure.

Key words: accidental events; clustering techniques; connectivity map; duration of incidents; time of unavailability; Power Transmission Grid (PTG).