

Neal 4 Synchronizing Breaker Condition Monitoring System

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Abstract

MidAmerican Energy installed a new synchronizing circuit breaker for their 650 MW Neal 4 power plant. Due to the critical nature of this equipment, special “condition monitoring” of the circuit breaker was desired. Condition monitoring is defined and discussed. The history of circuit breaker condition monitor at MidAmerican Energy is reviewed. The condition monitoring system for the Neal 4 circuit breaker was planned as a modification of the Cannon Technologies system already employed at Morningside substation, in Sioux City. Three different configurations were tried. The final, successful system, monitors heater operation, interrupter tank temperature, interrupter tank/SF6 pressure and density, trip and close times, and charging motor operations and run times. It uses a PC to process the data.

Biography

Reno Lippold received his BS in electrical engineering from Iowa State University in 1982 and a MS in engineering management from the Air Force Institute of Technology, Dayton Ohio, in 1991. During his time as an Air Force officer, he served in multiple positions involving facility and utility design, construction, operations, and maintenance. Since 1998, he has been employed with MidAmerican Energy in the Sioux City Iowa substation operations department, initially as the department engineer, and currently as a supervisor. The Sioux City substation operations department performs construction, testing, operations, maintenance, and design work for substation related equipment and systems. Reno is a registered professional engineer in the states of Iowa, Nebraska, and New York.