Rattling Brook Rewind Generator G1, Volume 2, Appendix 1, page 3 ($407,000)

Q. Provide the details of the IEEE standard quoted for the winding life expectancy.

A. IEEE Standard 1147-1991 (IEEE Guide for Rehabilitation of Hydroelectric Power Plants) discusses criteria for the rehabilitation of hydroelectric power plants. In section 4.3.1 of the standard it states, "The stator is a component that deteriorates with time and temperature. A large percentage of outages are caused by stator winding failures. Because of the many improvements in insulating materials and advanced design methods, a new stator winding will result in a significant form of rehabilitation."

The standard identifies factors to consider in evaluating the requirement for rehabilitation including the condition of welds/brazes, losses, insulation resistance, corona extinction voltage, temperature class, service record, deformation, down time cost and cleanliness. It notes that the age and material used in equipment are the two principal factors that can be useful in predicting life expectancy.

Standards organizations such as the IEEE are hesitant to fix the life expectancy of in service assets such as generators. However, industry experts appear consistent in the opinion that a reasonable life expectancy for the windings of a hydroelectric generator is between 30 and 40 years of service.