

Real-Time Measurement Approach for Tracking the ΔV_{10} Estimate Value of DC EAF

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Abstract : This investigation develops a revisable method for estimating the estimate value of equivalent 10 Hz voltage flicker (DV10) of a DC Electric Arc Furnace (EAF). This study also discusses three 161kV DC EAFs by field measurement, with those results indicating that the estimated DV10 value is significantly smaller than the survey value. The key point is that the conventional means of estimating DV10 is inappropriate. There is a main cause as the assumed Qmax is too small. Although DC EAF is regularly operated in a constant MVA mode, the reactive power variation in the Main Transformer (MT) is more significant than that in the Furnace Transformer (FT). A substantial difference exists between estimated maximum reactive power fluctuation (DQmax) and the survey value from actual DC EAF operations. However, this study proposes a revisable method that can obtain a more accurate DV10 estimate than the conventional method.

Keywords : voltage flicker, dc EAF, estimate value, DV10

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