

Identification and measurement of harmonic pollution for radial and nonradial systems

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Abstract

Harmonic pollution is considered to be one of the major power-quality problems in electric power systems. Correct identification of the dominant source of harmonic pollution is an essential step towards solving this problem. The total harmonic power (THP) method is one of the methods proposed in the literature for this purpose. However, the method is still debatable as its complete success has been questioned by some researchers. This paper tries to answer some concerns regarding the success of the THP method in radial systems by using several comprehensive case studies. Then, a modification to the method is proposed to generalize its application to nonradial systems. Moreover, to increase the reliability and applicability of the method, a new time-domain algorithm is proposed for measuring the harmonic, subharmonic and interharmonic powers for single-phase and three-phase four-wire systems.

IEEE transactions on power delivery 2009, June