International Conference on Electromechanical and Energy Systems (SIELMEN) 09-11 October 2019, Craiova, Romania pag. 1-6

Parameter Identification for Two-Windings Power Transformers

Murdid Ecaterina, Stratan Ion

https://doi.org/10.1109/SIELMEN.2019.8905914

Abstract

The novel method of parameter identification for two-windings power transformers, represented by equivalent circuit in Γ , T- and II-forms, based on synchronized phasor measurements in operation is proposed. This paper also examines the criteria that affect the results, there are made some recommendations about the implementation of the novel method.

Keywords: synchronized phasor measurements, equivalent circuits, no load losses, quadripole coefficients, two-windings power transformers

References

- P.A. Butyrin, T.A. Vasikovskaia and M.E. Alpatov, "Research of simplified transformer models", (*in Russian*) *ELEKTRO*, no. 1, pp. 10-12, 2007. Google Scholar
- K.A. Andreev, Increase the efficiency of functional diagnostics of electrical components of power transformers under load, 2013. Google Scholar
- 3. D.V. Dzhumik, Determination of parameters of equivalent circuits of power transmission lines power capacitors/ and resistors reactors by arrays of instantaneous values of currents and voltages in operating modes, 2008. Google Scholar
- A.A. Stepanova, Improvement of models for calculation/ and analysis of power and energy losses in power transmission lines, 2014.
 Google Scholar
- V.V. Korotkov, A.B. Kozlov and A.V. Korotkov, "Quantitative evaluation of the dependence of no-load losses of power transformers on the service life", (*in Russian*) *Increased efficiency of power systems operation*, 2007. Google Scholar
- P.Iu. Krasovskii, "Calculation of technological losses of electric power taking into account service life", (*in Russian*) *Electrification of transport*, no. 10, 2015. Google Scholar
 - A. V. Pankratov, *Monitoring of parameters of single-phase transformer equivalent circuits in relation to the task of monitoring the status of their active parts*, 2009. Google Scholar
- 7. V.V. Kiryuha, Yu.M. Gorbenko and V.S. Yablokova, "Development of under-load transformer diagnostics algorithm", (*in Russian*) scientific works of Dalirybytuz, Oct. 2019,

International Conference on Electromechanical and Energy Systems (SIELMEN) 09-11 October 2019, Craiova, Romania pag. 1-6

[online] Available: <u>https://elibrary.ru/item.asp?id=26562036</u>. Google Scholar

- A.N. Alyunov, Identification of parameters of electrical systems equivalent circuits by data of emergency process recorders, 2004. Google Scholar
- 9. G.M. Cfasman and A.G. Mordkovich, *Parameter identification of transformer equivalent schemes in monitoring and diagnostics systems*, no. 5, pp. 6-9, 2011. Google Scholar
- C. Borda, A. Olarte and H. Diaz, "MU-based line and transformer parameter estimation", 2009 IEEE/PES Power Systems Conference and Exposition, pp. 1-8, 2009. View Article Google Scholar
- 11. B. Vicol, "On-line overhead transmission line| and transformer parameters identification based on PMU measurements", 2014 International Conference and Exposition on Electrical and Power Engineering (EPE), pp. 1045-1050, 2014. View Article Google Scholar