

Secondary Distribution System Losses Estimation using Statistical Technique

Mandeep¹ and Sukhbir Singh²

M.Tech Scholar, Department of Electrical Engineering¹

Assistant Professor, Department of Electrical Engineering²

School of Engineering & Technology, Soldha, Bahadurgarh, Haryana, India

Abstract: *The accurate and estimate evaluation of electrical energy loosening powers systems has important technical, economic, and regulatory repercussions. For Example, electrical energy losses are increasing one of the most important measures of system performance, especially in connection with public private sector participation (PPP) in the distribution segment of the industry. A focus area of energy management research is the reduction of both technical and non-technical losses occurring in the electrical distribution network. Reducing these losses ensure that the cost of electricity will be reduced and efficiency of distribution network will be improved. Presently, the T&D losses are calculated on primary distribution system whereas secondary distribution system serves larger area and consumers and utilities are facing problems in calculating the losses in secondary distribution system. For this purpose, the thesis aims at estimating the power losses in the power distribution utilities secondary distribution network. We apply a statistical technique for estimating the technical as well as total losses of secondary distribution system based on the data of Okhla Industrial Area Phase-1, BSES Rajdhani power Ltd.*

Keywords: Distribution Network, Primary Distribution System, Statistical Technique

REFERENCES

- [1]. http://www.reliancepower.co.in/power_industry/indian_power_sector/history_and_evolution.htm. Date 22/5/2016
- [2]. <http://electrical-engineering-portal.com/total-losses-in-power-distribution-and-transmission-lines-1>. Date 23/5/2016
- [3]. Wikipedia, "Electricity Sector in India" Key Energy Statics. https://en.wikipedia.org/wiki/Electricity_sector_in_India
- [4]. "Electricity Sector in India" Key Energy Statics.
- [5]. "A Course In Electrical Power" Generation And Economic Consideration; Transmission And Distribution; Switchgear And Protection including Power System analysis; And Utilization Of Electrical Power And Electric Traction, By J.B. Gupta.
- [6]. Carlos A. Dortolina, Senior Member, IEEE, and Ramon Nadira, The Loss That Is Unknown Is No Loss At All: A Top-Down/Bottom-Up Approach for Estimating Distribution Losses in IEEE transactions on power system, vol. 20, No. 2, May 2005.
- [7]. J.W Fourie& J.E Calmeyer, A statistical method to minimize electrical energy losses in a local electricity distribution network, at IEEE AFRICON 2004 pp.667-673
- [8]. Paired t-tests by Rosie Shier, 2004, statstutor.ac.uk & stattrek.com
- [9]. Robert P. Broadwater, Member, Asif H. Khan, Hesham E. Shaalan, Member, The Bradley Department of Electrical Engineering, Virginia Polytechnic Institute and State University Blacksburg and Robert E. Lee Member Pennsylvania Power & Light, Allentown, Pennsylvania, Time Varying Load Analysis To Reduce Distribution Losses Through Reconfiguration in IEEE Transactions on Power Delivery, Vol. 8, No. 1, January 1993.
- [10]. Juan Carlos Olivares, Member, IEEE, Yilu Liu, Senior Member, IEEE, Jose M. Cañedo, Member, IEEE, Rafael Escarela-Pérez, Member, IEEE, Johan Driesen, Member, IEEE, and Pablo Moreno, Member, IEEE, Reducing Losses in Distribution Transformers in IEEE TRANSACTIONS ON POWER DELIVERY, VOL.

18, NO. 3, JULY 2003.

- [11]. R. Sudhir Kumar, T. Raghunatha, R.A. Deshpande, Distribution Systems Division Central Power Research Institute Bengaluru, India, Segregation of Technical and Commercial Losses in an 11 kV Feeder in 2013 IEEE GCC Conference and exhibition, November 17-20, Doha, Qatar.
- [12]. Julio Romero Agüero, Senior Member, IEEE, Improving the Efficiency of Power Distribution Systems through Technical and Non-Technical Losses Reduction.
- [13]. Yuan-Liang Lo, Shih-Che Huang, and Chan-Nan Lu, Non-Technical Loss Detection Using Smart in IEEE PES ISGT ASIA 2012 1569544735.
- [14]. “<http://planningcommission.nic.in>”. Annual Report on “The working of State Power utility and Electricity Department”.
- [15]. Report on “Growth of Electricity Sector in India from 1947-2015”.Ministry of Power, Central Electricity Authority, Government of India,New Delhi. April 2015.
- [16]. <http://powerdistributionmanagement.blogspot.in> 20/06/2016
- [17]. Sarang Pande and Prof. Dr. J.G. Ghodekar, Computation of Technical Power Loss of Feeders and Transformers in Distribution System using Load Factor and Load Loss Factor, International Journal Of Multidisciplinary Sciences And Engineering, Vol. 3, No. 6, June 2012.
- [18]. “www.beeindia.in” bureau of energy efficiency, a report on energy audit.
- [19]. Estimation of Distribution Loss Using Top Down / Bottom Up Approach for BSES Rajdhani West Circle, New Delhi by Virender Kumar, June 2014