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LINE FLOW BASED WLS STATE ESTIMATION TECHNIQUE WITH BAD DATA MEASUREMENTS USING WIPSO ALGORITHM

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Abstract

State estimation techniques are generally used by all the utilities to make the best possible estimate of the current system state from the existing set of redundant measurements. Conventional estimates usually generating bus voltage magnitudes and angles which need to be converted later into line loadings to perform security analysis. Here a novel line flow based state estimation technique which of ers the output in terms of real and reactive power flows, and bus voltage magnitudes has been developed and solved using WIPSO algorithm. The proposed method when implemented on standard test systems in the presence of various percentages of bad measurements has been detected to provide better results than the conventional WLS technique in terms of normalized error values and net computation time.

Author Keywords

State Estimation, Weighted Least Squares method, Line flow based WLS, WIPSO and Power System

Reference

References (13)

1. Logic.N, Kyriakides.E and Heydt.G.T
   LP state estimators for power systems

   (2007) Electric Power Components and Systems, Volume 33, Issue 7, Page No 669-712,

2. Pandian.A, Parthasarathy.K and Soman S.A
   A numerically stable decomposition based power system state estimation algorithm

(1998) Electric Power and Energy Systems, Volume 20, Issue 1, Page No 17-23,
Article Link: http://eprints.iisc.ac.in/9520/

3. Whei-Min Lin and Jen-Hao Teng
   A new transmission fast-decoupled state estimation with equality constraints

   (1998) International Journal of Electrical Power & Energy Systems, Volume 20, Issue 7, Page No 489-493,
   DOI: https://doi.org/10.1016/S0142-0615(97)00069-0
   Article Link: https://www.sciencedirect.com/science/article/abs/pii/S0142061597000690

4. De Zhengchun, Niu Zhenyong and Fang Wanliang
   Block QR decomposition based power system state estimation algorithm

   (2005) Electric Power Systems Research, Volume 76, Issue 1-3, Page No 86-92,
   DOI: https://doi.org/10.1016/j.epsr.2005.04.004
   Article Link: https://www.sciencedirect.com/science/article/abs/pii/S0378779605001392

5. Chakphed Madtharad, Suttichai Premrudeepreechacharn, Neville.R Watson
   Power system state estimation using singular value decomposition

   (2003) Electric Power Systems Research, Volume 67, Issue 2, Page No 99-107,
   DOI: https://doi.org/10.1016/S0378-7796(03)00080-4
   Article Link: https://www.sciencedirect.com/science/article/abs/pii/S0378779603000804

6. P.Yan, A.Sekar
   Study state analysis of power system having multiple Facts devices using line flow based equations

   (2005) IET Proceedings-Generation Transmission and Distribution, Volume 152, Issue 1, Page No 31-39,

7. B.M.Zhang, S.Y.Wang and N.D.Xiang
   A linear recursive bad data identification method with real time application to power system state estimation

   (1992) IEEE Transactions on Power Systems, Volume 7, Issue 3, Page No 1378 - 1385,
   DOI: https://doi.org/10.1109/59.207357
   Article Link: https://ieeexplore.ieee.org/document/207357

8. H.Salehfar, R.Zhao
   A neural network preestimation filter for bad-data detection and identification in power system state estimation

   (1995) Electric Power System Research, Volume 34, Issue 2, Page No 127-134,
   DOI: https://doi.org/10.1016/0378-7796(95)00966-7
   Article Link: https://www.sciencedirect.com/science/article/abs/pii/0378779695009667

9. D.Singh, R.K.Misra, V.K.Singh R.K.Pandey
   Bad data pre-filter for state estimation

   (2010) International Journal of Electrical Power & Energy Systems, Volume 32, Issue 10, Page No 1165-1174,
   DOI: https://doi.org/10.1016/j.ijepes.2010.06.016
   Article Link: https://www.sciencedirect.com/science/article/abs/pii/S0142061510001201

10. Eduardo Caro, Antonio J.Conejo, Robert Minguez, Marija Zima and Goran Anderson
    Multiple bad data identification considering measurement dependencies

    (2011) IEEE Transactions on Power Systems, Volume 26, Issue 4, Page No 1953 - 1961,
    DOI: https://doi.org/10.1109/TPWRS.2011.2157366
    Article Link: https://ieeexplore.ieee.org/document/5871712

11. D.H.Tungadio, B.P.Numbi, M.W.Siti, A.A.Jimoh
    Particle swarm optimization for power system state estimation

    (2015) Volume 148, Page No 175-180,

12. Dr.M.Kalpanadevi, Dr.R.Neela
    A Novel Line Flow Based State Estimation Technique for Power Systems

    (2014) International Journal of Development Research, Volume 4, Issue 4, Page No 892-897,

13. Dr.M.Kalpanadevi, Dr.R.Neela
    Line Flow Based WLS State Estimation Technique for Power Systems with Bad Measurements

    (2014) Australian Journal of Basic and Applied Sciences, Volume 8, Issue 17, Page No 353-359,

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