

## References

- [1] A. Abur and A. Gómez-Expósito, *Power System State Estimation: Theory and Implementation*. New York, NY: Marcel Dekker, 2004.
- [2] M. H. Albadi and E. El-Saadany, "Demand response in electricity markets: An overview," in *Proc. IEEE PES General Meeting*, Tampa, FL, June 2007, pp. 1–5.
- [3] F. Aminifar, C. Lucas, A. Khodaei, and M. Fotuhi-Firuzabad, "Optimal placement of phasor measurement units using immunity genetic algorithm," *IEEE Trans. Power Delivery*, vol. 24, no. 3, pp. 1014–1020, Jul. 2009.
- [4] N. Amjady and M. Hemmati, "Energy price forecasting - problems and proposals for such predictions," *IEEE Power Energy Mag.*, vol. 4, no. 2, pp. 20–29, Mar./Apr. 2006.
- [5] S. Bae and A. Kwasinski, "Spatial and temporal model of electric vehicle charging demand," *IEEE Trans. Smart Grid*, vol. 3, no. 1, pp. 394–403, Mar. 2012.
- [6] A. R. Bergen and V. Vittal, Eds., *Power System Analysis*. New York: Prentice Hall, 2000.
- [7] D. P. Bertsekas, G. S. Lauer, N. R. Sandell, Jr., and T. A. Posbergh, "Optimal short-term scheduling of large-scale power systems," *IEEE Trans. Automat. Contr.*, vol. 28, no. 1, pp. 1–11, Jan. 1983.
- [8] D. Bertsimas, E. Litvinov, X. Sun, J. Zhao, and T. Zheng, "Adaptive robust optimization for the security constrained unit commitment problem," *IEEE Trans. Power Syst.*, vol. 28, no. 1, pp. 52–63, Feb. 2013.
- [9] R. J. Bessa, M. A. Matos, F. J. Soares, and J. A. P. Lopes, "Optimized bidding of a EV aggregation agent in the electricity market," *IEEE Trans. Smart Grid*, vol. 3, no. 1, pp. 443–452, Mar. 2012.
- [10] E. A. Blood, B. H. Krogh, and M. D. Ilić, "Electric power system static state estimation through Kalman filtering and load forecasting," in *Proc. IEEE PES General Meeting*, Pittsburgh, PA, 2008, pp. 1–6.
- [11] F. Bouffard and F. D. Galiana, "Stochastic security for operations planning with significant wind power generation," *IEEE Trans. Power Syst.*, vol. 23, no. 2, pp. 306–316, May 2008.
- [12] E. Caro, A. Conejo, and A. Abur, "Breaker status identification," *IEEE Trans. Power Syst.*, vol. 25, no. 2, pp. 694–702, May 2010.
- [13] S. Chakrabarti, E. Kyriakides, and D. Eliades, "Placement of synchronized measurements for power system observability," *IEEE Trans. Power Delivery*, vol. 24, no. 1, pp. 12–19, Jan. 2009.

- [14] L. Chen, N. Li, L. Jiang, and S. H. Low, "Optimal demand response: Problem formulation and deterministic case," in *Control and Optimization Methods for Electric Smart Grids*, A. Chakraborty and M. D. Ilić, Eds. New York, NY: Springer, 2012, pp. 63–85.
- [15] R. D. Christie, B. F. Wollenberg, and I. Wangensteen, "Transmission management in the deregulated environment," *Proc. IEEE*, vol. 88, no. 2, pp. 170–195, Feb. 2000.
- [16] K. Clement-Nys, E. Haesen, and J. Driesen, "The impact of charging plug-in hybrid electric vehicles on a residential distribution grid," *IEEE Trans. Power Syst.*, vol. 25, no. 1, pp. 2010–2019, Feb. 2010.
- [17] K. A. Clements and A. S. Costa, "Topology error identification using normalized Lagrange multipliers," *IEEE Trans. Power Syst.*, vol. 13, no. 2, pp. 347–353, May 1998.
- [18] K. A. Clements, G. R. Krumpholz, and P. W. Davis, "Power system state estimation with measurement deficiency: An observability/measurement placement algorithm," *IEEE Trans. Power App. Syst.*, vol. 102, no. 7, pp. 2012–2020, Jul. 1983.
- [19] A. J. Conejo, M. Carrion, and J. M. Morales, *Decision Making Under Uncertainty in Electricity Markets*. New York: Springer, 2010.
- [20] A. J. Conejo, M. A. Plazas, R. Espinola, and A. B. Molina, "Day-ahead electricity price forecasting using the wavelet transform and ARIMA models," *IEEE Trans. Power Syst.*, vol. 20, no. 2, pp. 1035–1042, May 2005.
- [21] A. Conejo, J. Morales, and L. Baringo, "Real-time demand response model," *IEEE Trans. Smart Grid*, vol. 1, no. 3, pp. 236–242, 2010.
- [22] A. J. Conejo, S. de la Torre, and M. Canas, "An optimization approach to multiarea state estimation," *IEEE Trans. Power Syst.*, vol. 22, no. 1, pp. 213–221, Feb. 2007.
- [23] J. Contreras, R. Espinola, F. J. Nogales, and A. J. Conejo, "ARIMA models to predict next-day electricity prices," *IEEE Trans. Power Syst.*, vol. 18, no. 3, pp. 1014–1020, Aug. 2003.
- [24] E. Dall'Anese and G. B. Giannakis, "Convex distribution system reconfiguration using group sparsity," in *Proc. IEEE PES General Meeting*, Vancouver, Canada, Jul. 2013.
- [25] —, "Optimal distributed generation placement in smart microgrids via semidefinite relaxation," in *Proc. Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2013.
- [26] E. Dall'Anese, H. Zhu, and G. B. Giannakis, "Distributed optimal power flow for smart microgrids," *IEEE Trans. Smart Grid*, Nov. 2013.

- [27] R. Emami and A. Abur, "Tracking changes in the external network model," in *Proc. North American Power Symposium*, Arlington, TX, Sep. 2010, pp. 1–6.
- [28] —, "Robust measurement design by placing synchronized phasor measurements on network branches," *IEEE Trans. Power Syst.*, vol. 25, no. 1, pp. 38–43, Feb. 2010.
- [29] F. D. Galiana, F. Bouffard, J. M. Arroyo, and J. F. Restrepo, "Scheduling and pricing of coupled energy and primary, secondary, and tertiary reserves," *Proc. IEEE*, vol. 93, no. 11, pp. 1970–1983, Nov. 2005.
- [30] L. Gan, U. Topcu, and S. Low, "Optimal decentralized protocol for electric vehicle charging," in *Proc. 50th IEEE Conf. Decision and Control*, Orlando, FL, Dec. 2011, pp. 5798–5804.
- [31] N. Gatsis and G. B. Giannakis, "Residential demand response with interruptible tasks: Duality and algorithms," in *Proc. 50th IEEE Conf. Decision and Control*, Orlando, FL, Dec. 2011, pp. 1–6.
- [32] —, "Residential load control: Distributed scheduling and convergence with lost AMI messages," *IEEE Trans. Smart Grid*, vol. 3, no. 2, pp. 770–786, June 2012.
- [33] —, "Decomposition algorithms for market clearing with large-scale demand response," *IEEE Trans. Smart Grid*, vol. 4, no. 4, pp. 1976–1987, Dec. 2013.
- [34] G. B. Giannakis, V. Kekatos, N. Gatsis, S.-J. Kim, H. Zhu, and B. Wollenberg, "Monitoring and optimization for power grids: A signal processing perspective," *IEEE Signal Processing Mag.*, vol. 30, no. 5, pp. 107–128, Sept. 2013. [Online]. Available: <http://arxiv.org/abs/1302.0885>
- [35] A. Gómez-Expósito, A. J. Conejo, and C. Canizares, Eds., *Electric Energy Systems, Analysis and Operation*. Boca Raton, FL: CRC Press, 2009.
- [36] A. Gómez-Expósito and A. de la Villa Jaén, "Reduced substation models for generalized state estimation," *IEEE Trans. Power Syst.*, vol. 16, no. 4, pp. 839–846, Nov. 2001.
- [37] A. Gómez-Expósito, A. Abur, A. de la Villa Jaén, and C. Gómez-Quiles, "A multilevel state estimation paradigm for smart grids," *Proc. IEEE*, vol. 99, no. 6, pp. 952–976, Jun. 2011.
- [38] A. Gómez-Expósito, A. de la Villa Jaén, C. Gómez-Quiles, P. Rousseaux, and T. V. Cutsem, "A taxonomy of multi-area state estimation methods," *Electric Power Systems Research*, vol. 81, pp. 1060–1069, 2011.
- [39] A. M. Gonzalez, A. M. S. Roque, and J. G. Gonzalez, "Modeling and forecasting electricity prices with input/output hidden Markov models," *IEEE Trans. Power Syst.*, vol. 20, no. 1, pp. 13–24, Feb. 2005.

- [40] K. Hamilton and N. Gulhar, "Taking demand response to the next level," *IEEE Power Energy Mag.*, vol. 8, no. 3, pp. 60–65, May/Jun. 2010.
- [41] M. He and J. Zhang, "A dependency graph approach for fault detection and localization towards secure smart grid," *IEEE Trans. Smart Grid*, vol. 2, no. 2, pp. 342–351, Jun. 2011.
- [42] *C37.118: Standard for Synchrophasor Measurements (Data Transfer) for Power Systems*, IEEE Std., 2011.
- [43] M. D. Ilić, L. Xie, and J.-Y. Joo, "Efficient coordination of wind power and price-responsive demand—Part I: Theoretical foundations," *IEEE Trans. Power Syst.*, vol. 26, no. 4, pp. 1875–1884, Nov. 2011.
- [44] V. Kekatos and G. B. Giannakis, "Distributed robust power system state estimation," *IEEE Trans. Power Syst.*, vol. 28, no. 2, pp. 1617–1626, May 2013.
- [45] V. Kekatos, G. B. Giannakis, and B. F. Wollenberg, "Optimal placement of phasor measurement units via convex relaxation," *IEEE Trans. Power Syst.*, vol. 27, no. 3, pp. 1521–1530, Aug. 2012.
- [46] V. Kekatos, M. Light, S. Veeramachaneni, and G. B. Giannakis, "Day-ahead electricity market forecasting," in *Proc. 4th IEEE Conf. Innovative Smart Grid Technologies*, Washington, DC, Feb. 2013.
- [47] V. Kekatos, E. Vlachos, D. Ampeliotis, G. B. Giannakis, and K. Berberidis, "A decentralized approach to generalized power system state estimation," in *Proc. of 5th Intl. Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, Saint Martin, Dec. 2013.
- [48] V. Kekatos, Y. Zhang, and G. B. Giannakis, "Electricity market forecasting via low-rank multi-kernel learning," (under review). [Online]. Available: <http://arxiv.org/abs/1310.0865>
- [49] —, "Low-rank kernel learning for electricity market inference," in *Proc. Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2013.
- [50] V. Kekatos and G. B. Giannakis, "Joint power system state estimation and breaker status identification," in *Proc. North American Power Symposium*, University of Illinois, Urbana-Champaign, IL, Sep. 2012.
- [51] W. Kempton and J. Tomić, "Vehicle-to-grid power fundamentals: Calculating capacity and net revenue," *J. Power Sources*, vol. 144, no. 1, pp. 268–279, June 2005.
- [52] —, "Vehicle-to-grid power implementation: From stabilizing the grid to supporting large-scale renewable energy," *J. Power Sources*, vol. 144, no. 1, pp. 280–294, June 2005.

- [53] S.-J. Kim and G. B. Giannakis, "Scalable and robust demand response with mixed-integer constraints," *IEEE Trans. Smart Grid*, Dec. 2013.
- [54] T. Kim and H. Poor, "Scheduling power consumption with price uncertainty," *IEEE Trans. Smart Grid*, vol. 2, no. 3, pp. 519–527, 2011.
- [55] G. N. Korres, "A distributed multiarea state estimation," *IEEE Trans. Power Syst.*, vol. 26, no. 1, pp. 73–84, Feb. 2011.
- [56] G. N. Korres and P. J. Katsikas, "Identification of circuit breaker statuses in WLS state estimator," *IEEE Trans. Power Syst.*, vol. 17, no. 3, pp. 818–825, Aug. 2002.
- [57] O. Kosut, L. Jia, J. Thomas, and L. Tong, "Malicious data attacks on the smart grid," *IEEE Trans. Smart Grid*, vol. 2, no. 4, pp. 645–658, Dec. 2011.
- [58] P. Kundur, *Power System Stability and Control*. McGraw-Hill, 1994.
- [59] A. Y. S. Lam, B. Zhang, A. Dominguez-Garcia, and D. Tse, "Optimal distributed voltage regulation in power distribution networks," submitted to *IEEE Trans. Power Syst.*, Apr. 2012. [Online]. Available: <http://arxiv.org/abs/1204.5226>
- [60] J. Lavaei and S. H. Low, "Zero duality gap in optimal power flow problem," *IEEE Trans. Power Syst.*, vol. 27, no. 1, pp. 92–107, Feb. 2012.
- [61] G. Li, C. C. Liu, C. Mattson, and J. Lawarree, "Day-ahead electricity price forecasting in a grid environment," *IEEE Trans. Power Syst.*, vol. 22, no. 1, pp. 266–274, Feb. 2007.
- [62] J. Li, C.-C. Liu, and K. Schneider, "Controlled partitioning of a power network considering real and reactive power balance," *IEEE Trans. Smart Grid*, vol. 1, no. 3, pp. 261–269, Dec. 2010.
- [63] Q. Li, R. Negi, and M. D. Ilić, "Phasor measurement units placement for power system state estimation: A greedy approach," in *Proc. IEEE PES General Meeting*, Detroit, MI, Jul. 2011.
- [64] X. Liu, "Economic load dispatch constrained by wind power availability: a wait-and-see approach," *IEEE Trans. Smart Grid*, vol. 1, no. 3, pp. 347–355, Dec. 2010.
- [65] Y. Liu, P. Ning, and M. K. Reiter, "False data injection attacks against state estimation in electric power grids," *ACM Trans. Info. and System Security*, vol. 14, no. 1, pp. 13:1–13:33, May 2011.
- [66] A. Lojowska, D. Kurowicka, G. Papaefthymiou, and L. van der Sluis, "Stochastic modeling of power demand due to EVs using copula," *IEEE Trans. Power Syst.*, vol. 27, no. 4, pp. 1960–1968, nov 2012.

- [67] A. T. Lora, J. M. R. Santos, A. G. Exposito, J. L. M. Ramos, and J. C. R. Santos, "Electricity market price forecasting based on weighted nearest neighbors techniques," *IEEE Trans. Power Syst.*, vol. 22, no. 3, pp. 1294–1301, Aug. 2007.
- [68] G. Martinez, N. Gatsis, and G. B. Giannakis, "Stochastic programming for energy planning in microgrids with renewables," in *Proc. 5th Int. Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, Saint Martin, Dec. 2013.
- [69] G. Mateos and G. B. Giannakis, "Load curve data cleansing and imputation via sparsity and low rank," *IEEE Trans. Smart Grid*, Nov. 2013.
- [70] A.-H. Mohsenian-Rad and A. Leon-Garcia, "Optimal residential load control with price prediction in real-time electricity pricing environments," *IEEE Trans. Smart Grid*, vol. 1, no. 2, pp. 120–133, 2010.
- [71] A.-H. Mohsenian-Rad, V. S. W. Wong, J. Jatskevich, R. Schober, and A. Leon-Garcia, "Autonomous demand side management based on game-theoretic energy consumption scheduling for the future smart grid," *IEEE Trans. Smart Grid*, vol. 1, no. 3, pp. 320–331, Dec. 2010.
- [72] A. Monticelli, "Electric power system state estimation," *Proc. IEEE*, vol. 88, no. 2, pp. 262–282, Feb. 2000.
- [73] A. Monticelli and A. Garcia, "Fast decoupled state estimators," *IEEE Trans. Power Syst.*, vol. 5, no. 2, pp. 556–564, May 1990.
- [74] A. Monticelli and F. F. Wu, "Network observability: Identification of observable islands and measurement placement," *IEEE Trans. Power App. Syst.*, vol. 104, no. 5, pp. 1035–1041, May 1985.
- [75] —, "Network observability: Theory," *IEEE Trans. Power App. Syst.*, vol. 104, no. 5, pp. 1042–1048, May 1985.
- [76] R. F. Nuqui and A. G. Phadke, "Phasor measurement unit placement techniques for complete and incomplete observability," *IEEE Trans. Power Delivery*, vol. 20, no. 4, pp. 2381–2388, Oct. 2005.
- [77] N. P. Padhy, "Unit commitment—A bibliographical survey," *IEEE Trans. Power Syst.*, vol. 19, no. 2, pp. 1196–1205, May 2004.
- [78] A. Papavasiliou, H. Hindi, and D. Greene, "Market-based control mechanisms for electric power demand response," in *Proc. 49th IEEE Conf. Decision and Control*, Dec. 2010, pp. 1891–1898.
- [79] A. G. Phadke and J. S. Thorp, *Synchronized Phasor Measurements and Their Applications*. New York, NY: Springer, 2008.

- [80] P. Samadi, R. Schober, and V. W. S. Wong, "Optimal energy consumption scheduling using mechanism design for the future grid," in *Proc. 2nd IEEE Int. Conf. Smart Grid Communications*, Brussels, Belgium, Oct. 2011, pp. 369–374.
- [81] F. C. Schweppe, J. Wildes, and D. Rom, "Power system static state estimation: Parts I, II, and III," *IEEE Trans. Power App. Syst.*, vol. 89, pp. 120–135, Jan. 1970.
- [82] M. Shahidehpour, H. Yamin, and Z. Li, *Market Operations in Electric Power Systems: Forecasting, Scheduling, and Risk Management*. New York: IEEE-Wiley Interscience, 2002.
- [83] H. Singh and F. L. Alvarado, "Network topology determination using least absolute value state estimation," *IEEE Trans. Power Syst.*, vol. 10, no. 3, pp. 1159–1165, Aug. 1995.
- [84] N. Y. Soltani, S.-J. Kim, and G. B. Giannakis, "Dynamic learning of consumer elasticity in charging electric vehicles," in *Proc. 5th Int. Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, Saint Martin, Dec. 2013.
- [85] E. Sortomme and M. A. El-Sharkawi, "Optimal scheduling of vehicle-to-grid energy and ancillary services," *IEEE Trans. Smart Grid*, vol. 3, no. 1, pp. 351–359, Mar. 2012.
- [86] E. Sortomme, M. M. Hindi, S. D. J. MacPherson, and S. S. Venkata, "Coordinated charging of plug-in hybrid electric vehicles to minimize distribution system losses," *IEEE Trans. Smart Grid*, vol. 2, no. 1, pp. 198–205, Mar. 2011.
- [87] S. Takriti and J. R. Birge, "Using integer programming to refine Lagrangian-based unit commitment solutions," *IEEE Trans. Power Syst.*, vol. 15, no. 1, pp. 151–156, Feb. 2000.
- [88] J. E. Tate and T. J. Overbye, "Line outage detection using phasor angle measurements," *IEEE Trans. Power Syst.*, vol. 23, no. 4, pp. 1644–1652, Nov. 2008.
- [89] —, "Double line outage detection using phasor angle measurements," in *Proc. IEEE PES General Meeting*, Calgary, Alberta, Canada, Jul. 2009, pp. 1–5.
- [90] D. Trudnowski and J. Pierre, "Signal processing methods for estimating small-signal dynamic properties from measured responses," in *Inter-area Oscillations in Power Systems*, ser. Power Electronics and Power Systems, A. R. Messina, Ed. Springer, 2009, pp. 1–36.

- [91] G. Valverde and V. Terzija, “Unscented Kalman filter for power system dynamic state estimation,” *IET Generation, Transmission & Distribution*, vol. 5, no. 1, pp. 29–37, 2011.
- [92] P. P. Varaiya, F. F. Wu, and J. W. Bialek, “Smart operation of smart grid: Risk-limiting dispatch,” *Proc. IEEE*, vol. 99, no. 1, pp. 40–57, Jan. 2011.
- [93] D. J. Watts and S. H. Strogatz, “Collective dynamics of ‘small-world’ networks,” *Nature*, vol. 393, pp. 440–442, Jun. 1998.
- [94] A. J. Wood and B. F. Wollenberg, *Power Generation, Operation, and Control*, 2nd ed. New York, NY: Wiley & Sons, 1996.
- [95] D. Wu, D. C. Aliprantis, and L. Ying, “Load scheduling and dispatch for aggregators of plug-in electric vehicles,” *IEEE Trans. Smart Grid*, vol. 3, no. 1, pp. 368–376, Mar. 2012.
- [96] L. Wu and M. Shahidehpour, “A hybrid model for day-ahead price forecasting,” *IEEE Trans. Power Syst.*, vol. 25, no. 3, pp. 1519–1530, Aug. 2010.
- [97] W. A. Wulf, “Great achievements and grand challenges,” *The Bridge*, vol. 30, no. 3/4, pp. 5–10, Fall 2010. [Online]. Available: <http://www.greatachievements.org/>
- [98] L. Xie, D.-H. Choi, and S. Kar, “Cooperative distributed state estimation: Local observability relaxed,” in *Proc. IEEE PES General Meeting*, Detroit, MI, Jul. 2011.
- [99] Y. Zhang, N. Gatsis, and G. B. Giannakis, “Disaggregated bundle methods for distributed market clearing in power networks,” in *Proc. 1st IEEE Global Conf. Signal and Information Processing*, Austin, TX, Dec. 2013.
- [100] —, “Risk-constrained energy management with multiple wind farms,” in *Proc. 4th IEEE Conf. Innovative Smart Grid Technologies*, Washington, D.C., Feb. 2013.
- [101] —, “Robust energy management for microgrids with high-penetration renewables,” *IEEE Trans. Sustainable Energy*, vol. 4, no. 4, pp. 944–953, Oct. 2013.
- [102] Y. Zhang, N. Gatsis, V. Kekatos, and G. B. Giannakis, “Risk-aware management of distributed energy resources,” in *Proc. 18th Int. Conf. Digital Signal Processing*, Santorini, Greece, July 2013.
- [103] Y. Zhang and G. B. Giannakis, “Robust optimal power flow with wind integration using conditional value-at-risk,” in *Proc. 4th IEEE Int. Conf. Smart Grid Communications*, Vancouver, Canada, Oct. 2013.

- [104] L. Zhao and B. Zeng, "Robust unit commitment problem with demand response and wind energy," in *Proc. IEEE PES General Meeting*, San Diego, CA, July 2012.
- [105] L. Zhao and A. Abur, "Multiarea state estimation using synchronized phasor measurements," *IEEE Trans. Power Syst.*, vol. 20, no. 2, pp. 611–617, May 2005.
- [106] Q. Zhou, L. Tesfatsion, and C.-C. Liu, "Short-term congestion forecasting in wholesale power markets," *IEEE Trans. Power Syst.*, vol. 26, no. 4, pp. 2185–2196, Nov. 2011.
- [107] H. Zhu and G. B. Giannakis, "Estimating the state of AC power systems using semidefinite programming," in *Proc. 43rd North American Power Symposium*, Boston, MA, Aug. 2011, pp. 1–7.
- [108] —, "Multi-area state estimation using distributed SDP for nonlinear power systems," in *Proc. 3rd Int. Conf. Smart Grid Communications*, Tainan City, Taiwan, Nov. 2012.
- [109] —, "Robust power system state estimation for the nonlinear AC flow model," in *Proc. North American Power Symposium*, University of Illinois, Urbana-Champaign, IL, Sep. 2012.
- [110] —, "Sparse overcomplete representations for efficient identification of power line outages," *IEEE Trans. Power Syst.*, vol. 27, no. 4, pp. 2215–2224, Nov. 2012.