

## Curriculum Vitae

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RESEARCH INTERESTS: Energy Markets, Pricing of Electricity Services, Operation, Control, and Planning of Electric Power and Distribution Systems, Smart Grids.

APPOINTMENTS: [Instituto Tecnológico de Morelia](#), Morelia, Michoacán, México

EDUCATION: Iowa State University, Ames, Iowa, USA  
Ph.D., Electrical Engineering, 2009  
Dissertation: "Information Requirements for Strategic Decision-making: Energy Market"  
  
Instituto Tecnológico de Morelia, Morelia, México  
M.Sc., Electrical Engineering, 1996  
Thesis: "Optimal Power Flow Solved by Newton's Method: Application to Evaluate Network Open Access Transactions" (in Spanish)

### PHD COURSES AT IOWA STATE UNIVERSITY:

Microeconomics	Peter Mattila
Macroeconomics	Joydeep Bhattacharya
Industrial Organization	Herman Quirnbach
Econometrics	Fuman Wallace
Spatial Economics	Maureen Kilkenny
Business Economics	Darin Wohlgemuth
Power System Voltage Security Assessment and Control	Murti Salapaka
Real Time Systems	Manimaran
Modern Control Systems I	Murti Salapaka
Steady State Analysis	Vijay Vittal
Power System Dynamics	James McCalley

### ACADEMIC ADMINISTRATIVE POSITIONS:

1. Coordinator, Postgraduate Program in Electrical Engineering, Instituto Tecnológico de Morelia, 1999-2000.
2. President, Academy at the Postgraduate Program in Electrical Engineering, Instituto Tecnológico de Morelia, 2005-2006

### REGULAR LECTURER FOR ACADEMIC COURSES:

1. Power System Operation and Control
2. Power System Analysis
3. Operations Research
4. Electricity Markets
5. Decision Theory
6. Industrial Organization
7. Microeconomics

### LANGUAGES:

Spanish: Mother tongue  
English: Fluent

JOURNAL REFEREE:

*IEEE Transactions on Power Systems, IEEE Transactions on Smart Grid, IEEE Transactions on Sustainable Energy, IEEE Journal of Photovoltaics, Energy Policy, Energy Exploration & Exploitation, European Transactions on Electrical Power, Journal of Electrical and Computer Engineering, International Journal of Electrical Power & Energy Systems*

CONFERENCES:

IEEM 2011-2016, Technical Program Committee  
ICSGRC 2013, Review Committee  
EEEIC2012, EEEIC2013, Program Committee

BOOK CHAPTERS:

1. José Horacio Tovar Hernández, **G. Gutiérrez-Alcaraz**, “Expert Systems Application for the Reconfiguration of Electric Distribution Systems” in “Smart Grids: Clouds, Communications, Open Source, and Automation,” ISBN: 9781482206111, CRC PRESS.

SUBMITTED JOURNAL ARTICLES (JCR):

1. Luis Marcos Cisneros Alejandro, **Guillermo Gutiérrez Alcaraz**, Jose Horacio Tovar Hernandez, “Implications of Generation Bidding on the Mexican Wholesale Electricity Market,” *IEEE Latin America Transactions*, ISSN: 1548-0992.
2. Néstor González-Cabrera, **G. Gutiérrez**, Esteban Gil, “Transmission expansion planning considering an hourly demand curve,” *IEEE Latin America Transactions*, ISSN: 1548-0992.
3. Ana C. Núñez, **G. Gutiérrez**, Esteban Gil, “Strategic generation bidding and scheduling under price uncertainty,” *IEEE Latin America Transactions*, ISSN: 1548-0992.

PUBLISHED JOURNAL ARTICLES (JCR):

1. **G. Gutierrez-Alcaraz**, Jose Horacio Tovar Hernandez, “Two-Stage heuristic methodology for optimal reconfiguration and Volt/Var control in the operation of electrical distribution systems,” *IET Generation, Transmission & Distribution*, ISSN: 1751-8687. DOI: [10.1049/iet-gtd.2016.1870](https://doi.org/10.1049/iet-gtd.2016.1870)
2. Victor Hinojosa-Mateus, **Guillermo Gutiérrez-Alcaraz**, “A computational comparison of 2 mathematical formulations to handle transmission network constraints in the unit commitment problem,” *International Transactions on Electrical Energy Systems*, ISSN: 2050-7038, Volume 27, No. 8, pp. 1-15, Aug. 2017. DOI: [10.1002/etep.2332](https://doi.org/10.1002/etep.2332)
3. Nestor Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, “Nodal user's demand response based on IBP,” *Journal of Modern Power Systems and Clean Energy*, ISSN: 2196-5625, Vol. 5, No. 1, pp. 79-90, Jan. 2017. DOI: [10.1007/s40565-016-0261-0](https://doi.org/10.1007/s40565-016-0261-0).
4. N. G. Cabrera, **G. G. Alcaraz**, H. T. Hernández, “Structural decomposition based on nodal ENS reliability assessment approach,” *IEEE Latin America Transactions*, ISSN: 1548-0992, Vol. 14, No. 8, pp. 3738-3745, Aug. 2016. DOI: [10.1109/TLA.2016.7786358](https://doi.org/10.1109/TLA.2016.7786358).
5. V. Hinojosa, O. Ticuna, **G. Gutierrez**, “Improving the mathematical formulation of the unit commitment with transmission system constraints,” *IEEE Latin America Transactions*, ISSN: 1548-0992, Vol. 14, No. 2, pp. 773-781, Feb. 2016. DOI: [10.1109/TLA.2016.7437222](https://doi.org/10.1109/TLA.2016.7437222).
6. **G. Gutiérrez-Alcaraz**, J.H. Tovar-Hernández, Chan-Nan Lu, “Effects of demand response programs on distribution system operation,” *International Journal of Electrical Power & Energy Systems*, ISSN: 0142-0615, Vol. 74, pp. 230-237, Jan. 2016. <http://dx.doi.org/10.1016/j.ijepes.2015.07.018>
7. **G. Gutiérrez-Alcaraz**, E. Galván, N. González-Cabrera, M. S. Javadi, “Renewable energy resources short-term scheduling and dynamic network reconfiguration for sustainable energy consumption,” *Renewable & Sustainable Energy Reviews*, ISSN: 1364-0321, Vol. 52, pp. 256-264, Dec. 2015. <http://dx.doi.org/10.1016/j.rser.2015.07.105>
8. A. G. Aragón, J. H. Tovar-Hernández, **G. Gutiérrez-Alcaraz**, “Multi-stage model for voltage control and reactive power ancillary services allocation costs in electricity markets,” *IEEE Latin America Transactions*, ISSN: 1548-0992, Vol. 13, No. 9, pp. 2961-2970, Sep. 2015. DOI: [10.1109/TLA.2015.7350046](https://doi.org/10.1109/TLA.2015.7350046)
9. Ebrahim Mortaz, Luis F. Fuerte-Ledezma, **Guillermo Gutiérrez-Alcaraz**, Jorge Valenzuela, “Transmission expansion planning using multivariate interpolation,” *Electric Power Systems Research*, ISSN: 0378-7796, Vol. 126, pp. 87-99, Sep. 2015. <http://dx.doi.org/10.1016/j.epsr.2015.03.031>
10. J. H. Tovar-Hernández, **G. Gutiérrez-Alcaraz**, R. A. Solera-Urcuyo, “Linear sensitivities to define reactive power areas for voltage control and reactive power service in electricity markets,” *IEEE Latin America Transactions*, ISSN: 1548-0992, Vol. 13, No. 1, pp. 150-157, Jan. 2015. DOI: [10.1109/TLA.2015.7040642](https://doi.org/10.1109/TLA.2015.7040642)

11. E. G. Muñoz, **G. G. Alcaraz**, N. G. Cabrera, "Two-phase short-term scheduling of renewable energy resources and demand response," *IEEE Latin America Transactions*, ISSN: 1548-0992, Vol. 13, No. 1, pp. 181-187, Jan. 2015. DOI: [10.1109/TLA.2015.7040646](https://doi.org/10.1109/TLA.2015.7040646)
12. A. M. Moreno, F. M. Cárdenas, **G. G. Alcaraz**, "Design of a multilevel class D voltage amplifier for testing protection relays," *IEEE Latin America Transactions*, ISSN: 1548-0992, Vol. 12, No. 4, pp. 543-549, Jun. 2014.
13. Mohammad S. Javadi, Mohsen Saniei, Habib Rajabimashhadi, **Guillermo Gutiérrez-Alcaraz**, "Multi-Objective expansion planning approach: distant wind farms and limited energy resources integration," *IET Renewable Power Generation*, ISSN: 1752-1416, Vol. 7, No. 6, pp. 652-668, Nov. 2013. DOI: [10.1049/iet-rpg.2012.0218](https://doi.org/10.1049/iet-rpg.2012.0218)
14. J. de la C. Soto, **G. G. Alcaraz**, "Fuel contract acquisition for economic operation by the supply chain method," *IEEE Latin America Transactions*, ISSN: 1548-0992, Vol. 11, No.5, pp. 1201-1211, Sep. 2013. DOI: [10.1109/TLA.2013.6684395](https://doi.org/10.1109/TLA.2013.6684395)
15. G. B. Sheblé, **G. Gutiérrez-Alcaraz**, "Generation Companies' adaptive bidding strategies using finite state automata in a single-side electricity market," *European Trans. on Electrical Power*, ISSN: 1546-3109, September 2012, Vol. 22, No. 6, pp. 771-786.
16. Sheng-Yi Su, Chan-nan Lu, Rung-Fang Chang, **G. Gutiérrez-Alcaraz**, "Distributed generation interconnection planning: A wind power case study," *IEEE Trans. on Smart Grid*, ISSN: 1949-3053, Vol. 2, No. 1, pp. 181-189, Mar. 2011. DOI: [10.1109/TSG.2011.2105895](https://doi.org/10.1109/TSG.2011.2105895)
17. **G. Gutiérrez-Alcaraz**, G. B. Sheblé, "Generation companies decision-making modeling by linear control theory," *Electric Power Systems Research*, ISSN: 0378-7796, Vol. 80, No. 7, pp. 815-827, Jul. 2010. <http://dx.doi.org/10.1016/j.epsr.2009.12.007>
18. **G. Gutiérrez-Alcaraz**, Jose H. Tovar-Hernandez, and Edgar L. Moreno-Goytia, "Analysis of dynamic Cournot learning models for generation companies based on conjectural variations and forward expectation," *Electric Power Systems Research*, ISSN: 0378-7796, Vol. 79, No. 12, pp. 1698-1704, Dec. 2009. <http://dx.doi.org/10.1016/j.epsr.2009.07.008>
19. **G. Gutiérrez-Alcaraz**, G. B. Sheblé "Modeling energy market dynamics using discrete events system simulation," *Energy*, ISSN: 0360-5442, Vol. 34, No. 10, pp. 1467-1476, Oct. 2009. <http://dx.doi.org/10.1016/j.energy.2009.06.017>
20. **G. Gutiérrez-Alcaraz**, "Sequential time-step generation companies decisions in oligopolistic electricity market," *Electric Power Systems Research*, ISSN: 0378-7796, Vol. 78, No. 5, pp. 824-834, May 2008.
21. **G. Gutiérrez-Alcaraz**, G. B. Sheblé "Electricity market dynamics: oligopolistic competition," *Electric Power Systems Research*, ISSN: 0378-7796, Vol. 76, No. 9-10, pp. 695-700, Jun. 2006.
22. J. Horacio Tovar Hernández, Miguel Jiménez Guzmán, **Guillermo Gutiérrez Alcaraz**, "Ancillary reactive power service allocation cost in deregulated markets: A methodology," *International Journal of Electrical Power & Energy Systems*, ISSN: 0142-0615, Vol. 27, No. 5-6, pp. 371-378, Jun.-Jul. 2005.
23. Gabriel Estrada Soria, José Horacio Tovar Hernández, **Guillermo Gutiérrez Alcaraz**, "Metodología para la localización optima de capacitores mediante sensibilidades lineales," *IEEE Latin America Transactions*, ISSN: 1548-099, Vol. 3, No. 2, pp. 75-82, Abr. 2005.
24. Gustavo Carlos Tequilalpa Gómez, José Horacio Tovar Hernández, **Guillermo Gutiérrez Alcaraz**, "Asignación de costos por el servicio de potencia reactiva en mercados competitivos," *IEEE Latin America Transactions*, ISSN: 1548-0992, Vol. 1, No.1, Oct. 2003

#### DISCUSSIONS TO JOURNAL ARTICLES (JCR):

1. J.H. Tovar-Hernández, **G. Gutiérrez-Alcaraz**, and R. Mota-Palomino, Discussion to Advanced SVC models for Newton-Raphson load flow and optimal power flow studies, *IEEE Trans. on Power Systems*, ISSN: 0885-8950, November 2001, Vol. 16, No. 4, pp. 946.
2. C.R. Fuerte-Esquivel, J.H. Tovar-Hernández, **G. Gutiérrez-Alcaraz**, and F. Cisneros-Torres, Discussion to Feijóo A. Cidrás J.: Modeling of wind farms in the load flow analysis, *IEEE Trans. on Power Systems*, ISSN: 0885-8950, November 2001, Vol. 16, No. 4, pp. 951.

#### CONFERENCE PUBLISHED (PEER-REVIEWED):

1. Luis Marcos Cisneros Alejandre, **Guillermo Gutiérrez Alcaraz**, "Analysis of security constrained unit commitment using three models of electricity generation cost linearization," 2018 IEEE-Texas Power and Energy Conference (TPEC), College Station, Texas, USA.
2. Luis Marcos Cisneros Alejandre, **Guillermo Gutiérrez Alcaraz**, "Comparison of methods for calculating generation offers in the Mexican wholesale electricity market," to be presented at 2017 IEEE International Autumn Meeting on Power, Electronics and Computing (ROPEC 2017), Ixtapa Mexico.

3. N. Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, E. Gil, "Determining nodal interruption capacity with a reliability assessment method" *IEEE PES Conference on Innovative Smart Grid Technologies - Latin America (ISGT-LA 2017)*, Quito Ecuador.
4. Esteban Gil, Javier Toro, **Guillermo Gutierrez-Alcaraz**, "Day-ahead reserve scheduling approaches under wind uncertainty," *2017 IEEE Power and Energy Society General Meeting*
5. Christian J. G. Villalobos, Horacio Tovar-Hernández, **G. Gutiérrez-Alcaraz**, "Financial transmission rights in electricity markets," *2016 IEEE International Autumn Meeting on Power, Electronics and Computing (ROPEC 2016)*, Nov. 2016. DOI: [10.1109/ROPEC.2016.7830625](https://doi.org/10.1109/ROPEC.2016.7830625)
6. D. C. Ramirez, **G. Gutierrez-Alcaraz**, Aaron Esparza-Gurrola, Juan Segundo-Ramirez, "Implementation of nonrecursive algorithm in RTDS for phasor estimation," *48<sup>th</sup> North American Power Symposium (NAPS 2016)*, Sep. 2016. DOI: [10.1109/NAPS.2016.7748001](https://doi.org/10.1109/NAPS.2016.7748001)
7. Nestor Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, "Load forecasting assessment using SARIMA model and fuzzy inductive reasoning," the *IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, Bangkok Thailand, Dec. 2013. DOI: [10.1109/IEEM.2013.6962474](https://doi.org/10.1109/IEEM.2013.6962474)
8. Nestor Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, "Estimation of customer base line and multi-period demand response," XIV Reunión de Otoño de Potencia, Electrónica y Computación, *ROPEC'2013 INTERNACIONAL*, ISBN: 978-1-4799-2370-0, Morelia Michoacán, México, Nov. 2013. DOI: [10.1109/ROPEC.2013.6702709](https://doi.org/10.1109/ROPEC.2013.6702709)
9. Nestor Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, "Load Forecasting Assessment using SARIMA Model and Fuzzy Inductive Reasoning," *2013 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, Bangkok Thailand, December 2013
10. Nestor Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, "Estimation of customer base line and multi-period demand response," *XIV Reunión de Otoño de Potencia, Electrónica y Computación*, ROPEC'2013 INTERNACIONAL, Morelia Michoacán, México, November 2013.
11. Luis F. Fuerte-Ledezma, **G. Gutierrez-Alcaraz**, Mohammad S. Javadi, "Static transmission expansion planning considering uncertainty in demand using BPSO," *45<sup>th</sup> North American Power Symposium (NAPS 2013)*, Manhattan, Kansas, USA, September 2013.
12. Eric Galvan, **G. Gutierrez-Alcaraz**, "Two-phase short-term scheduling with renewable energy resources and storage," *45<sup>th</sup> North American Power Symposium (NAPS 2013)*, Manhattan, Kansas, USA, September 2013.
13. Ana C. Nuñez-Ponce, **G. Gutierrez-Alcaraz**, "Strategic Generation Companies Bidding with Uncertainty Using Interval Arithmetic," *45<sup>th</sup> North American Power Symposium (NAPS 2013)*, Manhattan, Kansas, USA, September 2013.
14. Nestor Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, "Evaluating demand response programs base on demand management contracts," *2012 IEEE Power and Energy Society General Meeting*, San Diego, California, USA.
15. Nestor Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, "Applying probabilistic nodal pricing to a multi-period demand response," *2012 IEEE 12<sup>th</sup> International Conference on Probabilistic Methods Applied to Power Systems (PMAPS 2012)*, Istanbul, Turkey.
16. Nestor Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, "Effect assessment of demand response on nodal prices by types of classes," *43<sup>rd</sup> North American Power Symposium (NAPS 2011)*, Boston, Massachusetts, USA, August 2011.
17. **G. Gutierrez-Alcaraz**, "Dynamic pricing and area-time specific marginal capacity cost for distribution investment deferment," *2011 IEEE Power and Energy Society General Meeting*, Detroit, Michigan, USA, July 2011.
18. **G. Gutierrez-Alcaraz**, Chan-Nan Lu, "Demand response and network reconfiguration on distribution system investment deferment," *21<sup>st</sup> International Conference and Exhibition on Electricity Distribution (CIRED 2011)*, Frankfurt, Germany, June 2011.
19. **G. Gutierrez-Alcaraz**, "GenCos decision-making constrained by operational and financial requirements," *2010 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM 2010)*, Macau, China, December 2010.
20. **G. Gutierrez-Alcaraz**, Raul A. Ramos-Trujillo, "GenCos strategic behavior monitoring on auction bidding based on state variables formulation," *2010 International Conference on Power System Technology (POWERCON 2010)*, Hangzhou, China, October 2010.
21. Nestor Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, "Nodal reliability pricing for multiple availability types and multiple types of classes end-users," *2010 International Conference on Power System Technology (POWERCON 2010)*, Hangzhou, China, October 2010.
22. J. De La Cruz-Soto, **G. Gutierrez-Alcaraz**, "Optimal fuel and emission acquisition contracts using a supply chain model," *2010 IEEE Power and Energy Society General Meeting*, Minneapolis, Minnesota, USA, July 2010.
23. Nestor Gonzalez-Cabrera, **G. Gutierrez-Alcaraz**, "Pricing reliability service based on end-users choice," *2010 IEEE 11<sup>th</sup> International Conference on Probabilistic Methods Applied to Power Systems (PMAPS 2010)*, Singapore, Republic of Singapore, June 2010.

24. J. De La Cruz-Soto, G. Gutierrez-Alcaraz, "Electricity market prices: An indicator of market power?," *15<sup>th</sup> International Conference on Intelligent System Application to Power Systems (ISAP'09)*, Curitiba, Brazil, November 2009.
25. J. De La Cruz-Soto, **G. Gutierrez-Alcaraz**, "Integrated model of fuel supply control for short-term electric generation scheduling with emission constraints and take-or-pay contracts," *Workshop on Innovation of Electronics, Robotics and Automotive Mechanics Conference (CERMA 2009)*, Cuernavaca, Morelos, Mexico, September 2009.
26. D. Hernandez-Gonzalez, and **G. Gutierrez-Alcaraz**, "GENCO's long term expansion model in a competitive electricity market," *2009 IEEE Power and Energy Society General Meeting*, Calgary, Alberta, Canada, July 2009.
27. J. De La Cruz-Soto, **G. Gutierrez-Alcaraz**, "Integrated model of fuel supply with take-or-pay contracts for short-term electricity generation scheduling," *2009 IEEE Bucharest PowerTech*, Bucharest, Romania, June 2009.
28. D. Hernandez-Gonzalez, **G. Gutierrez-Alcaraz**, "GENCOs' long-term expansion model," *2009 IEEE Bucharest PowerTech*, Bucharest, Romania, June 2009.
29. O. Estrada-Cruz, **G. Gutierrez-Alcaraz**, J. H. Tovar-Hernandez, "Modeling dynamic generation companies bidding strategies," *IEEE 2<sup>nd</sup> International Power and Energy Conference (PECon 2008)*, Johor Bahru, Malaysia, December 2008.
30. C. Tovar-Ramirez, G. Gutierrez-Alcaraz, "Analysis of probabilistic second order effect in energy market interaction," *40<sup>th</sup> North American Power Symposium (NAPS 2008)*, Calgary, Alberta, Canada, September 2008.
31. Rodrigo Trasviña, **G. Gutierrez-Alcaraz**, F. Martínez-Cárdenas, "Lagrangian relaxation unit commitment and auction mechanism parallel processing emulation," *40<sup>th</sup> North American Power Symposium (NAPS 2008)*, Calgary, Alberta, Canada, September 2008.
32. O. Estrada-Cruz, **G. Gutierrez-Alcaraz**, J. H. Tovar-Hernández, "Discrete time Cournot model for electricity market simulation," *Electronics, Robotics and Automotive Mechanics Conference (CERMA 2008)*, Cuernavaca, Morelos, Mexico, September 2008.
33. Rodrigo Trasviña, **G. Gutierrez-Alcaraz**, F. Martinez-Cárdenas, "Lagrangian relaxation unit commitment by parallel processing," *Electronics, Robotics and Automotive Mechanics Conference (CERMA 2008)*, Cuernavaca, Morelos, Mexico, September 2008.
34. C. Tovar-Ramirez, **G. Gutierrez-Alcaraz**, "Multiperiod energy market competition," *Electronics, Robotics and Automotive Mechanics Conference (CERMA 2008)*, Cuernavaca, Morelos, Mexico, September 2008.
35. Luis Conde-López and **Guillermo Gutierrez-Alcaraz**, "Reliability analysis of generating capacity of Mexico's national interconnected power system," *2008 IEEE 10<sup>th</sup> International Conference on Probability Methods Applied to Power Systems (PMAPS 2008)*, Rincon, Puerto Rico, May 2008.
36. **G. Gutierrez-Alcaraz** and Gerald B. Sheblé, "The value of technical information in the unbundled electric market," *2008 IEEE 10<sup>th</sup> International Conference on Probability Methods Applied to Power Systems (PMAPS 2008)*, Rincon, Puerto Rico, May 2008.
37. **Gutierrez-Alcaraz** and Gerald B. Sheblé, "Blocking strategies against financial transmission rights' market power," *14<sup>th</sup> International Conference on Intelligent System Application to Power Systems (ISAP07)*, Kaohsiung, Taiwan, November 2007.
38. Rivas Dávalos, F., Moreno Goytia E., **Gutiérrez Alcaraz G.**, Tovar Hernández H., "Multiobjective optimization challenges in power system: The next step forward," *Electronics, Robotics and Automotive Mechanics Conference (CERMA 2007)*, Cuernavaca, Morelos, Mexico, September 2007.
39. A. Vidales-Vazquez and **G. Gutierrez-Alcaraz**, "Sequential time-step oligopolistic electricity market competition," *2007 IEEE Lausanne Power Tech*, Lausanne, Switzerland, July 2007.
40. Gabriel Estrada Soria, José Horacio Tovar Hernández, **G. Gutierrez-Alcaraz**, "Sensitivity-based methodology for the capacitor placement problem in radial distribution systems," *2007 IEEE Lausanne Power Tech*, Lausanne, Switzerland, July 2007.
41. F. Rivas-Dávalos, E. Moreno-Goytia, **G. Gutierrez-Alcaraz**, J. Tovar-Hernández, "Evolutionary multi-objective optimization in power systems: State-of-the-art," *2007 IEEE Lausanne Power Tech*, Lausanne, Switzerland, July 2007.
42. A. Vidales-Vazquez and **G. Gutierrez-Alcaraz**, "Sequential time-step oligopolistic electricity market competition with forward expectations," *2007 IEEE Power and Energy Society General Meeting*, Tampa, Florida, USA, June 2007.
43. L. Soto-Reyes and **G. Gutierrez-Alcaraz**, "Energy market model competition: A discrete event system simulation equivalent," *2007 IEEE Power and Energy Society General Meeting*, Tampa, Florida, USA, June 2007.
44. A. Vidales-Vazquez and **G. Gutierrez-Alcaraz**, "Oligopolistic electricity market competition with forward expectations," *38<sup>th</sup> North American Power Symposium (NAPS 2006)*, Carbondale, Illinois, USA, September 2006.

45. Jiménez-López F., Moreno-Goytia Edgar, **Gutiérrez-Alcaraz G.**, “A distance protection algorithm for fast fault location in a fixed series compensated environment,” *38<sup>th</sup> North American Power Symposium (NAPS 2006)*, Carbondale, Illinois, USA, September 2006.
46. Feng Gao, **G. Gutiérrez-Alcaraz**, and Gerald B. Sheblé, “Comparison of artificial life techniques for market simulation,” *39<sup>th</sup> International Conference on System and Sciences (HICSS-39)*, Kauai, Hawaii, USA, January 2006.
47. H. Moreno, **G. Gutiérrez**, S. Plumel, G. B. Sheble, “A new approach to assess the value of reactive power production,” *15th Power Systems Computation Conference (PSCC05)*, Liège, Belgium, August 2005.
48. **G. Gutiérrez**, J. Quiñonez, G. B. Sheblé, “Market clearing price discovery in a single and double-side auction market mechanisms: Linear programming solution,” *2005 IEEE Russia PowerTech*, St. Petersburg, Russia, June 2005.
49. **Guillermo Gutiérrez-Alcaraz**, Gerald B. Sheblé, “GenCos’ participation in the unbundled energy market,” *2004 Power Systems Conference and Exposition (PSCE 2004)*, New York City, New York, USA, October 2004.
50. Badri Ramanathana, **Guillermo Gutiérrez-Alcaraz**, “A hierarchical distributed object-oriented architecture for energy management system,” *2004 Power Systems Conf. and Exposition (PSCE 2004)*, New York City, New York, USA, October 2004.
51. **Guillermo Gutiérrez-Alcaraz**, Gerald B. Sheblé, “Electricity market price dynamics: Markov process analysis,” *8<sup>th</sup> International Conference on Probability Methods Applied to Power Systems (PMAPS 2004)*, Ames, Iowa, USA, September 2004.
52. **Guillermo Gutiérrez-Alcaraz**, Gerald B. Sheblé, “GenCos’ self-scheduling: real option approach,” *36<sup>th</sup> North American Power Symposium (NAPS 2004)*, Moscow, Idaho, USA, August 2004.
53. **Guillermo Gutiérrez-Alcaraz**, Gerald B. Sheblé, “Decentralized electricity market price dynamics,” *IEEE Power Engineering Society General Meeting*, Denver, Colorado, USA, June 2004.
54. **Guillermo Gutiérrez-Alcaraz**, Gerald B. Sheblé, “Real option data requirements of power system data for competitive bidding,” *37<sup>th</sup> International Conference on System and Sciences (HICSS-37)*, Island of Hawaii, Hawaii, USA, January 2004.
55. Miguel A. Martínez-Molina, J. Horacio Tovar-Hernández, and **Guillermo Gutiérrez-Alcaraz**, “Load flow integral analysis of distribution systems by including symmetric and asymmetric three-phase transformers,” *35<sup>th</sup> North American Power Symposium (NAPS 2003)*, Rolla, Missouri, USA, October 2003.
56. **Guillermo Gutiérrez-Alcaraz**, Gerald B. Sheblé, “I-O model in the energy market: A GENCO’s perspective,” *35<sup>th</sup> North American Power Symposium (NAPS 2003)*, Rolla, Missouri, USA, October 2003.
57. **Guillermo Gutiérrez**, Gerald B. Sheblé, “Spot fuel markets’ influence on the spot electricity market using Leontief model,” *IEEE Bologna Power Tech*, Bologna, Italy, June 2003.
58. **G. Gutiérrez-Alcaraz**, CR. Fuerte-Esquivel, J. H. Tovar-Hernández, “Incorporation of a HVDC link in power flow rectangular formulation based on the variable elimination method,” *Large Engineering Systems Conference on Power Engineering*, Halifax, Nova Scotia, Canada, July 2000.
59. José Horacio Tovar Hernández, **Guillermo Gutiérrez-Alcaraz**, “Qualitative analysis of active power flow distribution methods to evaluate the use of network cost allocation,” *62<sup>nd</sup> American Power Conference*, Chicago, Illinois, USA, April 2000, pp. 422-427.
60. Joel Arturo Belín Delgado, Edgar Lenymirko Moreno Goitya, **Guillermo Gutiérrez-Alcaraz**, “Development and implementation of a digital distance relaying algorithm using discrete Fourier transforms and modal transformation,” *62<sup>nd</sup> American Power Conference*, Chicago, Illinois, USA, April 2000, pp. 428-432.
61. **Guillermo Gutiérrez-Alcaraz**, Noe Navarrete, J. Horacio Tovar-Hernández, Claudio R. Fuerte-Esquivel, Ricardo Mota-Palomino, “Analysis of probabilistic short run marginal cost using Monte Carlo method,” *61<sup>st</sup> American Power Conference*, Chicago, Illinois, USA, April 1999.
62. **Guillermo Gutiérrez**, Carlos R. Guzman, Salvador Chávez, Marcelino Madrigal y J. Horacio Tovar, “OPF by Newton’s method: A comparison between polar and rectangular formulations,” *60<sup>th</sup> APC American Power Conference*, Chicago, Illinois, USA, April 1998, Vol. I, No. 60, pp 99-103.
63. Salvador Chávez Negrete, **Guillermo Gutiérrez Alcaraz**, Marcelino Madrigal Martínez, J. Horacio T., “Optimal power flow problem in rectangular coordinates solved by Newton’s method,” *IASTED*, Orlando, Florida, USA, October 1997.
64. **Guillermo Gutiérrez Alcaraz**, Marcelino Madrigal Martínez, José Horacio Tovar Hernández, “Comparison of alternatives for the inclusion of real power flow constraints in optimal power flow by Newton’s method,” *28<sup>th</sup> North American Power Symposium (NAPS 1996)*, Cambridge, Massachusetts, USA, November 1996.

#### FELLOWSHIPS AND AWARDS:

1. Recognition Award for Outstanding Research Activities, National Systems of Researchers, 2010-2021.
2. Senior Member, Power & Energy Society, IEEE

3. Member, Master Program in Electrical Engineering, Instituto Tecnológico de Morelia
4. Member, Doctoral Program in Electrical Engineering, Instituto Tecnológico de Morelia
5. Founder and First Chapter Chair, IEEE PES Centro Occidente Chapter, 2007-2008.
6. Mexican National Council of Science and Technology (CONACyT) Ph.D. Scholarship
7. CONACyT MSc. Scholarship

#### GRANTS FOR RESEARCH PROJECTS:

1. Operation and Control of Power Systems under Smart Grid Environment, 2012-2014.
2. Modern Trends in Power Transmission Systems, 2012, CONACyT.
3. Electric Power and Distribution Systems: Operation and Planning under Competitive Environments, 2005-2006, DGEST
4. Investment and Development of Methodologies to Evaluate Energy Transactions in Deregulated Markets, 1999-2000, DGEST
5. Development of Methodologies to Evaluate Open Access Services in Deregulated Power Systems, 1999, CONACyT.
6. Hybrid Simulation Modular Laboratory in Real Time of Fault and Electric Disturbances under Controlled Conditions Oriented to Tests of Digital Relays and Algorithms of Detection and Localization of Faults in Power and Distribution Systems, 1998-1999, DGEST.
7. Computational System to Analyze Distribution Systems, 1997-1999, DGEST
8. Development of Expert System to Evaluate Security Power Systems, 1997-1999, CONACyT

#### GRADUATE SUPERVISION

##### PH.D. STUDENTS:

1. Diana Celina Ramírez Torres, *PMU Design and modeling using phasors estimation advanced techniques* (in progress).
2. Néstor González Cabrera, *Nodal incentive payment based on maximum deliverable nodal capacity* (in Spanish), January 2017.

##### M.SC. STUDENTS:

1. Ana Catalina Núñez Ponce, *Strategic generation bidding and scheduling under price uncertainty* (in Spanish), June 2017.
2. Arturo Solorio Arzate, *Security-Constrained Optimal Power Flow using Power Transfer Distribution Factors* (in Spanish), June 2017.
3. Luis Fernando Fuerte Ledezma, *Contingency-Constrained Transmission expansion planning using Particle Swarm Optimization* (in Spanish), June 2017.
4. Eric Galvan, *Two-phase short-term scheduling with renewable energy resources and storage* (in Spanish), September 2013.
5. Néstor González Cabrera, *Pricing reliability service based on end-users' choice* (in Spanish), August 2011.
6. Cecile Tovar Ramírez, *Cournot multiperiod energy market* (in Spanish), July 2011.
7. Giselle Daniela Mendoza Mendoza, *Energy and reserve GenCos' self-scheduling: Real option approach formulation* (in Spanish), August 2010.
8. Raúl Trujillo Ramos, *Monitoring tool for single-side auctions in the electricity spot market* (in Spanish), February 2010.
9. Javier De la Cruz Soto, *Formulation and analysis of fuel contracts acquisition using a supply chain model* (in Spanish), January 2010.
10. Daniel Hernández González, *GenCos' expansion model under uncertainty* (in Spanish), June 2009.
11. Roberto Octavio Estrada Cruz, *Modeling dynamic generation companies' bidding strategies in oligopolistic electricity markets* (in Spanish), December 2008.
12. Eliseo Valmiki Liera Moreno, *GenCos' operative strategies for participating in a day-ahead electricity markets* (in Spanish), October 2007.
13. José Agustín Vidales Vázquez, *Cournot model with forward expectations for designing GenCos' strategies* (in Spanish), April 2007.
14. Alfonso Tzintzun Ornelas, *Analysis and development of methodologies to evaluate transactions costs in distribution systems* (in Spanish), September 2000.

#### PROFESSIONAL DEVELOPMENT (CONSULTANCY):

1. José Horacio Tovar Hernández, **Guillermo Gutiérrez Alcaraz**, Software certifier for the the First Auction of Long-Term Wholesale Mexican Electric Market, December 2015

2. José Horacio Tovar Hernández, **Guillermo Gutiérrez Alcaraz**, Ulises Tovar Ramírez, *Determination of the Transmission Performance Metrics of Regional Power System of America Central (in Spanish)*, January 2012.
3. José Horacio Tovar Hernández, **Guillermo Gutiérrez Alcaraz**, Vicente Venegas Rebollar, *Software for Calculating Distribution System Overhead Lines and Underground Cables Electric Parameters (in Spanish)*, Comisión Federal de Electricidad, Departamento Divisional de Planeación, División Sureste, August 2006.
4. **Guillermo Gutiérrez Alcaraz**, José Horacio Tovar Hernández, *Tool for Planning Studies of Transmission and Sub-Transmission Systems (in Spanish)*, Comisión Federal de Electricidad, Departamento Divisional de Planeación, División Sureste, February 2000.
5. Ricardo Mota Palomino, José Horacio Tovar Hernández, Víctor Campos Lara, **Guillermo Gutiérrez Alcaraz**, Juan Ignacio Gallegos, *Auxiliary Model to Calculate Transmission Services Cost (in Spanish)*, Comisión Reguladora de Energía de Honduras, Honduras, October 1998.
6. **Guillermo Gutiérrez Alcaraz**, José Horacio Tovar Hernández, Francisco Rivas Dávalos, *Tool to Analyze Unbalanced Distribution Networks (in Spanish)*, Comisión Federal de Electricidad, Departamento Divisional de Planeación, División Centro Occidente, November 1998.
7. Ricardo Mota Palomino, José Horacio Tovar Hernández, Víctor Campos Lara, Jesús González Flores, **Guillermo Gutiérrez Alcaraz**, *Planning of Nicaragua's Electric Utility Transmission Network: Period 1998-2008 (in Spanish)*, May 1998.
8. Ricardo Mota Palomino, Víctor Campos Lara, José Horacio Tovar Hernández, **Guillermo Gutiérrez Alcaraz**, *Assessment to Regional Collaboration: Common Procedures to Calculate the Rate Transmission Losses and Common Procedures to Calculate Wheeling Costs (in Spanish)*, Consejo de Electrificación de América Central, Agencia Canadiense de Desarrollo Internacional, August 1997.
9. Marcelino Madrigal Martínez, José Horacio Tovar Hernández, **Guillermo Gutiérrez Alcaraz**, *Tool for Planning Studies of Distribution Systems (in Spanish)*, Comisión Federal de Electricidad, Departamento Divisional de Planeación, División Centro Occidente, August 1997.