

KITTIPONG METHAPRAYOON

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AREAS OF STRENGTH: Solid background in Power Systems Analysis, Power Systems Economics under deregulated environment. Engineer-In-Training (EIT) certified.

EDUCATION

Doctor of Philosophy in Electrical Engineering	Arlington	TX
The University of Texas at Arlington	4.00/4.00	June 2007
Dissertation: Generation Planning and Market Operation Strategies in the SPP-EIS market Advisor: Professor Wei-Jen Lee		
Master of Science in Electrical Engineering	Arlington	TX
The University of Texas at Arlington	4.00/4.00	Aug 2003
Thesis: Neural Network Based Short Term Load Forecasting for Unit Commitment Scheduling		
Bachelor of Electrical Engineering (2nd class honor award)	Bangkok	Thailand
Department of Electrical Engineering, Chulalongkorn University	3.44/4.00	Apr 2000
Majors in Power System Analysis, Control System Design Senior Project: Robust Controller Synthesis for Flexible Robot Arm		

PROFESSIONAL EXPERIENCES

Market Operations Support Analyst	Dec 2006 – Present
Electric Reliability Council of Texas (ERCOT)	Taylor TX

- Assist Market Analysis and Development in functional and architectural development of ERCOT market
- Conduct analysis of the ERCOT market and propose enhancements to operations process.
- Develop technical computer systems and documentation requirements for Texas nodal project.
- Research Market Participants disputes with the ERCOT market.
- Address Market Participant needs and provide response to Market Participants via Client Service Representatives.
- Maintain and generate market reports. Perform data acquisition from Oracle database through TOAD.
- Develop system integration plan and Monitor system interfaces.
- Generate and review presentation material for Market Participants and board meetings.
- Propose new solutions for data acquisition and reporting.
- Provide technical assistance to PUCT, Legal, Settlements, Credit, and Client Representatives.

Graduate Research and Teaching Assistant	Sep 2003 – Dec 2006
Energy Systems Research Center (ESRC), University of Texas at Arlington	Arlington TX

Software Development

- Develop generation planning application considering market component for scheduling, trading, and settlement of SPP-EIS market. Software development using Oracle DBMS, C++ core engine, and VB.NET interface.

- Develop artificial neural network based multiple regional short-term load forecaster in VC++ for Western Farmer Electric Cooperatives, OK. The application achieves MAPE less than 3% and 2% for Day-Ahead and Hourly-Adjustment forecast.
- Develop 10-min based artificial neural network wind forecast application for 75 MW wind farm projects connected to SPP system at Lawton City, OK.

Power System Reliability Project

- Perform system reliability index comparison between zonal and nodal system model using system decomposition method.

Congestion Management Project

- Simulate FTR bid/offer clearing under pool-based system operation using LP solver in Excel.
- Study the system restructuring and electricity pricing of Thailand electric supply industry under proposed deregulation environment in 2002.

Teaching Experiences

- Teaching assistant in power system analysis and machinery courses at UTA

Practical Training Summer Internship

Jun 2003 – Aug 2003

Western Farmers Electric Cooperative (WFEC)

Anadarko OK

- Develop artificial neural network based short-term load forecasting program using VC++
- Develop Graphic User Interface (GUI) for load forecast application using VB 6
- Establish the coordination between SCADA/EMS and load forecasting workstation to utilize load forecast information in Unit Commitment module

Graduate Research Assistant

Dec 2001 – May 2003

Energy Systems Research Center (ESRC), University of Texas at Arlington

Arlington TX

Power Pool ISO Project

- Apply OPF feature in the PowerWorld Simulator to calculate Locational Marginal Prices (LMP) and analyze the effectiveness of different congestion management schemes.
- Develop program to trace MW flow contribution for transmission usage cost allocation.

Power Flow and Voltage Stability Study

- Run power flow study; perform system security analysis on the maximum generator angle separation and system operating margin with N-1 contingencies.
- Develop optimal load shedding scheme using ERCOT summer peak 2003 study case.

Transient and Dynamic Stability Study

- Simulate critical clearing time and identify proper location to install Power System Stabilizer for Taiwan Power System using ESRC Power System Transient Stability program
- Perform power flow and transient stability study using PSS/E to evaluate 120 MW wind generation interconnection impact in the Southwest Power Pool.

Protective Relay Design Project

- Develop a program to simulate operating time for a typical inverse-time over-current relay based on the instantaneous fault current level.
- Design three-phase individual controlled Static VAR Compensator (SVC) to perform power factor correction and prevent negative sequence current from entering the generator under the unbalance load situation in the system.

Programmable Logic Controller Design Project

- Develop PLC logic circuit for elevator control and cool mist roof cooling.

AFFILIATION

IEEE member 2007 to present

IEEE student member 2003-2006

Tau Beta Pi engineering honor society member, Texas Eta Chapter 2003

The President of Thai Students Association at UT Arlington 2004-2005

SERVICE

Reviewer for IJPES, IAS magazine, and IEE Proceeding in Generation, Transmission and Distribution.

COMPUTER SKILLS

Programming Languages	Visual C++, Visual Basic, .NET application, MATLAB
Power Systems Applications	PSS/E, PowerWorld, LabVIEW, PCFLO, EMS applications
Database Applications	Oracle, MS SQL Server, MySQL, TOAD
Web Application	XML, Java, ASP, and HTML
Business Application	Microsoft Office (Word, Excel, Power Point)

PUBLICATIONS

Awarded Papers

2006 Prize Paper Award for the Energy Systems Committee

(Award presented at 2007 I&CPS technical conference awards luncheon, Alberta, Canada)

K. Methaprayoon, S. Rasmiddatta, W.J. Lee, J. Liao, R. Ross, "*Multi-Stage Artificial Neural Network Short-term Load Forecasting Engine with Front-End Weather Forecast*", IEEE Industrial and Commercial Power Systems Technical Conference, May 2006

Journal Papers

- J1. K. Methaprayoon, S. Rasmiddatta, W.J. Lee, J. Liao, R. Ross, "*Multi-Stage Artificial Neural Network Short-term Load Forecasting Engine with Front-End Weather Forecast*", paper accepted for IEEE Transactions on Industry Applications.
- J2. K. Methaprayoon, C. Yingvivatanapong, W.J. Lee, J. Liao, "*An Integration of ANN Wind Power Estimation into UC Considering the Forecasting Uncertainty*", paper accepted for IEEE Transactions on Industry Applications.
- J3. C. Chompoo-inwai, C. Yingvivatanapong, K. Methaprayoon, and W.J. Lee, "*Reactive Compensation Techniques to Improve the Ride-Through Capability of Wind Turbine during Disturbance*", IEEE Transactions on Industry Applications, Vol. 41, No. 3, May-June 2005.
- J4. T. Saksornchai, W.J. Lee, K. Methaprayoon, J. Liao, and R. Ross, "*Improve the Unit Commitment Scheduling by Using the Neural Network Based Short-Term Load Forecasting*", IEEE Transactions on Industry Applications, Vol. 41, No. 1, January-February 2005.

Conference Papers

- C1. K. Methaprayoon, S. Rasmiddatta, W.J. Lee, J. Liao, R. Ross, "*Multi-Stage Artificial Neural Network Short-term Load Forecasting Engine with Front-End Weather Forecast*", in Proceedings of 2006 IEEE Industrial and Commercial Power Systems Technical Conference, May 2006.
- C2. M. Sahni, K. Methaprayoon, W.J. Lee, "*A Novel Approach for Arcing Fault Detection for Medium/Low-Voltage Switchgear*", in Proceedings of 2006 IEEE Industrial and Commercial Power Systems Technical Conference, May 2006.

- C3. P. Fuangfoo, C. Chompoo-inwai, K. Methaprayoon, W. Wongsachua, W.J. Lee, "Penetration Level Impact of Wind Powered Generation to Power System Transient Stability," in Proceedings of 38th Annual TSDOS conference, Arlington, TX, September 2005.
- C4. K. Methaprayoon, C. Yingvivanapong, W.J. Lee, J. Liao, "An Integration of ANN Wind Power Estimation into UC Considering the Forecasting Uncertainty", in Proceedings of 2005 IEEE Industrial and Commercial Power Systems Technical Conference, May 2005.
- C5. C. Chompoo-inwai, C. Yingvivanapong, K. Methaprayoon, W.J. Lee, "Reactive Compensation Techniques to Improve the Ride-Through of Induction Generators during Disturbance", in Proceedings of 2004 IEEE Industry Applications Conference, October 2004.
- C6. K. Methaprayoon, D. Chessmore, W.J. Lee., and R.R. Shoults, "Locational Marginal Price Calculation of a Deregulated Power System", 36th Annual TSDOS conference, Arlington, TX, September 2003.
- C7. T. Saksornchai, W.J. Lee, K. Methaprayoon, J. Liao, and R. Ross, "Improve the Unit Commitment Scheduling by Using the Neural Network Based Short-Term Load Forecasting", in Proceedings of IEEE Industrial and Commercial Power System Technical Conference, May 2003.
- C8. K. Methaprayoon, W.J. Lee, P. Didsayabutra, J. Liao, and R. Ross, "Neural Network-Based Short Term Load Forecasting for Unit Commitment Scheduling", in Proceedings of 2003 IEEE Industrial and Commercial Power Systems Technical Conference, May 2003.

REFERENCES: Available upon request