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Dr. Woo specializes in public utility economics, applied microeconomics, and applied finance. With over 20 years of experience in the electricity industry, he has testified and prepared expert testimony for use in regulatory and legal proceedings in California, British Columbia and Ontario. He has also filed declaration for and testified in arbitration in connection to contract dispute. Dr. Woo's current research includes electricity deregulation, procurement, risk management, demand response and rationing, avoided cost estimation, integrated resource planning, value of service reliability, deregulation, and transmission pricing.

ENERGY & ENVIRONMENTAL ECONOMICS, INC. **Senior Partner**

San Francisco, CA
1993-Present

- Published over 80 refereed articles on electricity deregulation, procurement, risk management, pricing, rationing, integrated resource planning, value of service reliability, applied microeconomics, and applied finance. These articles appear in such scholarly journals as *Energy Policy*, *Energy Law Journal*, *The Energy Journal*, *Energy*, *Electricity Journal*, *Resource and Energy Economics*, *Energy Economics*, *IEEE Transactions on Power Systems*, *Water Resources Research*, *Managerial and Decision Economics*, *OMEGA*, *Journal of Regulatory Economics*, *Journal of Public Economics*, *Quarterly Journal of Economics*, *Journal of Economic Psychology*, *Economics Letters*, *Journal of Business Finance and Accounting*, and *Pacific Basin Finance Journal*.
- Recognized by *Who's Who in America*, *Who's Who in Finance and Business*, and *Who's Who in Science and Engineering*, Dr. Woo is an associate editor of *Energy* and their guest editor of a special issue on electricity market reform and deregulation.
- Member of the editorial board of *The Energy Journal* and has served as their guest editor for a special issue on electricity reliability, and a member of the editorial board of *The Open Operational Research Journal*.

CITY UNIVERSITY OF HONG KONG **Associate Professor, Department of Economics and Finance**

Hong Kong, China
1991-1993

- Analyzed the economic impacts of supply shortage on consumers, resulting in a series of publications on water and electricity rationing.
- Performed specification tests of econometric models of stock returns.
- As a consultant, performed marginal costing, demand-side-management evaluation and reliability planning which led to several publications on local integrated resource planning and T&D costing.

ANALYSIS GROUP, INC.
Senior Associate

San Francisco, CA
1987-1991

- Responsible for applied microeconomics, outage cost estimation, reliability planning, and electricity pricing.
- Primary consultant to several utilities for outage cost estimation and reliability differentiation.
- Published extensively in these two areas; articles widely cited by other researchers.
- Performed economic analysis of mergers and acquisition with a primary focus on the anti-trust aspect of market power, with the resulting findings filed with both state and federal courts.

PACIFIC GAS & ELECTRIC COMPANY
Rate Economist

San Francisco, CA
1985-1987

- Revamped PG&E's research on outage cost estimation; findings appear in a special issue of *The Energy Journal* focusing on electricity reliability.
- Participated in PG&E's preparation of the General Rate Cases.

SACRAMENTO MUNICIPAL UTILITIES DISTRICT
Econometrician

Sacramento, CA
1984-1985

- Responsible for demand estimation and load forecasting.
- Results from study guided SMUD's resource planning.

PACIFIC GAS AND ELECTRIC COMPANY
Rate Economist

San Francisco, CA
1982-1984

- Responsible for time-of-use (TOU) demand analysis and TOU pricing mandated by the CPUC.
- Work resulted in a performance award from PG&E and several publications.

CALIFORNIA ENERGY COMISSION
Research Assistant

Sacramento, CA
1978-1982

- Primary author of the life cycle costing model used by the CEC to analyze solar energy and other DSM measures.
- Testified before the CPUC on the economics of solar financing.

Education

University Of California
Ph.D. in Economics

Davis, CA

Queen's University
M.A. in Economics

Kingston, ON

Concordia University
B. Comm. in Economics

Montreal, QB

Languages

Chinese

Citizenship

United States

Refereed Papers

Electricity Deregulation

1. Woo, C.K., I. Horowitz and A. Tishler (2008) "A Critical Assessment of the Macau SAR Government's Proposed Post-2010 Regulatory Regime," *Electricity Journal*, forthcoming.
2. Tishler, A., I. Milstein and C.K. Woo (2008) "Capacity Commitment and Price Volatility in a Competitive Electricity Market," *Energy Economics*, 30, 1625-1647.
3. Tishler, A., J. Newman, I. Spekterman and C.K. Woo (2008) "Assessing the Options for a Competitive Electricity Market in Israel," *Utilities Policy*, 16, 21-29.
4. Tishler, A., I. Milstein and C.K. Woo (2008) "Capacity Commitment and Price Volatility in a Competitive Electricity Market," *Energy Economics*, 30, 1625-1647.
5. Tishler, A., J. Newman, I. Spekterman and C.K. Woo (2008) "Assessing the Options for a Competitive Electricity Market in Israel," *Utilities Policy*, 16, 21-29.
6. Tishler, A. and C.K. Woo (2007) "Is Electricity Deregulation Beneficial to Israel?" *International Journal of Energy Sector Management*, 1(4): 322-341.
7. Woo, C.K., I. Horowitz and A. Tishler (2006) "A Critical Assessment of the Hong Kong Government's Proposed Post-2008 Regulatory Regime for Local Electricity Utilities," *Energy Policy*, 34, 1451-1456. (Lead article)
8. Woo, C.K., A. Olson, I. Horowitz and S. Luk (2006) "Bi-directional Causality in California's Electricity and Natural-Gas Markets," *Energy Policy*, 34:15, 2060-2070.
9. Woo, C.K., M. King, A. Tishler and L.C.H. Chow (2006) "Costs of Electricity Deregulation," *Energy*, 31:6-7, 747-768. (Lead article after Guest Editors' Introduction, one of the 25 most downloaded articles)
10. Tishler, A. and C.K. Woo (2006) "Likely Failure of Electricity Deregulation: Explanation with Application to Israel," *Energy*, 31:6-7, 845-856.
11. Tishler, A., J. Newman, I. Spekterman and C.K. Woo (2006) "Cost-Benefit Analysis of Reforming Israel's Electricity Industry," *Energy Policy*, 34:16, 2442-2454. (Lead article after Guest Editor's Introduction)

12. Woo, C.K., D. Lloyd, R. Karimov and A. Tishler (2003) "Stranded Cost Recovery in Electricity Market Reforms in the US," *Energy*, 28:1, 1-14. (Lead article)
13. Woo, C.K., D. Lloyd and A. Tishler (2003) "Electricity Market Reform Failures: UK, Norway, Alberta and California," *Energy Policy*, 31:11, 1103-1115. (One of the 25 most downloaded articles)
14. Tishler, A., C.K. Woo and D. Lloyd (2002) "Reforming Israel's Electric Sector," *Energy Policy*, 30:4, 347-353.
15. Woo, C.K. (2001) "What Went Wrong in California's Electricity Market?" *Energy*, 26:8, 747-758.
16. Woo, C. K., I. Horowitz and J. Martin (1998) "Reliability Differentiation of Electricity Transmission," *Journal of Regulatory Economics*, 13, 277-292.
17. Woo, C.K., D. Lloyd-Zannetti and I. Horowitz (1997) "Electricity Market Integration in the Pacific Northwest," *The Energy Journal*, 18:3, 75-101.

Electricity Procurement

1. Orans, R., S. Price, J. Williams, C.K. Woo and J. Moore (2007) "A Northern California - British Columbia Partnership for Renewable Energy" *Energy Policy*, 35:8, 3979-3983 (Lead article).
2. Woo, C.K., D. Lloyd and W. Clayton (2006) "Did a Local Distribution Company Procure Prudently during the California Electricity Crisis?" *Energy Policy*, 34:16, 2552-2565.
3. Orans, R., C.K. Woo and W. Clayton (2004) "Benchmarking the Price Reasonableness of a Long-Term Electricity Contract," *Energy Law Journal*, 25:2, 357-383.
4. Woo, C.K., A. Olson and R. Orans (2004) "Benchmarking the Price Reasonableness of an Electricity Tolling Agreement," *Electricity Journal*, 17:5, 65-75. (One of the 25 most downloaded articles)
5. Lloyd, D., C.K. Woo, M. Borden, R. Warrington and C. Baskette (2004) "Competitive Procurement and Internet-based Auction: Electricity Capacity Option," *Electricity Journal*, 17:4, 74-78. (One of the 25 most downloaded articles)
6. Woo, C.K., D. Lloyd, M. Borden, R. Warrington and C. Baskette (2004) "A Robust Internet-Based Auction to Procure Electricity Forwards," *Energy*, 29:1, 1-11. (Lead article)
7. Woo, C.K., M. Borden, R. Warrington and W. Cheng (2003) "Avoiding Overpriced Risk Management: Exploring the Cyber Auction Alternative," *Public Utilities Fortnightly*, 141:2, 30-37.

Electricity Risk Management

1. Woo, C.K., I. Horowitz, A. Olson, B. Horii and C. Baskette (2006) "Efficient Frontiers for Electricity Procurement by an LDC with Multiple Purchase Options," *OMEGA*, 34:1, 70-80.
2. Woo, C.K., A. Olson and I. Horowitz (2006) "Market Efficiency, Cross Hedging and Price Forecasts: California's Natural-Gas Markets," *Energy*, 31, 1290-1304.

3. Woo, C.K., I. Horowitz, B. Horii and R. Karimov (2004) "The Efficient Frontier for Spot and Forward Purchases: An Application to Electricity," *Journal of the Operational Research Society*, 55, 1130-1136.
4. Woo, C.K., R. Karimov and I. Horowitz (2004) "Managing Electricity Procurement Cost and Risk by a Local Distribution Company," *Energy Policy*, 32:5, 635-645.
5. Woo, C.K., I. Horowitz and K. Hoang (2001) "Cross Hedging and Forward-Contract Pricing of Electricity," *Energy Economics*, 23, 1-15. (Lead article and one of the 10 most cited recent papers published in *Energy Economics*, see Tol, R.J.S. and J.P. Weyant (2006) "Energy Economics' most influential papers," *Energy Economics*, 28:4, 405-409)

Demand Response and Capacity Rationing

1. Woo, C.K., E. Kollman, R. Orans, S. Price and B. Horii (2008) "Now that California Has AMI, What Can the State Do with It?" *Energy Policy*, 36, 1366-74.
2. Horowitz, I. and C.K. Woo (2006) "Designing Pareto-Superior Demand-Response Rate Options," *Energy*, 31:6-7, 1040-1051.
3. Hartway, R., S. Price and C.K. Woo (1999) "Smart Meters, Customer Choice and Profitable Time of Use Rate Option," *Energy*, 24, 895-903.
4. Woo, C.K., P. Chow and I. Horowitz (1996) "Optional Real-Time Pricing of Electricity for Industrial Firms," *Pacific Economic Review*, 1:1, 79-92.
5. Woo, C.K., R. Orans, B. Horii and P. Chow (1995) "Pareto-Superior Time-of-Use Rate Option for Industrial Firms," *Economics Letters*, 49, 267-272.
6. Woo, C.K. (1993) "Efficient Electricity Pricing with Self-Rationing: Reply," *Journal of Regulatory Economics*, 5:1, 101-102.
7. Woo, C.K. (1992) "Optimal Electricity Pricing and Capacity Rationing," *Hong Kong Economic Papers*, 22, 1-6.
8. Woo, C.K. (1991) "Capacity Rationing and Fixed Cost Collection," *The Energy Journal*, 12:2, 153-164.
9. Woo, C.K. (1990) "Efficient Electricity Pricing with Self-Rationing," *Journal of Regulatory Economics*, 2:1, 69-81. Reprinted in Rees R. (2006) *The Economics of Public Utilities*, The International Library of Critical Writings in Economics Series 196, Edward Elgar.
10. Woo, C.K. and N. Toyama (1986) "Service Reliability and the Optimal Interruptible Rate Option in Residential Electricity Pricing," *The Energy Journal*, 7:3, 123-136.

Electricity Pricing and Rate Design

1. Woo, C. K., B. Horii and I. Horowitz (2002) "The Hopkinson Tariff Alternative to TOU Rates in the Israel Electric Corporation," *Managerial and Decision Economics*, 23, 9-19.
2. Seeto, D. Q., C.K. Woo and I. Horowitz (2001) "Finessing the Unintended Outcomes of Price-Cap Adjustments: An Electric Utility Multi-Product Perspective," *Energy Policy*, 29:13, 1111-1118.

3. Seeto, D.Q., C. K. Woo and I. Horowitz (1997) "Time-of-Use Rates vs. Hopkinson Tariffs Redux: An Analysis of the Choice of Rate Structures in a Regulated Electricity Distribution Company," *Energy Economics*, 19, 169-185.
4. Horowitz, I., D.Q. Seeto and C.K. Woo (1996) "Ramsey Pricing of Electricity under Unknown Bypass Costs," *The Energy Journal*, 17:2, 59-77.
5. Seeto, D.Q., S.D. He and C.K. Woo (1994) "Pricing Electric Harmonics," *Energy*, 20:7, 617-621.
6. Woo, C.K., B. Hobbs, R. Orans, R. Pupp and B. Horii (1994) "Emission Costs, Customer Bypass and Efficient Pricing of Electricity," *The Energy Journal*, 15:3, 43-54.
7. Orans, R., C.K. Woo, R. Pupp and I. Horowitz (1994) "Demand Side Management and Electric Power Exchange," *Resource and Energy Economics*, 16, 243-254.
8. Woo, C.K. (1988) "Optimal Electricity Rates and Consumption Externality," *Resources and Energy*, 10, 277-292.
9. Woo, C.K. and D.Q. Seeto (1988) "Optimal Off-Peak Incremental Sales Rate in Electricity Pricing," *The Energy Journal*, 9:1, 93-102.
10. Woo, C.K. (1988) "Inefficiency of Avoided Cost Pricing of Cogenerated Power," *The Energy Journal* 9:1, 103-113.
11. Woo, C.K. (1985), "An Application of the Expenditure Function in Electricity Pricing: Optimal Residential Time-of-Use Rate Option," *The Energy Journal*, 6:2, 89-99.

Integrated Resource Planning

1. Heffner, G., C.K. Woo, B. Horii and D. Lloyd-Zannetti (1998) "Variations in Area- and Time-Specific Marginal Capacity Costs of Electricity Distribution," *IEEE Transactions on Power Systems*, PE-493-PWRS-012-1997, 13:2, 560-567.
2. Forte, V.J., R. Pupp, R. Putnam and C.K. Woo (1995) "Using Customer Outage Costs in Electricity Reliability Planning," *Energy*, 20:2, 81-87.
3. Pupp, R., C.K. Woo, R. Orans, B. Horii and G. Heffner (1995) "Load Research and Integrated Local T&D Planning," *Energy*, 20:2, 89-94.
4. Woo, C.K., D. Lloyd-Zannetti, R. Orans, B. Horii and G. Heffner (1995) "Marginal Capacity Costs of Electricity Distribution and Demand for Distributed Generation," *The Energy Journal*, 16:2, 111-130.
5. Woo, C.K., R. Orans, B. Horii, R. Pupp and G. Heffner (1994) "Area- and Time-Specific Marginal Capacity Costs of Electricity Distribution," *Energy*, 19:12, 1213-1218.
6. Orans, R., C.K. Woo and B. Horii (1994) "Targeting Demand Side Management for Electricity Transmission and Distribution Benefits," *Managerial and Decision Economics*, 15, 169-175.
7. Orans, R., C.K. Woo and R.L. Pupp (1994) "Demand Side Management and Electric Power Exchange," *Energy*, 19:1, 63-66.

8. Keane, D.M. and C.K. Woo (1992) "Using Customer Outage Costs to Plan Generation Reliability," *Energy*, 17:9, 823-827.

Value of Service Reliability

1. Woo, C.K. and R.L. Pupp (1992) "Costs of Service Disruptions to Electricity Consumers," *Energy*, 17:2, 109-126.
2. Woo, C.K., R.L. Pupp, R. Mango and T. Flaim (1991) "How Much Do Electricity Consumers Want to Pay for Reliability?" *Energy Systems and Policy*, 15, 145-159.
3. Hartman, R.S., M.J. Doane and C.K. Woo (1990) "Status Quo Bias in the Measurement of Value of Service," *Resources and Energy*, 12, 197-214.
4. Munasinghe, M., C.K. Woo and H.P. Chao (1988) "Guest Editors' Introduction," *Special Electricity Reliability Issue, The Energy Journal*, 9, i-iv.
5. Goett, A.A. D. McFadden and C.K. Woo (1988) "Estimating Residential Value of Service Reliability with Market Research Data," *Special Electricity Reliability Issue, The Energy Journal*, 9, 105-120.
6. Woo, C.K. and K. Train (1988) "The Cost of Electric Power Interruption to Commercial Firms," *Special Electricity Reliability Issue, The Energy Journal*, 9, 161-172.
7. Doane, M.J., R.S. Hartman and C.K. Woo, (1988) "Households' Perceived Value of Electric Power Service Reliability: An Analysis of Contingent Valuation Data," *Special Electricity Reliability Issue, The Energy Journal*, 9, 135-149.
8. Doane, M.J., R.S. Hartman and C.K. Woo, (1988) "Household Preferences of Interruptible Rate Options and the Revealed Value of Service Reliability," *Special Electricity Reliability Issue, The Energy Journal*, 9, 121-134.
9. Keane, D.M., L.S. MacDonald and C.K. Woo (1988) "Estimating Residential Partial Outage Costs with Market Research Data," *Special Electricity Reliability Issue, The Energy Journal*, 9, 151-159.

Applied Microeconomics

1. Woo, C.K., I. Horowitz, S. Luk and A. Lai (2008) "Willingness to Pay and Nuanced Cultural Cues: Evidence from Hong Kong's License-Plate Auction Market" *Journal of Economic Psychology*, 29, 35-53.
2. Woo, C.K., I. Horowitz, S. Luk and A. Lai (2008) "Willingness to Pay and Nuanced Cultural Cues: Evidence from Hong Kong's License-Plate Auction Market" *Journal of Economic Psychology*, 29, 35-53.
3. Woo, C.K. and R.H.F. Kwok (1994) "Vanity, Superstition and Auction Price," *Economics Letters*, 44, 389-395.
4. Woo, C.K. (1994) "Managing Water Supply Shortage: Interruption vs. Pricing," *Journal of Public Economics*, 54, 145-160.
5. Woo, C.K. and K.W.K. Lo (1993) "Factor Supply Interruption, Welfare Loss and Shortage Management," *Resource and Energy Economics*, 15, 339-352.

6. Woo, C.K. (1992) "Drought Management, Service Interruption and Water Pricing: Evidence from Hong Kong," *Water Resources Research*, 28:10, 2591-2595.
7. Hartman, R.S., M.J. Doane and C.K. Woo (1991) "Consumer Rationality and the Status Quo," *Quarterly Journal of Economics*, February, 141-162.
8. Woo, C.K., P. Hanser and N. Toyama (1986) "Estimating Hourly Electric Load with Generalized Least Squares Procedures," *The Energy Journal*, 7:2, 153-170.
9. Woo, C.K. (1985) "Demand for Electricity of Small Nonresidential Customers under Time-of-Use Pricing," *The Energy Journal*, 6:4, 115-127.
10. Woo, C.K. (1984) "A Note on Measuring Household Welfare Effects of Time-of-Use Pricing," *The Energy Journal*, 5:3, 171-181.

Applied Finance

1. Woo, C.K., I. Horowitz, N. Toyama, A. Olson, A. Lai, and R. Wan (2007) "Fundamental Drivers of Electricity Prices in the Pacific Northwest," *Advances in Quantitative Analysis of Finance and Accounting*, 5, 299-323.
2. Woo, C.K., I. Horowitz and K. Hoang (2001) "Cross Hedging and Value at Risk: Wholesale Electricity Forward Contracts," *Advances in Investment Analysis and Portfolio Management*, 8, 283-301.
3. Wong, K.A., C.K. Woo and R.Y.K. Ho (1998) "Macroforecasting Accuracy and Gains from Stock Market Timing," *Research in Finance*, 16, 127-139.
4. Woo, C.K. and Y.L. Cheung (1996) "Specification Tests of A Market Model of Stock Returns," *Advances in Quantitative Finance and Accounting*, 4, 187-194.
5. Woo, C.K., A. Lai and Y.L. Cheung (1995) "Specification Tests of A Market Model of Asia-Pacific Stock Returns: Thailand and Hong Kong," *Journal of Business Finance and Accounting*, 22:3, 363-375.
6. Woo, C.K., Y.L. Cheung and R.Y.K. Ho (1994) "Endogeneity Bias in Beta Estimation: Thailand and Hong Kong," *Pacific-Basin Finance Journal*, 2, 453-461.
7. Ho, R.Y.K., Z. Fang and C.K. Woo (1992) "Intraday Arbitrage Opportunities and Price Behavior of Hang Seng Index Futures," *The Review of Futures Markets*, 11:3, 413-430.
8. Fang, Z. and C.K. Woo (1991) "Two Factor Model for Bond Selection," *Economics Letters*, 37, 417-421.

Research

Special issues

1. Woo, C.K., L.C.H. Chow and N. Lior, editors (2006) *Special Issue on Electricity Market Reform and Deregulation*, *Energy*, 31:6-7.

2. *Munasinghe, M., C.K. Woo and H.P. Chao, editors (1988) Special Electricity Reliability Issue, The Energy Journal, 9.*

Research Reports

1. *Herter, K. and C.K. Woo (2006) Residential Demand Response Evaluation Scoping Study, LBNL Report-61090, report submitted to Demand Response Research Center, Lawrence Berkeley National Laboratory.*
2. *Woo, C.K. (2005) Should Hong Kong Reform its Electricity Sector? report submitted to The Real Estate Developers Association of Hong Kong.*
3. *Woo, C.K. and M. King (2004) Costs of Electricity Deregulation and Implications for Israel, report submitted to Israel Electric Corporation.*
4. *Woo, C.K. and D. Lloyd (2001) Stranded Cost Recovery in Electricity Market Reforms, report submitted to Israel Electric Corporation.*
5. *Woo, C.K. and D. Lloyd (2001) Assessment of the Peak Benefit Multiplier Effect: (a) Economic Theory and Statistical Specification; and (b) Theory, Estimation and Results, reports submitted to Pacific Gas and Electric Company.*
6. *Horii, B., C.K. Woo and D. Engel (2000) PY2001 Public Purpose Program Strategy and Filing Assistance: (a) A New Methodology for Cost-Effectiveness Evaluation; (b) Peak Benefit Evaluation; (c) Screening Methodology for Customer Energy Management Programs; and (d) Should California Ratepayers Fund Programs that Promote Consumer Purchases of Cost-Effective Energy Efficient Goods and Services? reports submitted to Pacific Gas and Electric Company.*
7. *Tishler, A., C.K. Woo and D. Lloyd (2000) Reforming Israel's Electric Sector: Choices for Change, position paper submitted to Israel Electric Corporation.*
8. *Woo, C.K. and K. Hoang (1999) Cross Hedging and Risk Premium, report submitted to Ontario Power Generation Inc.*
9. *Woo, C.K. and B. Horii (1999) Should Israel Electric Corporation (IEC) Replace Its Industrial Time of Use Energy Rates with A Hopkinson Tariff? report prepared for Israel Electric Corporation.*
10. *Lloyd-Zannetti D. and C.K. Woo (1997) Wheeling Charges for Transmission Service, report prepared for Israel Electric Corporation.*
11. *Lloyd-Zannetti D. and C.K. Woo (1997) Capacity Shortage and Profitable Rate Options, report prepared for Israel Electric Corporation.*
12. *Lloyd-Zannetti, D., B. Horii, J. Martin, S. Price and C.K. Woo (1996) Profitability Primer: A Guide to Profitability Analysis in the Electric Power Industry, Report No. TR-106569, Electric Power Research Institute.*
13. *Woo, C.K. (1996) Electricity Market Integration in the Western Interconnection, prepared for British Columbia Power Exchange Corporation (Powerex).*
14. *Woo, C.K. and R. Orans (1996) Transmission: Spot Price, Reliability Differentiation and Investment, report submitted to Ontario Hydro.*

15. Orans, R., C.K. Woo and B. Horii (1995) *Impact of Market Structure and Pricing Options on Customers' Bills*, report submitted to B.C. Hydro.
16. Woo, C.K., L. Woo and R. Orans (1995) *Rationing and Area-Specific Generation Costs*, report submitted to Pacific Gas and Electric Company.
17. Woo, C.K., D. Lloyd-Zannetti and L. Woo (1994) *Using Residual Emissions Adders in Electricity Ratemaking*, report submitted to Pacific Gas and Electric Company.
18. Orans, R., C.K. Woo and C. Greenwell (1994) *Designing Profitable Rate Options Using Area- and Time-Specific Costs*, Report No. TR-104375, Electric Power Research Institute.
19. Orans, R. and C.K. Woo (1992) *Marginal Cost Disaggregation Study*, report submitted to Wisconsin Electric Power Corporation.
20. Orans, R., C.K. Woo, J.N. Swisher, B. Wiersma and B. Horii (1992) *Targeting DSM for Transmission and Distribution Benefits: A Case Study of PG&E's Delta District*, Report No. TR-100487, Electric Power Research Institute.
21. Pupp, R. and C.K. Woo (1991) *Integrating Customer Outage Costs in Electricity Reliability Planning*, report submitted to Niagara Mohawk Power Corporation.
22. Woo, C.K., R.L. Pupp and D. Glycer (1991) *Voluntary Interruptible Pricing Program (VIP): An Integrated Approach to Electricity Reliability Pricing*, report submitted to Niagara Mohawk Power Corporation. Also in Caves, D.W. and D. Glycer (1992), *Designing an Integrated Menu of Electric Service Options*, Electric Power Research Institute Report TR-100523, Appendix B.
23. Doane, M.J., G. McClland, W. Schulze and C.K. Woo (1990) *Industrial Outage Cost Survey*, report submitted to Niagara Mohawk Power Corporation.
24. Doane, M.J., G. McClland, W. Schulze and C.K. Woo (1990) *Residential Outage Cost Survey*, report submitted to Niagara Mohawk Power Corporation.
25. Doane, M.J. and C.K. Woo (1988) *An Analysis of Customer Subscription to PG&E's Interruptible and Curtailable Rates*, report submitted to Pacific Gas and Electric Company.
26. Woo, C.K. (1988) *Recent Contributions to Customer Outage Cost Estimation*, report submitted to Israel Models Limited.
27. Doane, M.J. R.S. Hartman, W. Schulze and C.K. Woo (1988) *Recommended Approach for Collecting Data on Outage Cost and Value of Service Reliability*, report submitted to Niagara Mohawk Power Corporation.
28. Woo, C.K. (1987) *Review of Existing NMPC Procedures for Collecting Data on Outage Cost and Value of Service Reliability*, report submitted to Niagara Mohawk Power Corporation.
29. Woo, C.K., (1987) *Recent Contributions to the Theory and Measurement of Customer Value of Service Reliability*, report submitted to Niagara Mohawk Power Corporation.
30. Woo, C.K. (1984) *Residential Time of Use Program - First and Second Semi-Annual Reports*, Pacific Gas and Electric Company Reports filed with the California Public Utilities Commission.
31. Woo, C.K. (1983) *A-20 Small Commercial Time of Use Experiment*, Pacific Gas and Electric Company Reports filed with the California Public Utilities Commission.

32. Woo, C.K. and R. Orans (1983) *Transferability of Other Utilities' Time of Use Experiments to PG&E's Service Schedule D-7*, Pacific Gas and Electric Company Report filed with the California Public Utilities Commission.

Conference Papers

1. Tishler, A. and C.K. Woo (2005) "Why is electricity deregulation likely to fail in Israel?" 25th USAEE/IAEE North American Conference, Denver Colorado.
2. Woo, C K, Karimov, R I and Lloyd, D (2003) "Did a Local Distribution Company Procure Prudently during the California Electricity Crisis?" International Conference on Energy Market Reform: Issues and Problems, Hong Kong, August 25-26.
3. Seeto, D. and C.K. Woo (1995) "Time-of-Use Rates vs. Hopkinson Tariffs in Electricity Pricing," Rutgers University Advanced Workshop in Regulation and Public Utilities Economics, 8th Annual Western Conference, July 5-7, San Diego, California.
4. Seeto, D., S.D. He and C.K. Woo (1994) "Regulatory Perspectives of the Harmonics Problem: Pricing Electric Harmonics," 1994 IEEE Summer Power Engineering Society Meeting, July 24-29, San Francisco, California.
5. Seeto, D. and C.K. Woo (1994) "Practical Ramsey Pricing of Electricity and Customer Bypass under Regulation," Rutgers University Advanced Workshop in Regulation and Public Utilities Economics, 7th Annual Western Conference, July 6-8, San Diego, California.
6. Orans, R., C.K. Woo, B. Horii and R. Pupp (1994) "Estimation and Applications of Area- and Time-Specific Marginal Capacity Costs," Proceedings: 1994 Innovative Electricity Pricing, (February 9-11, Tampa, Florida) Electric Research Power Institute, Report TR-103629, 306-315.
7. Heffner, G., R. Orans, C.K. Woo, B. Horii and R. Pupp (1993) "Estimating Area Load and DSM Impact by Customer Class and End-Use," Western Load Research Association Conference, September 22-24, San Diego, California; and Electric Power Research Institute CEED Conference, October 27-29, St. Louis, Missouri.
8. Woo, C.K. (1992) "Drought Management: Service Interruption," International Conference on Economics and Government, September 1-4, Gold Coast, Australia.
9. Woo, C.K. (1991) "Local Electric Service Reliability as a Public Good," 14th International Association of Energy Economists (IAEE) Conference, East-West Center, Hawaii.
10. Keane, D.M. and C.K. Woo (1991) "Using Customer Outage Costs to Plan Generation Reliability," 14th International Association of Energy Economists (IAEE) Conference, East-West Center, Hawaii.
11. Woo, C.K. (1990) "Outage Costs as Design Criteria for Product Differentiation," New Service Opportunities for Electric Utilities: Creating Differentiated Products, Symposium sponsored by Electric Power Research Institute and University of California, Berkeley.
12. Woo, C.K. (1988) "Recent Contributions to Customer Outage Cost Estimation," Invited Lecture at Workshop on Energy Load Management, Israel Ministry of Energy and Infrastructure.
13. Woo, C.K., B.M. Gray and M.E. Carl (1987) "Residential Air Conditioning Load Model," 8th International Association of Energy Economists (IAEE) Conference, MIT.

14. Woo, C.K., (1987) *"Fixed Cost Recovery under Competition in Electricity Pricing," 8th International Association of Energy Economists (IAEE) Conference, MIT.*

Invited lectures

1. *"Renewable Portfolio Standards, Electricity Pricing and Energy Efficiency" Keynote Speech, Conference of the Electric Power Supply Industry (CEPSI) October 27-31, 2008 Macau.*
2. *"A Critical Assessment of the Hong Kong Government's Proposed Post-2008 Regulatory Regime for Local Electricity Utilities," Elizabeth Chan Cheng E-Lay Geography Academic Seminar, March 16, 2006, Hong Kong Baptist University.*
3. *"Israeli Reform," Electricity Industry Reform in Small Markets – Lessons for Hong Kong: Lunch and Seminar, October 12, 2004, sponsored by Hong Kong Electric Company, UBS, and Malleasons Stephen Jaques.*
4. *"Recent Contributions to Customer Outage Cost Estimation," Workshop on Energy Load Management, July 1988, Israel Ministry of Energy and Infrastructure.*

Testimony

1. *Woo, C.K. (2004) Electricity Price Forecast: 2001-2030, and Response to Rebuttal Testimony of William A. Mosen; In the Matter of the Application for Reduction of Assessment of Geysers Power Company, LLC, Sonoma County Assessment Appeals Board, Application Nos.: 01/01-137 through 157.*
2. *Woo, C.K. (2004) Declaration of Dr. C.K. Woo in support of Micrel Inc.'s final offer: Micrel Inc. v. Chevron Energy Solutions, LP.*
3. *Woo, C.K. (2002) Rebuttal Testimony filed on the behalf of Southern California Water Company before the California Public Utilities Commission.*
4. *Woo, C.K. and P.D. Ferguson (1999) Comments on the Ontario Energy Board Staff's Draft Electric Distribution Rate Handbook, report submitted to Ontario Energy Board on the behalf of The Upper Canada Energy Alliance.*
5. *Woo, C.K. (1996) Direct Testimony, Industrial Service Options Application, prepared for B.C. Hydro.*
6. *Woo, C.K. (1996) Rebuttal Testimony Presenting an Analysis of the Use of Class-based Value of Service for Marginal Generation Capacity Costs, filed with California Public Utilities Commission for Pacific Gas Electric Company's 1996 General Rate Case.*
7. *Woo, C.K. (1979) Economics of Solar Financing, Order Instituting Investigation 42 Testimony submitted to the California Public Utilities Commission for the California Energy Commission.*

Book Reviews

1. Woo, C.K. (2007) "Book Review: *Agile Energy Systems: Global Lessons from the California Energy Crisis* by W.W. Clark II and T.K. Bradshaw," *Energy*, 32, 871.
2. Woo, C.K. (2005) "Book Review: *Electricity Reform in China, India and Russia* by Xu Yi-chong," *Energy Studies Review*, 13:2, 148-149.
3. Woo, C.K. (2004) "Book Review: *Reforming the Power Sector in Africa* edited by M.R. Bhagavan," *Energy*, 29, 1231-1232.