

# Brian Horii

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***Mr. Horii is one of the founding partners of Energy and Environmental Economics, Inc (E3). The firm has three main practice areas: litigation support, utility planning and business restructuring. Mr. Horii is a lead in the utility planning practice for E3, and a lead in quantitative methods for the firm. Mr. Horii is an expert in utility costing, utility rates, local integrated resource planning, generation system valuation and forecasting, decentralized energy systems, and energy efficiency. He has testified and prepared expert testimony for use in regulatory proceedings in California, Texas, Vermont, British Columbia, and Ontario Canada. Mr. Horii has also designed and implemented numerous computer models used in regulatory proceedings, litigation, utility planning, utility requests for resource additions, and utility operations.***

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

San Francisco, CA  
1993-Present

- **Market Issues.** Created the software used by BC Hydro to evaluate individual plants and portfolios tendered in the RFP for supplying power to Vancouver Island. Designed the hourly generation dispatch and spinning reserve model used by El Paso Electric to simulate plant operations and determine value-sharing payments. Evaluated the sale value of hydroelectric assets in the Western United States. Determined the impact of net vs. gross billing for transmission services on transmission congestion in Ontario and the revenue impact for Ontario Power Generation. Provided auction bid values for California Fossil plants under deregulation. Simulated bilateral trading decisions in an open access market; analyzed market segments for micro generation options under unbundled rate scenarios; forecasted stranded asset risk and recovery for North American utilities; and created unbundled rate forecasts. Other work in the area includes: teaching courses on profitability analysis for EPRI; performing customer market segmentation studies for PG&E and Ontario Hydro; designing a comprehensive billing and information management system for a major ESP operating in California; and testifying before the British Columbia Public Utilities Commission on electric market restructuring.
- **Distributed Resource and Greenhouse Gas Evaluations.** Coauthor of the avoided cost methodology adopted by the California CPUC for use in evaluating energy efficiency programs. Author of the "E3 Calculator" tool used by the IOUs and third parties to evaluate \$2 billion in energy efficiency programs for the 2006-2008 cycle. Author of the E3 "GHG Calculator" tool used by the CPUC and California Energy Commission for evaluation of electricity sector greenhouse gas emissions and tradeoffs. Reviewed and revised local area load forecasting methods for PG&E, Puget Sound Energy, and Orange and Rockland Utilities. Authored numerous Local Integrated Resource Planning studies for North American utilities. Was a principal investigator for the 1992 EPRI report, *Targeting DSM for Transmission and Distribution Benefits: A Case Study of PG&E's Delta District*, one of the first reports to focus on demand-side alternatives to traditional wires expansion projects. Recent work in New York also required E3 to work with the New York State Public Service Commission to define the appropriate marginal cost methodologies (including consideration of environmental and customer value of service) and the appropriate cost tests.
- **Utility Costing and Planning.** Designed standard and innovate electric utility rate options for utilities the United States, Canada, and the Middle East. Authored sections on marginal costing, ratemaking trends and rate forecasting for the California Energy Commission's investigation into the revision of building performance standards to effect improvements in resource consumption and investment decisions. Authored testimony for BC Hydro on Bulk Transmission Incremental Costs (1997). Principal author of B.C. Hydro's *System Incremental Cost Study 1994 Update (With Regional Results Appendix)*. Performed detailed market segmentation study for Ontario Hydro under both embedded and marginal costs. Areas of expertise include marginal cost based revenue allocation and rate design, estimation of

area and time specific marginal costs; incorporation of customer outage costs into planning criteria, and dynamic Distribution Resource evaluation to evaluate the potential local-area benefits of targeted DSM and modular generation.

- **Time Dependant Valuation of Building Energy Efficiency.** E3's co-lead in the revision of the California Title-24 building standards to reflect how the value of energy usage reductions can vary by season and time of day. The investigation included a review of extant utility and CEC marginal cost and pricing methods and forecast, and resulted in a new evaluation framework adopted by the CEC Commissioners for the 2005 Standards. Current work in the area includes enhancements to the methodology to appropriately value demand response programs under both economic and emergency dispatch scenarios.
- **Past and present clients include:** B.C. Hydro, California Energy Commission, Centerior, Central and Southwest Services, Central Power and Light Company, Commonwealth Edison, Consolidated Edison, El Paso Electric Company, EPRI, Hawaii Electric Company, Kansas City Power and Light, National Renewable Energy Laboratory, New York State Electric and Gas, Ontario Hydro, Orange and Rockland Utilities, PG&E, Public Service Oklahoma, Puget Sound Energy, Semptra, Southern California Edison Company, Tennessee Valley Authority, and Wisconsin Electric Power Company.

## **PACIFIC GAS & ELECTRIC**

***Project Manager, Supervisor of Electric Rates***

San Francisco, CA

1987-1993

- Managed and provided technical support to PG&E's investigation into the Distributed Utilities (DU) concept. The projects included an assessment of the potential for DU devices at PG&E, an analysis of the loading patterns on PG&E's 3000 feeders, and formulation of the modeling issues surrounding the integration of Generation, Transmission, and Distribution planning models.
- Served as PG&E's expert witness on revenue allocation and rate design in testimonies before the California Public Utilities Commission (CPUC). Was instrumental in getting PG&E's area-specific loads and costs adopted by the CPUC. and extending their application to cost effectiveness analyses of DSM programs. Additional analytical work included creating interactive negotiation analysis programs, and forecasting electric rates trends for short-term planning.

## **INDEPENDENT CONSULTING**

***Consultant***

San Francisco, CA

1989-1993

- Helped developed methodology for evaluating the cost-effectiveness of decentralized generation systems for relieving local distribution constraints, and created a model for determining the least cost expansion of local transmission and distribution facilities integrated with area-specific DSM incentive programs. Co-authored The Delta Report for PG&E and EPRI which examined the targeting of DSM measures to defer the expansion of local distribution facilities.

## **Education**

**Stanford University**

***M.S., Civil Engineering and Environmental Planning***

Palo Alto, CA

1987

**Stanford University**

***B.S., Civil Engineering***

Palo Alto, CA

1986

## Citizenship

United States

## Refereed Papers

1. Woo, C.K., B. Horii, M. Chait and I. Horowitz (2008) "Should a Lower Discount Rate be Used for Evaluating a Tolling Agreement than Used for a Renewable Energy Contract?" *Electricity Journal*, 21:9, 35-40.
2. 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.
3. Baskette, C., B. Horii, E Kollman, and S. Price (2006) "Avoided cost estimation and post reform funding allocation for California's energy efficiency programs," *Energy* 31, (2006) 1084-1099.
4. Woo, C.K., I. Horowitz, A. Olson, B. Horii and C. Baskette (2004) "Efficient Frontiers for Electricity Procurement by an LDC with Multiple Purchase Options," *OMEGA* 34, (2006) 70-80.
5. 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.
6. 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.
7. Chow, R.F., Horii, B., Orans, R. et. al. (1995), *Local Integrated Resource Planning of a Large Load Supply System*, Canadian Electrical Association.
8. 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.
9. Woo, C.K., B. Hobbs, Orans, R. Pupp and B. Horii (1994), "Emission Costs, Customer Bypass and Efficient Pricing of Electricity," *Energy Journal*, 15:3, 43-54.
10. Pupp, R., C.K.Woo, R. Orans, B. Horii, and G. Heffner (1995), "Load Research and Integrated Local T&D Planning," *Energy - The International Journal*, 20:2, 89-94.
11. Woo, C.K., R. Orans, B. Horii, R. Pupp and G. Heffner (1994), "Area- and Time-Specific Marginal Capacity Costs of Electricity Distribution," *Energy - The International Journal*, 19:12, 1213-1218.
12. 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.

## Research Reports and Filed Testimony

1. Horii, B., P. Auclair, E. Cutter, and J. Moore (2006) *Local Integrated Resource Planning Study: PG&E's Windsor Area*, Report prepared for PG&E.

2. Horii, B., R. Orans, A. Olsen, S. Price and J Hirsch (2006) *Report on 2006 Update to Avoided Costs and E3 Calculator*, Prepared for the California Public Utilities Commission.
3. Horii, B., (2005) *Joint Utility Report Summarizing Workshops on Avoided Costs Inputs and the E3 Calculator*, Primary author of testimony filed before the California Public Utilities Commission.
4. Horii, B., R. Orans, and E. Cutter (2005) *HELCO Residential Rate Design Investigation*, Report prepared for Hawaiian Electric and Light Company.
5. Orans, R., C.K. Woo, and B. Horii (2004-2005) *PG&E Generation Marginal Costs, Direct and rebuttal testimonies submitted to the California Public Utilities Commission on behalf of PG&E.*
6. Orans, R., C.K. Woo, B. Horii, S. Price, A. Olson, C. Baskette, and J Swisher (2004) *Methodology and Forecast of Long Term Avoided Costs for the Evaluation of California Energy Efficiency Programs*, Report prepared for the California Public Utilities Commission.
7. Orans, R, B. Horii, A. Olson, M. Kin, (2004) *Electric Reliability Primer*, Report prepared for B.C. Hydro and Power Authority.
8. Horii, B., T. Chu (2004) *Long-Run Incremental Cost Update – 2006/2005*, Report prepared for B.C. Hydro and Power Authority.
9. Price, S., B. Horii (2001) *Chelsea and E. 13<sup>th</sup> Street / East River Evaluation*, Local integrated resource planning study prepared for Consolidated Edison Company of New York.
10. Horii, B., C.K. Woo, and S. Price (2001) *Local Integrated Resource Planning Study for the North of San Mateo Study Area*, Report prepared for PG&E.
11. 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.
12. Horii, B. (2000) *Small Area Forecasting Process and Documentation*, Report prepared for Puget Sound Energy Company.
13. Price S., B. Horii, and K. Knapp (2000) *Rainey to East 75<sup>th</sup> Project – Distributed Resource Screening Study*, Report prepared for Consolidated Edison Company of New York.
14. Mahone, D., J. McHugh, B. Horii, S. Price, C. Eley, and B. Wilcox (1999) *Dollar-Based Performance Standards for Building Energy Efficiency*, Report submitted to PG&E for the California Energy Commission.
15. Horii, B., J. Martin (1999) *Report to the Alaska Legislature on Restructuring*, E3 prepared the forecasts of market prices and stakeholder impacts used in this CH2M Hill report.
16. Horii, B., S. Price, G. Ball, R. Dugan (1999) *Local Integrated Resource Planning Study for PG&E's Tri-Valley Area*, Report prepared for PG&E.
17. 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 IEC.

18. B. Horii, J. Martin, Khoa Hoang, (1996), *Capacity Costing Spreadsheet: Application of Incremental Costs to Local Investment Plans*, Report and software forthcoming from the Electric Power Research Institute.
19. Lloyd-Zanetti, 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.
20. Horii B., (1996) *Customer Reclassification Study*, Report Submitted to Ontario Hydro.
21. Horii, B., Orans, R., Woo, C.K., (1995) *Area- and Time- Specific Marginal Cost and Targeted DSM Study*, Report submitted to PSI Energy.
22. Horii, B., Orans, R., Woo, C.K., (1995) *Local Integrated Resource Planning Study - White Rock*, Report submitted to B.C. Hydro.
23. Horii, B., Orans, R., Woo, C.K., (1995) *Area- and Time- Specific Marginal Cost Study*, Report submitted to B.C. Hydro.
24. 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.
25. Horii, B., R. Orans (1995), *System Incremental Cost Study 1994 Update (With Regional Results Appendix)*, Report submitted to B.C. Hydro.
26. Horii, B., Orans, R., Woo, C.K., (1994) *Marginal Cost Disaggregation Study*, Report submitted to PSI Energy.
27. 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.
28. Horii, B., (1991) *Pacific Gas and Electric Company 1993 General Rate Case Application (eight exhibits within Phase I, and contributions to five exhibits within Phase II)*, A. 91-11-036, Submitted to the California Public Utilities Commission.
29. Horii, B., (1991) *Pacific Gas and Electric Company 1991 Electricity Cost Adjustment Clause Application (Revenue Allocation and Rate Design)*, Submitted to the California Public Utilities Commission.

## Conference Papers

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. Horii, B., (1995), "Final Results for the NMPC Area Costing and Distributed Resource Study," *Proceedings Distributed Resources 1995: EPRI's First Annual Distributed Resources Conference*, Electric Research Power Institute, August 29-31, 1995, Kansas City, Missouri

3. 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.
4. 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.*